

UNIT 1 Principles of Nursing Practice

Case Study

EDUCATING OLDER ADULTS TO NAVIGATE THEIR ELECTRONIC HEALTH RECORDS



You are a nurse working in a community health center that provides services for older adults. A recent needs assessment indicates that patrons of the health center are underutilizing electronic resources available to them. Furthermore, these

individuals need education about resources such as their electronic health records (EHRs) including how to access, maintain, and utilize this tool. EHRs enable patients to be more aware and have better control over their health management. You implement a plan for educating older adults in the community on this technology. The main goal of this project is to empower older adults to easily access their own EHRs and manage their appointments, medications, and follow-up visits. An additional goal is that use of this technology will enable patients, families, and communities to have up-to-date information and increased access to health-related resources.

QSEN Competency Focus: **Patient-Centered Care**

The complexities inherent in today's health care system challenge nurses to demonstrate integration of specific interdisciplinary core competencies. These competencies are aimed at ensuring the delivery of safe, quality patient care (Institute of Medicine, 2003). The Quality and Safety Education for Nurses project (Cronenwett, Sherwood, Barnsteiner, et al., 2007; QSEN, 2020) provides a framework for the knowledge, skills, and attitudes (KSAs) required for nurses to demonstrate competency in these key areas, which include **patient-centered care, interdisciplinary teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics**.

Patient-Centered Care Definition: Recognize the patient or designee as the source of control and full partner in providing compassionate and coordinated care based on respect for patient's preferences, values, and needs.

SELECT PRE-LICENSURE KSAs

APPLICATION AND REFLECTION

Knowledge

Describe strategies to empower patients or families in all aspects of the health care process

How does providing access to patient information empower patients, families, and communities to manage their health? What are the advantages to having immediate access to patient information?

Skills

Engage patients or designated surrogates in active partnerships that promote health, safety and well-being, and self-care management

What is the responsibility of the nurse in helping patients navigate their EHR?
Discuss how you would advocate for patients so they have the resources to access, understand, and utilize their EHR.

Attitudes

Seek learning opportunities with patients who represent all aspects of human diversity

Think about your own experience and training with patients, families, and communities that have technology barriers. Why is it important for nurses to provide opportunities to patients, families, and communities of diverse backgrounds about the use of technology to access information?

Cronenwett, L., Sherwood, G., Barnsteiner, J., et al. (2007). Quality and safety education for nurses. *Nursing Outlook*, 55(3), 122–131; Institute of Medicine. (2003). *Health professions education: A bridge to quality*. Washington, DC: National Academies Press; QSEN Institute. (2020). *QSEN competencies: Definitions and pre-licensure KSAs; Patient-centered care*. Retrieved on 8/15/2020 at: qsen.org/competencies/pre-licensure-ksas/#patient-centered_care

1 Professional Nursing Practice

LEARNING OUTCOMES

On completion of this chapter, the learner will be able to:

1. Define nursing, patient, health, wellness, health promotion, and health care.
2. Describe salient influences on the delivery of health care.
3. Discuss practices that improve quality and safety and ensure the use of evidence-based practices within the health care system.
4. Discuss behavioral competencies and characteristics of professional nursing practice and the nurse's role as a collaborative member of the interprofessional health care team.
5. Define the characteristics of critical thinking, the critical thinking process, and clinical decision making.
6. Describe the components of the nursing process.
7. Identify strategies that can be implemented in ethical decision making.

NURSING CONCEPTS

Accountability
Advocacy
Assessment
Caring
Clinical Decision Making
Collaboration
Critical Thinking
Ethics
Evidence-Based Practice
Health Care Systems
Health Policy
Health Promotion
Informatics
Legal Issues
Nursing Process
Quality Improvement
Safety

GLOSSARY

- assessment:** the systematic collection of data, through interview, observation, and examination, to determine the patient's health status and any actual or potential problems
- bundle:** a set of three to five evidence-based practices that, when implemented appropriately, can measurably improve patient outcomes
- critical thinking:** a cognitive process that utilizes thinking that is purposeful, insightful, reflective, and goal directed to develop conclusions, solutions, and alternatives that are appropriate to the given solution
- ethics:** the formal, systematic process used to understand, analyze, and evaluate decisions regarding matters of right and wrong as they apply to well-being
- evaluation:** determination of the patient's response to nursing interventions and the extent to which the outcomes have been achieved
- evidence-based practice (EBP):** a best practice derived from valid and reliable research studies that also considers the health care setting, patient preferences and values, and clinical judgment
- health:** according to the World Health Organization (2006), a "state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity" (p. 1)
- health informatics:** the use of health information technology to improve the quality, efficiency, or delivery of health care
- health promotion:** focuses on the potential for wellness and targets appropriate alterations in personal habits, lifestyle, and environment in ways that reduce risks and enhance health and well-being
- implementation:** actualization or carrying out of the nursing plan of care through nursing interventions
- interprofessional collaborative practice:** employing multiple health professionals to work together with patients, families, and communities to deliver best practices, thus ensuring best patient outcomes
- morality:** specific beliefs or actions whose outcomes are often examined utilizing the principles of autonomy, beneficence, nonmaleficence, double effect, and distributive justice
- moral dilemma:** situation in which two or more ethically plausible principles are in opposition to each other and only one may be chosen
- moral distress:** internal response that occurs when a health care provider believes they inherently know the correct ethical action that is needed but cannot act on that knowledge
- moral integrity:** virtue composed of veracity, fidelity, benevolence, wisdom, and moral courage
- moral problem:** competing moral claim or principle; one principle is clearly dominant

moral uncertainty: internal conflict that arises when the person cannot define what the moral situation is or what moral principles apply but has a strong feeling that something is not right

nursing: according to the American Nurses Association (2015b), “the protection, promotion, and optimization of health and abilities, prevention of illness and injury, facilitation of healing, alleviation of suffering through the diagnosis and treatment of human response, and advocacy in the care of individuals, families, groups, communities, and populations” (p. 1)

nursing diagnosis: a clinical judgment concerning a person’s, family’s, or community’s actual or potential health problems, state of health promotion, or potential risk that can be managed by independent nursing interventions

nursing process: a systematic, problem-solving approach for meeting people’s health care and nursing needs; components involve assessment, diagnosis, planning, implementation, and evaluation

patient: a traditional term used to identify someone who is a recipient of health care

planning: development of measurable goals and outcomes as well as a plan of care designed to assist the patient in resolving the diagnosed problems and achieving the identified goals and outcomes

precision medicine: using advances in research, technology, and policies to develop individualized plans of care to prevent and treat disease

Quality and Safety Education for Nurses (QSEN): a project whose aim is to develop curricula that prepare future nurses with the knowledge, skills, and attitudes (KSA) required to continuously improve the quality and safety of the health care system through demonstrating competency in patient-centered care, teamwork and collaboration, evidence-based practice, quality improvement, safety, and informatics

telehealth: the use of technology to deliver health care, health information, or health education at a distance

The Joint Commission: a nonprofit organization that accredits hospitals and health care organizations

wellness: the ability to perform well, adjust and adapt to varying situations, and report feeling well and harmonious

As American society has undergone changes, so has the nation’s health care system. Nursing, as the health care profession with the greatest number of employees and a major contributor to the health care delivery system, has been significantly affected by these changes. Nursing has played an important role in the health care system and will continue to do so. This chapter provides an overview of the practice of nursing in the United States today, as well important factors and issues that will continue to affect its practice into the future.

Nursing

Since the time of Florence Nightingale, who wrote in 1858 that the goal of nursing was “to put the patient in the best condition for nature to act upon him,” nursing scholars and leaders have described nursing as both an art and a science. However, the definition of nursing has evolved over time. In the American Nurses Association (ANA) Scope and Standards of Practice (ANA, 2015b, p. 1), **nursing** is defined as “the protection, promotion, and optimization of health and abilities, prevention of illness and injury, facilitation of healing, alleviation of suffering through the diagnosis and treatment of human response, and advocacy in the care of individuals, families, groups, communities, and populations.” Nurses have a responsibility to carry out their role as described in Nursing’s Social Policy Statement (ANA, 2010; Fowler, 2015), to comply with the nurse practice act of the state in which they practice, and to comply with the Code of Ethics for Nurses as spelled out by the ANA (2015a) and the International Council of Nurses (ICN, 2012). Advocacy, promotion of a safe environment, research, education, and participation in patient and health systems management as well as shaping health policy are also key nursing roles (ICN, 2012).

The Patient: Consumer of Nursing and Health Care

The term **patient**, derived from a Latin verb meaning “to suffer,” has traditionally been used to describe a person who is a recipient of care. The connotation commonly attached to the word is one of dependence. For this reason, many nurses prefer to use the term *client*, which is derived from a Latin verb meaning “to lean,” connoting alliance and interdependence. The term *patient* is used purposely throughout this book; it is most commonly used by clinicians, as evidenced by its usage by the Interprofessional Education Collaborative (IPEC, 2016a), whose members include 15 national associations of schools of the health professions, including nursing, allopathic medicine, osteopathic medicine, pharmacy, dentistry, and public health, to name a few (see later discussion of IPEC).

The patient who seeks care for a health problem or problems (increasing numbers of people have multiple health problems or comorbidities) is also an individual person, a member of a family, a member of various social groups, and a citizen of the community. Patients’ needs vary depending on problems, associated circumstances, and past experiences. Many patients, who as consumers of health care have become more knowledgeable about health care options, expect a collaborative approach with the nurse in the quest for optimal health (Majid & Gagliardi, 2019). Among the nurse’s important functions in health care delivery are identifying the patient’s immediate, ongoing, and long-term needs and working together with the patient to address them.

The Patient’s Basic Needs: Maslow Hierarchy of Needs

Certain needs are basic to all people. Some of these needs are more important than others. Once an essential need is met, people often experience a need on a higher level of priority. Addressing needs by priority reflects Maslow's Hierarchy of Needs ([Fig. 1-1](#)).

Maslow ranked human needs to include physiologic needs, safety and security, sense of belonging and affection, esteem and self-respect, and self-actualization. Self-actualization includes self-fulfillment, desire to know and understand, and aesthetic needs. Lower-level needs always remain; however, a person's ability to pursue higher-level needs indicates movement toward psychological health and well-being (Maslow, 1954). Such a hierarchy of needs is a useful framework that can be applied to many nursing models for assessment of a patient's strengths, limitations, and need for nursing interventions.

Health

How health is perceived depends on how health is defined. The World Health Organization (WHO, 2006) defines **health** in the preamble to its constitution as a "state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity" (p. 1). This definition implies that health and illness are not polar opposites. Theoretically, therefore, it is possible for a patient to have a physical illness and yet strive for and perhaps attain health in another domain (e.g., mental, social). Although commonly cited worldwide, this definition has been criticized for being too utopian—after all, it is not possible for anyone to achieve *complete* physical, mental, and social well-being (Murdaugh, Parsons, & Pender, 2019).

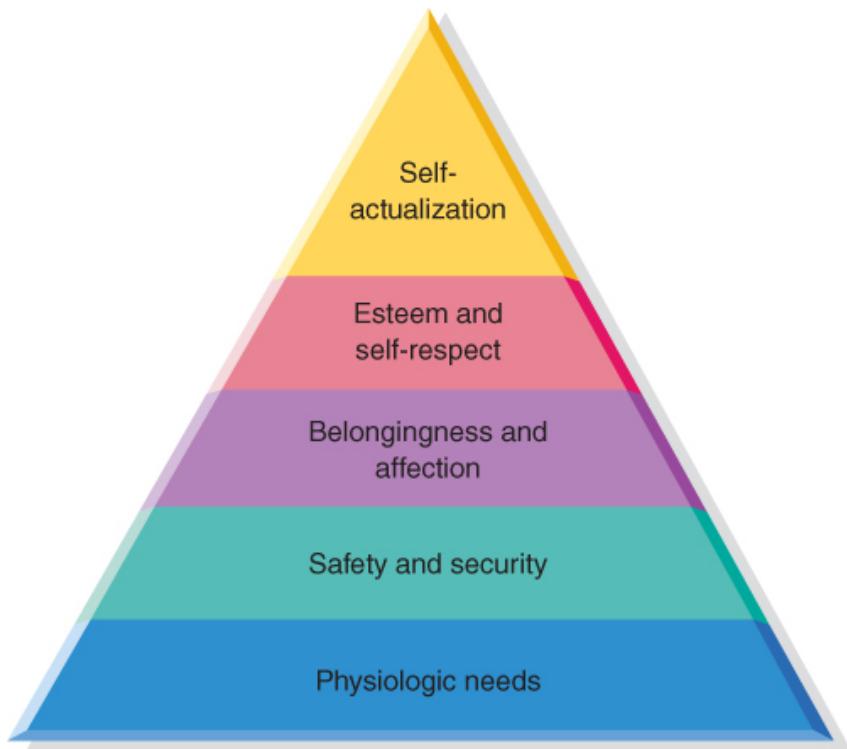


Figure 1-1 • This scheme of Maslow's hierarchy of needs shows how a person moves from fulfillment of basic needs to higher levels of needs, with the ultimate goal being integrated human functioning and health.

Wellness

Wellness has been defined as being equivalent to health. Wellness involves being proactive and being involved in self-care activities aimed toward a state of physical, psychological, social, and spiritual well-being. Wellness is conceptualized as having four components: (1) the capacity to perform to the best of one's ability, (2) the ability to adjust and adapt to varying situations, (3) a reported feeling of well-being, and (4) a feeling that "everything is together" and harmonious (Hood, 2018). With this in mind, nurses must aim to promote positive changes that are directed toward health and well-being. The sense of wellness has a subjective aspect that addresses the importance of recognizing and responding to patient individuality and diversity in health care and nursing.

Health Promotion

Today, increasing emphasis is placed on health, wellness, health promotion, and self-care. Health is seen as resulting from a lifestyle oriented toward wellness. **Health promotion** focuses on the potential for wellness and targets appropriate alterations in personal habits, lifestyle, and environment in ways that reduce risks and enhance health and well-being (see [Chapter 3](#)).

People are increasingly knowledgeable about health and take more interest in and responsibility for health and well-being. Organized self-care wellness education programs emphasize health promotion, disease prevention, management of illness, self-care, and collaborative use of the professional health care system. Web sites, chat groups, open forums, and social media support groups promote sharing of experiences and information about self-care with others who have similar conditions, chronic diseases, or disabling conditions. The advent of mobile wireless computer technologies (e.g., Fitbit™) and novel informatics tools (e.g., Carb Manager) have had the effect of tailoring health promotion activities to meet individual preferences (Murdaugh et al., 2019). Researchers have begun to take advantage of these popular technologic advancements by developing population-based registries. The use of mobile health apps has demonstrated a positive impact on health-related behaviors, specifically, physical activity, dietary management, adherence to medication or therapy, and knowledge related to medications and diagnostic testing. Moreover, most mobile health apps seem to promote better clinical health outcomes (Han & Lee, 2018). According to the WHO (2019), “primary health care ensures people receive comprehensive care—ranging from promotion and prevention to treatment, rehabilitation and palliative care—as close as feasible to people’s everyday environment” (p. 1). Primary health care includes a lifelong commitment to meeting individuals’ health needs across the lifespan; empowerment of individuals to assume accountability for their own health care; and attention to societal needs for health care through social policy and action.

Health Care

Health care describes services that are offered to individuals, families, and communities to help them maintain health and wellness, prevent and manage illness and complications, and provide support through rehabilitation, recovery, and transitions to palliative care. Health care can be provided in inpatient, outpatient, and community settings by a variety of health professionals, including but not limited to nurses, primary providers, pharmacists, dieticians, social workers, psychologists, and physical, occupational, speech and respiratory therapists.

Influences on Health Care Delivery

The health care delivery system is constantly adapting to changes in health care needs and expectations. Shifting population demographics; changing patterns of disease and wellness; advances in technology and genetics; and greater emphasis on health care quality, costs, reform efforts, and interprofessional collaborative practices have impacted health care delivery and the practice of nursing.

Population Demographics

Changes in the population in general are affecting the need for and the delivery of health care. According to the United States (U.S.) Census Bureau (2020), over 329 million people reside in the country. Not only is the population increasing, but its composition is also changing. The decline in birth rate and the increase in lifespan have resulted in proportionately fewer school-age children and more senior citizens, many of whom are women. Much of the population resides in highly congested urban areas, with a steady migration of members of ethnic minorities to urban settings. Poverty is a growing concern. According to the U.S. Department of Housing and Urban Development's (HUD's) 2019 Annual Homeless Assessment Report, on a given night, approximately 568,000 individuals were documented as homeless in the United States. Homelessness increased by 3% from 2018 to 2019, with almost 40% of this population staying on the streets or other unsheltered locations; in addition, a higher percentage of minority populations compared to the total U.S. population are impacted by homelessness today (U.S. Department of Housing and Urban Development, 2020).



Gerontologic Considerations

Both the number and proportion of Americans 65 years of age and older have grown substantially in the past century. In 2017, an estimated 47.8 million older adults resided in the United States; this number continues to climb, with the greatest growth in the Hispanic population (U.S. Census Bureau, 2017).

The health care needs of older adults are complex and demand significant investments, both professional and financial (see [Chapter 8](#) for further discussion). Many older adults suffer from multiple chronic conditions that are exacerbated by acute episodes. In particular, older women are frequently underdiagnosed and undertreated. According to the United Nations' (2017) report on world population aging, globally, the number of people 80 years of age or older is projected to increase more than threefold between 2017 and 2050, rising from 137 to 425 million.



Veterans Considerations

Veterans of the U.S. armed services comprise a unique population with health care needs that vary dependent upon branch of military service, whether service occurred during wartime eras, time and place of service, and individual experiences (Olenick, Flowers, & Diaz, 2015). According to the U.S. Census Bureau (2019), there are currently 18 million veterans, 1.8 million of whom are female. Substance use disorders (SUDs), posttraumatic stress disorder (PTSD), traumatic brain injury (TBI), suicide, depression, hazardous substance exposure, and amputations are common health care problems found among veterans (Olenick et al., 2015) (see [Chapter 4](#)). According to a Pew Research Center

(2017) report, the proportion of Americans who served in the U.S. military has been steadily declining since 1980, when 18% of American adults were veterans. In 2016, 7% of Americans were veterans. That proportion is projected to continue to decline, and by 2045 the U.S. Department of Veteran Affairs estimates that there will be approximately 12 million veterans, roughly a 40% decrease from 2016 (Pew Research Center, 2017).

Cultural Diversity

An appreciation for the diverse characteristics and needs of people from varied ethnic and cultural backgrounds is important in health care and nursing. Some projections indicate that by 2030, racial and ethnic minority populations in the United States will triple. The latest U.S. census classified five distinct races as White, Black or African American, Asian, Native American or Alaska Native, and Native Hawaiian/Pacific Islander. The Asian race had the largest growth rate among these five racial groups. The Hispanic population, classified primarily under the White race, was noted to account for more than half of the increased population growth. The non-Hispanic Caucasian population will proportionally decrease so that they will no longer comprise the majority population, and other ethnic and racial minority populations will collectively comprise the majority of all Americans by approximately 2044 (Colby & Ortman, 2015). As the cultural composition of the population changes, it is increasingly important to address cultural considerations in the delivery of health care. Patients from diverse sociocultural groups not only bring various health care beliefs, values, and practices to the health care setting but also have unique risk factors for some disease conditions and unique reactions to treatment. These factors significantly affect a person's responses to health care problems or illnesses, to caregivers, and to the care itself. Unless these factors are assessed, understood, and respected by nurses, the care delivered may be ineffective, and health care outcomes may be negatively affected (see [Chapter 4](#) for additional information on cultural assessment).

Changing Patterns of Disease and Wellness

During the past several decades, the health problems of Americans have changed significantly. Chronic diseases, including cardiovascular disease, cancers, diabetes, and chronic lung diseases account for 7 out of the 10 leading causes of death (Centers for Disease Control and Prevention [CDC], 2019). Nearly half of all adults live with one diagnosed chronic condition; 60 million live with two or more (CDC, 2019). Tobacco use, SUD (e.g., alcohol, illicit drugs), poor physical activity and nutrition habits, and obesity have become major health concerns (CDC, 2019).

As the prevalence of chronic conditions increases, health care broadens from a focus on cure and eradication of disease to include health promotion and the prevention or rapid treatment of exacerbations of chronic conditions. Nursing,

which has always encouraged patients to take control of health and wellness, has a prominent role in the current focus on management of chronic illness and disability (see [Chapter 7](#)).

Healthy People 2030

The *Healthy People* initiatives identify important periodic goals that, if reached, could have major impacts on the health and overall well-being of people in the United States (U.S. Department of Health and Human Services [HHS], 2020a). Since their inception over four decades ago, these initiatives have contributed to substantial decreases in cancer and cardiovascular deaths, infant and maternal mortality, and improvements in vaccinations (HHS, 2020a). Leading health indicators (LHIs) or goals outlined in the *Healthy People 2020* initiative aimed to improve access to health services, environmental quality, use of preventive services, nutrition and physical activity, and to address social determinants of health, while decreasing rates of injury and violence, obesity, tobacco use, and substance abuse, among others (HHS, 2020b). This initiative considered social influences that shape health, such as poverty and social injustices, rather than simply focusing on disease states. To date, significant progress has been made in decreasing the number of adults who are smoking and in improving physical activity of adults (HHS, 2020b). The *Healthy People 2030* framework, guided the development of the *Healthy People 2030* initiative and identified the need to collaborate more effectively with a variety of stakeholders across diverse agencies to accomplish its vision of helping all people in the United States optimize their health and well-being across developmental life stages, with a continued emphasis on reducing health disparities and improving health equity and health literacy (HHS, 2020a). The development of *Healthy People 2030* is in progress, data-driven national objectives have been established, and updates can be found by visiting its website. Enacting the goals set by the LHIs and other health care reforms have contributed to continuous change in health care organizations and delivery in the United States.

Advances in Technology and Genetics

Advances in technology and genetics have occurred rapidly during the past several decades. Sophisticated techniques and devices, such as robot assisted technology, have revolutionized treatments making it possible to perform many procedures and tests on an outpatient basis. Increased knowledge and understanding of genetics and genomics have resulted in expanded screening, diagnostic testing, and treatments for a variety of conditions (see [Chapter 6](#) for information on genetics and genomics and nursing practice implications; in addition, note that there are charts that focus upon *Genetics in Nursing Practice* throughout the book, which highlight various relevant genetic disorders).

In January 2015, President Obama announced the launching of the *Precision Medicine Initiative (PMI)*, which aimed to leverage advances in research,

technology, and policies to develop individualized plans of care to prevent and treat disease (Genetics Home Reference, 2020). **Precision medicine** is possible because of the recent development of biologic databases (e.g., human genome sequencing), technologic advances that can identify unique characteristics of individual people (e.g., genomics, cellular assay tests), and computer-driven systems that can mine and analyze data sets. The immediate goal of the PMI is to focus on preventing and curing cancers; however, there are long-term implications that hold promise for preventing and treating many other conditions and diseases (Ciupka, 2018).

Health Informatics

The sophisticated communication systems that connect most parts of the world, with the capability of rapid storage, retrieval, and dissemination of information, have stimulated advances in health information technology (HIT). Using HIT to improve the quality, efficiency, or delivery of health care is an interdisciplinary field of study called **health informatics**. Key examples of recent advances in HIT include artificial intelligence, blockchain, cloud technology, disease management technology, and improved operability of electronic health records (EHRs). The *Technology Informatics Guiding Education Reform (TIGER)* initiative, now a subsidiary of the Healthcare Information Management Systems Society (HIMSS), provides expert panel reports and guidelines for incorporating HIT into nursing practice (HIMSS, 2020).

The *International Classification of Diseases (ICD)* (WHO) launched its 10th iteration for use in the United States in 2015. The ICD-10 classifies diseases and conditions into nearly 70,000 codes. In June 2018, WHO released a version of ICD-11, which was presented to the World Health Assembly in 2019 for adoption by countries (WHO, 2018). Currently, the Centers for Medicare & Medicaid Services (CMS, 2015) and most other major health insurance programs require utilization of ICD-10 codes when treatment is rendered for providers to claim reimbursement. This system provides for common nomenclature and tracking of the incidence and prevalence of various diseases and conditions globally. CMS (2020) also requires that clinicians and health care systems use EHRs; its final rule for stage 3 of the *EHR Incentive Program*, now known as the *Promoting Interoperability Program*, required that by 2018 providers use EHRs or face reductions in reimbursement.

In addition to these HIT advancements, **telehealth**, which uses technology to deliver health care, health information, or health education at a distance, is being utilized by both individual clinicians and health care systems more and more frequently. In particular, home health services use telehealth to develop more individualized care plans for patients. One type of telehealth application uses *real-time communication*, characterized by an exchange of information between people at one point in time. For instance, a nurse practitioner in a rural clinic may consult with a specialist on a webcam about a patient's condition. Another type of telehealth application uses *store-and-forward*, characterized by transmission of

digital images that may be retrieved and reviewed at later points in time ([HealthIT.gov](#), 2018).

Quality, Safety, and Evidence-Based Practice

At the turn of the millennium, the Institute of Medicine (IOM, 2000) reported an alarming breakdown in quality control in the American health care system. The IOM report *To Err Is Human: Building a Safer Health System* (2000) noted that nearly 100,000 Americans died annually from preventable errors in hospitals, and many more suffered nonfatal injuries from errors. A subsequent IOM report, *Crossing the Quality Chasm: A New Health System for the 21st Century* (2001), described an inefficient, fragmented, health care system fraught with inequities and inaccessibility. It envisioned a reformed health care system that is evidence-based and systems oriented. Its proposed six aims for improvement included ensuring that patient care is safe, effective, patient centered, timely, efficient, and equitable (IOM, 2001). The following sections describe a series of key practices that are aimed at improving quality and safety and ensuring use of evidence-based practices (EBPs) within the U.S. health care system.

Principles of Evidence-Based Nursing Practice

An **evidence-based practice (EBP)** is a best practice derived from valid and reliable research studies that also considers the health care setting, patient preferences and values, and clinical judgment. The facilitation of EBP involves identifying and evaluating current literature and research findings, and then incorporating these findings into patient care as a means of ensuring quality care (Melnyk & Fineout-Overholt, 2018).

Evidence-Based Practice Bundles

The Institute for Healthcare Improvement (IHI) has developed numerous sets of readily implemented EBP sets for use by hospitals (IHI, 2020). These **bundles** include a set of three to five EBPs that, when implemented appropriately, can measurably improve patients' outcomes. Many of these practices are within the scope of independent nursing practice. For instance, the IHI Ventilator Bundle advocates that the head of the bed should be elevated, and that oral care should be provided using chlorhexidine for all patients on ventilators (IHI, 2012; see [Chapter 19](#)).

EBP tools used for planning patient care may include not only bundles but also clinical guidelines, algorithms, care mapping, multidisciplinary action plans (MAPs), and clinical pathways. These tools are used to move patients toward predetermined, measurable outcomes. Algorithms are used more often in acute situations to determine a particular treatment based on patient information or response. Care maps, clinical guidelines, and MAPs (the most detailed of these tools) help to facilitate coordination of care and education throughout hospitalization and after discharge. Nurses who provide direct care have an

important role in the development and use of these tools through participation in researching the literature and then developing, piloting, implementing, and revising the tools as needed.

Quality and Safety Education for Nurses

The **Quality and Safety Education for Nurses (QSEN)** project was initially funded by the nonprofit Robert Wood Johnson Foundation (RWJF) to develop curricula that prepare future nurses with the knowledge, skills, and attitudes (KSA) required to continuously improve the quality and safety of the health care system. In particular, nurses educated under QSEN concepts demonstrate the KSA consonant with competency in patient-centered care, teamwork and collaboration, EBP, quality improvement, safety, and informatics (QSEN, 2020). Each of the Unit Openers in this book highlights a case study that demonstrates the application of QSEN competencies germane to pre-licensure nursing practice. [Table 1-1](#) highlights the QSEN definition of teamwork and collaboration and its associated KSA.

Interprofessional Collaborative Practice

The IOM report, *Health Professions Education: A Bridge to Quality* (IOM, 2003), challenged health professions education programs to integrate interdisciplinary core competencies into respective curricula to include patient-centered care, interdisciplinary teamwork and collaboration, EBP, quality improvement, safety, and informatics. In response to this report, the Interprofessional Education Collaborative Expert Panel (IPEC) published *Core Competencies for Interprofessional Collaborative Practice* (IPEC, 2011) with the goal to “prepare all health professions students for deliberately working together with the common goal of building a safer and better patient-centered and community/population-oriented US health care system” (p. 3). **Interprofessional collaborative practice** involves employing multiple health professionals to work together with patients, families, and communities to deliver best practices, thus assuring best patient outcomes. In 2016, the IPEC updated this document by organizing the four original competencies under the essential domain of interprofessional collaboration; topics within this central domain, as displayed in [Figure 1-2](#), include values/ethics for interprofessional practice, roles and responsibilities for collaborative practice, interprofessional communication practices, and interprofessional teamwork and team-based practice (IPEC, 2016b). In addition, updates aimed to standardize language used among health care professionals to better facilitate interprofessional education, improve assessment and evaluation of outcomes, and more effectively meet contemporary health care goals, with a greater focus on population health. However, the updated guidelines maintain the IPEC’s original vision “that interprofessional collaborative practice is key to the safe, high-quality, patient-centered care desired by all” (IPEC, 2016b, p. 4). Many of the end-of-chapter Critical Thinking

Exercises that are presented throughout this book highlight the role of the nurse as a member of the interprofessional collaborative team.

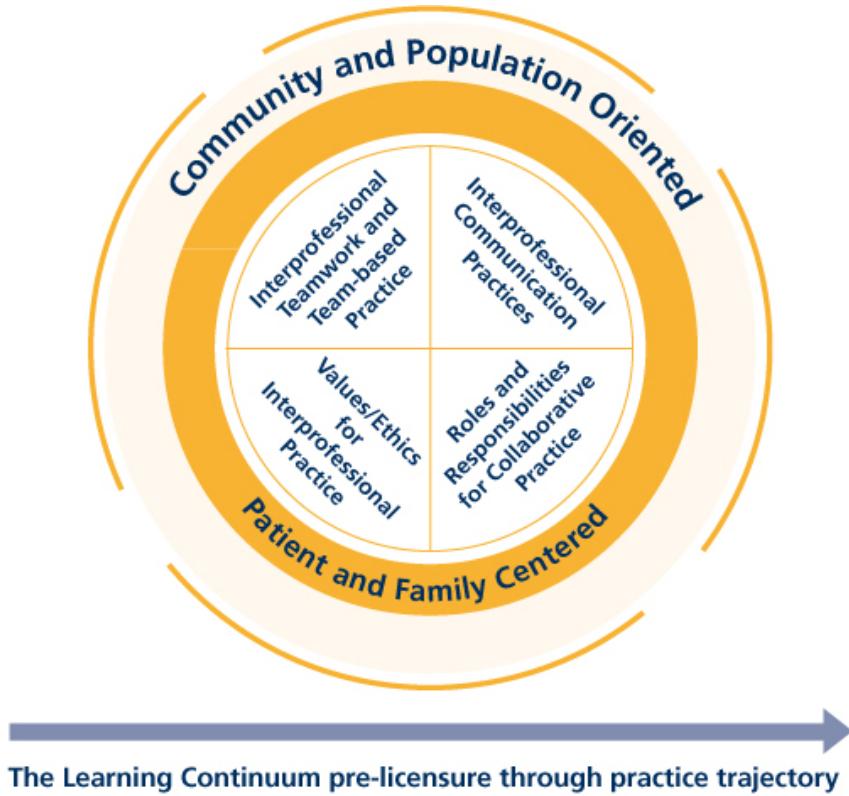


Figure 1-2 • Interprofessional Collaboration Competency Domain.
Interprofessional Education Collaborative. (2016b). *Core competencies for interprofessional collaborative practice: 2016 update*. Washington, DC: Author. All rights reserved. Reproduced with permission.

TABLE 1-1

Quality and Safety Education for Nurses (QSEN) Definition of Safety and Knowledge, Skills, and Attitudes (KSA) for Pre-Licensure Nursing Students

Teamwork and Collaboration

Definition: Function effectively within nursing and inter-professional teams, fostering open communication, mutual respect, and shared decision making to achieve quality patient care.

Knowledge	Skills	Attitudes
Describe own strengths, limitations, and values in functioning as a member of a team	Demonstrate awareness of own strengths and limitations as a team member Initiate plan for self-development as a team member Act with integrity, consistency and respect for differing views	Acknowledge own potential to contribute to effective team functioning Appreciate importance of intra- and inter-professional collaboration
Describe scopes of practice and roles of health care team members Describe strategies for identifying and managing overlaps in team member roles and accountabilities Recognize contributions of other individuals and groups in helping patient/family achieve health goals	Function competently within own scope of practice as a member of the health care team Assume role of team member or leader based on the situation Initiate requests for help when appropriate to situation Clarify roles and accountabilities under conditions of potential overlap in team member functioning Integrate the contributions of others who play a role in helping patient/family achieve health goals	Value the perspectives and expertise of all health team members Respect the centrality of the patient/family as core members of any health care team Respect the unique attributes that members bring to a team, including variations in professional orientations and accountabilities
Analyze differences in communication style preferences among patients and families, nurses and other members of the health team Describe impact of own communication style on others Discuss effective strategies for communicating and resolving conflict	Communicate with team members, adapting own style of communicating to needs of the team and situation Demonstrate commitment to team goals Solicit input from other team members to improve individual, as well as team, performance Initiate actions to resolve conflict	Value teamwork and the relationships upon which it is based Value different styles of communication used by patients, families and health care providers Contribute to resolution of conflict and disagreement
Describe examples of the impact of team functioning on safety and quality of care	Follow communication practices that minimize risks associated with	Appreciate the risks associated with handoffs

Explain how authority gradients influence teamwork and patient safety	handoffs among providers and across transitions in care Assert own position/perspective in discussions about patient care Choose communication styles that diminish the risks associated with authority gradients among team members	among providers and across transitions in care
Identify system barriers and facilitators of effective team functioning	Participate in designing systems that support effective teamwork	Value the influence of system solutions in achieving effective team functioning

Reprinted with permission from Cronenwett, L., Sherwood, G., Barnsteiner, J., et al. (2007). Quality and safety education for nurses. *Nursing Outlook*, 55(3), 122–131; QSEN Institute & Frances Payne Bolton School of Nursing, Case Western Reserve University (2020). Competencies: Prelicensure KSAs. Retrieved on 2/26/20 at: qsen.org/competencies/pre-licensure-ksas/#safety

The Practice of Nursing

As scientific advances in health care technology continue to evolve, nurses face increasingly complex issues and situations. Greater acuity of patients in both hospital and community settings, an aging population, complex disease processes, and end-of-life concerns, as well as ethical issues and cultural factors must be considered. The decision making component of nurses' problem-solving activities has become increasingly multifaceted and requires critical thinking based upon sound ethical principles.

Critical Thinking

Critical thinking is a cognitive process that utilizes thinking that is purposeful, insightful, reflective, and goal directed in order to develop conclusions, solutions, and alternatives that are appropriate for the given situation. Critical thinking, which includes reasoning and judgment, is based upon a body of knowledge and includes analysis of all information and ideas. Critical thinking leads to the formulation of conclusions and alternatives that are the most appropriate for the situation and is used to plan patient-centered care. Critical thinking has been identified as an essential core competency for nurses by the National League for Nursing (NLN) and the American Association of Colleges of Nursing (AACN, 2008; NLN, 2012). This cognitive process is critical to effective use of the nursing process and clinical reasoning (Flanders, Gunn, Wheeler, et al., 2017).

Critical thinking includes metacognition—the examination of one's own reasoning or thought processes—to help refine thinking skills. Independent

nursing judgments and decisions evolve from a sound knowledge base and the ability to synthesize information within the context in which it is presented. Nursing practice in today's society requires the use of high-level critical thinking skills. Critical thinking enhances clinical decision making, helping to identify patient needs and the best nursing actions that will assist patients in meeting those needs. Because critical thinking is a deliberate, outcome-oriented activity, it is logical, organized, and iterative. "In nursing, critical thinking is the ability to think systematically and reflect on the reasoning process used to ensure safe nursing practice" (Zarifsanaiey, Amini, & Saadat, 2016, p. 2). The process of critical thinking gives nurses the tools to make sound decisions and implement quality nursing care.

Critical thinkers are inquisitive truth seekers who are open to the alternative solutions that might surface. Critical thinking is influenced by "habits of the mind including: confidence, perseverance, inquisitiveness, intuition, flexibility, creativity, intellectual integrity, contextual perspective, open-mindedness and reflection" (Griffits, Hines, Maloney, et al., 2017, p. 2832). Clinical reasoning is a thought process that is a specific method of critical thinking. The process of clinical reasoning results in clinical judgment, which is nursing actions. Clinical reasoning is the core of the nursing process (see later discussion) (Alfaro-LeFevre, 2017).

The following factors are identified as critical components of clinical reasoning: communication and relationships, educational level, knowledge and ability to use critical thinking, familiarity with the environment and the context of care, experience and exposure to a variety of situations, as well as professionalism (Griffits et al., 2017). The skills involved in critical thinking are developed over time through effort, practice, and experience.

Rationality and Insight

Skills needed in critical thinking include interpretation, analysis, inference, explanation, evaluation, self-reflection, and self-regulation. Critical thinking requires strong background knowledge and knowledge of key concepts as well as logical thinking. Nurses use this disciplined process to validate the accuracy of data and the reliability of any assumptions they have made, and they then carefully evaluate the effectiveness of what they have identified as the necessary actions to take. Nurses also evaluate the reliability of sources, being mindful of and questioning inconsistencies. Nurses use interpretation to determine the significance of data that are gathered, analysis to identify patient problems suggested by the data, and inference to draw conclusions. Explanation is the justification of actions or interventions used to address patient problems and to help patients move toward desired outcomes. Evaluation is the process of determining whether outcomes have been or are being met. Self-regulation is the process of examining the care provided and adjusting the interventions as needed. All processes are iterative.

Critical thinking is also reflective, involving metacognition, active evaluation, and refinement of the thinking process. Metacognition involves reflective thinking as well as awareness of the nursing skills needed for patient-centered care (Alfaro-LeFevre, 2017). Nurses engaged in critical thinking consider the possibility of cultural differences and personal bias when interpreting data and determining appropriate actions (see [Chapter 4](#) for further discussion). Critical thinkers must be insightful and have a sense of fairness and integrity; the courage to question personal ethics; and the perseverance to strive continuously to minimize the effects of egocentricity, ethnocentricity, and other biases on the decision making process (Alfaro-LeFevre, 2017).

Components of Critical Thinking

Certain cognitive or mental activities are key components of critical thinking as it relates to nurses. Critical thinkers (Alfaro-LeFevre, 2017):

- Identify the priorities that will determine the nurse's plan of patient-centered care.
- Gather pertinent data from the patient's chart and assessments to determine why certain developments have occurred and to determine if additional data are needed to address the situation accurately.
- Validate the information presented to make sure that it is accurate and compare it with any preexisting data. Information should be evidence based.
- Analyze the information to determine its significance and to identify the formation of clusters or patterns that point to certain conclusions.
- Utilize logical thinking, past clinical experiences, theoretical knowledge, and intuitive thinking to assess the status of the patient's condition. Anticipate the patient's needs and outcomes while acknowledging personal bias and cultural influences.
- Maintain a flexible attitude that facilitates thinking and inquiry and consider all possibilities.
- Utilize inductive and deductive reasoning to identify available options and analyze each in terms of its advantages and disadvantages.
- Formulate decisions that reflect creativity and independent decision making.
- Demonstrate personal humility in terms of one's knowledge deficits and willingly seek additional information to assist with decision making.
- Exhibit the courage to seek new, innovative approaches to patient-centered care. Detach their personal viewpoints from situations and look at things objectively, a process called *bracketing*.

Critical thinking requires going beyond basic problem solving into a realm of inquisitive exploration, looking for all relevant factors that affect the issue, and being an “out-of-the-box” thinker. Nurses’ ongoing quest for “best practice” clearly demonstrates intellectual integrity, a component of critical thinking.

Critical Thinking and Clinical Reasoning in Nursing Practice

Critical thinking and decision making are thought to be associated with improved clinical expertise. Critical thinking is the foundation of the process of clinical reasoning and clinical judgment (Alfaro-LeFevre, 2017). Using critical thinking to develop a plan of nursing care requires considering the human factors that might influence the plan. Nurses interact with patients, families, and other health care providers in the process of providing appropriate, individualized nursing care.

Nurses must use critical thinking skills in all practice settings—acute care, ambulatory care, extended care, and the home and community—and must view each patient situation as unique and dynamic. The unique factors that patients and nurses bring to the health care situation are considered, studied, analyzed, interpreted, and evaluated. Interpretation of the information then allows nurses to focus on those factors that are most relevant and most significant to the clinical situation. Decisions about a nursing plan, priority of actions, and measurable outcomes are developed into an action plan.

In decision making related to the nursing process, nurses use cognitive and metacognitive skills as well as logical reasoning to set priorities. These skills include systematic and comprehensive assessment, recognition of assumptions, inconsistencies and biases, verification of reliability and accuracy, identification of missing information, distinguishing relevant from irrelevant information, support of the evidence with facts and conclusions, priority setting with timely decision making, determination of patient-specific outcomes, and reassessment of responses and outcomes (Alfaro-LeFevre, 2017). All of these data are examined within the context of a solid knowledge base. For example, Goodrich, Wagner-Johnston, and Delibovi (2017) describe how oncology nurses use critical thinking, clinical reasoning, and decision making skills in identifying and managing complications of novel and complex therapies for cancer treatment when they:

- Develop greater knowledge of potential adverse events by examining evidence-based guidelines.
- Partner with the patient and family to better understand how treatments impact activities of daily living, quality of life, and overall symptom burden.
- Distinguish potential complications from expected manifestations associated with the underlying cancer diagnosis.
- Collaborate with interprofessional team members to modify treatment plans based on assessment data.

Because developing the skill of critical thinking involves experiential learning and practice, critical thinking exercises are offered at the end of each chapter as a means of honing the reader's ability to think critically. Some exercises include questions that stimulate the reader to seek information about EBP relative to the clinical situation described, others challenge the reader to identify priority assessments and interventions, while others challenge the reader to describe the

role of the nurse as a member of the interprofessional collaborative team, as noted previously. Additional exercises may be found in the study guide that accompanies the text. The questions listed in [Chart 1-1](#) can serve as a guide in working through the exercises. It is important to remember that each clinical situation is unique and calls for an individualized approach that fits its unique set of circumstances. As critical thinking may require consideration of ethical principles and cultural contexts, these concepts are discussed in this chapter and in [Chapter 4](#).

The Nursing Process

The **nursing process** is a deliberate problem-solving approach for meeting people's health care and nursing needs. Although the steps of the nursing process have been stated in various ways by different writers, the common components cited are assessment, diagnosis, planning, implementation, and evaluation (Carpenito, 2017). The ANA's *Scope and Standards of Practice* (ANA, 2015b) includes an additional component entitled outcome identification, defined as identification of expected outcomes for a plan that is tailored to the patient's needs. The sequence of steps in this process is assessment, diagnosis, outcome identification, planning, implementation, and evaluation. For the purposes of this text, the nursing process is based on the traditional five steps and delineates two components in the diagnosis step: nursing diagnoses and collaborative problems. After the diagnoses or problems have been determined, the desired outcomes are often evident. The traditional steps are defined as follows:

1. **Assessment:** The systematic collection of data through interview, observation, and examination to determine the patient's health status as well as any actual or potential health problems. (Analysis of data is included as part of the assessment. Analysis may also be identified as a separate step of the nursing process.)
2. **Diagnosis:** Identification of the following two types of patient problems:
 - **Nursing diagnoses:** According to Carpenito (2017), "Are clinical judgments about individual, family, or community responses to actual or potential health problems/life processes" that can be managed by independent nursing interventions (p. 9).
 - **Collaborative problems:** According to Carpenito (2017), "Certain physiologic complications that nurses monitor to detect onset or changes in status. Nurses manage collaborative problems using physician- and nurse-prescribed interventions to minimize the complications of the events" (p. 9).
3. **Planning:** Development of measurable goals and outcomes as well as a plan of care designed to assist the patient in resolving the diagnosed problems and achieving the identified goals and desired outcomes.

Chart 1-1

The Inquiring Mind: Critical Thinking in Action

Throughout the critical thinking process, a continuous flow of questions evolves in the thinker's mind. It is not sufficient to rely solely on the acquisition of knowledge or a set of problem-solving skills; rather, it is the combination of one's application of knowledge, analysis of the situation, synthesis, and evaluation that promotes effective critical thinking inquiry. Although posing questions will vary according to the particular clinical situation, certain general inquiries can serve as a basis for reaching conclusions and determining a course of action.

When faced with a patient situation, seeking answers to some or all of the following questions may help to determine those actions that are most appropriate:

- What relevant assessment information do I need, and how do I interpret this information? What is the most effective way to gather this information? What does this information tell me? What contextual factors must be considered when gathering this information? What are the priority assessments?
- Have I identified the most important assessments and findings? Does the information I have gathered point to any other problems that I should consider?
- Have I gathered all of the necessary information (signs and symptoms, laboratory values, medication history, emotional factors, mental status)? Is anything missing?
- Is there anything that needs to be reported immediately? Do I need to seek additional assistance?
- What risk factors are specific to this patient? Which risk factors are of the highest priority? What must I do to minimize these risks?
- What possible complications must I anticipate?
- What are the most important problems in this situation? Do the patient and the patient's family recognize the same problems?
- What are the desired outcomes for this patient? Which have the highest priority? Do the patient and I agree on these points?
- What is going to be my first action in this situation? Why is this action a priority?
- How can I construct a plan of care to achieve the goals?
- Are there any age-related factors involved, and will they require some special approach? Will I need to make some change in the plan of care to take these factors into account?
- How do the family dynamics affect this situation, and will they affect my actions or the plan of care?
- Are there cultural factors that I must address and consider?
- Am I dealing with an ethical issue here? If so, how am I going to resolve it?
- Has any nursing research been conducted on this subject? What are the nursing implications of this research for care of this patient? What is the strength of the evidence found from research?

Adapted from Alfaro-LeFevre, R. (2017). *Critical thinking and clinical judgment: A practical approach* (6th ed.). Philadelphia, PA: Elsevier; Alfaro-LeFevre, R. (2019). Promoting critical thinking in frontline nurses. Retrieved on 2/29/2020 at: www.alfaroteachsmart.com

4. **Implementation:** Actualization or carrying out of the plan of care through nursing interventions.
5. **Evaluation:** Determination of the patient's responses to the nursing interventions and the extent to which the outcomes have been achieved.

Dividing the nursing process into distinct steps serves to emphasize the essential nursing actions that must be taken to address the patient's nursing diagnoses and manage any collaborative problems or complications. However, dividing the process into separate steps is artificial: The process functions as an integrated whole, with the steps being interrelated, interdependent, and recurrent (Fig. 1-3). Chart 1-2 presents an overview of the nursing activities involved in applying the nursing process. Note that the use of the nursing process requires critical thinking and consideration of common ethical principles to ensure that a truly comprehensive plan of care is developed.

Assessment

According to Carpenito (2017), the initial or baseline assessment is a systematic process of collecting predetermined data during the first contact with the patient. Data are gathered through the health history and the physical assessment. In addition, ongoing assessment and monitoring are crucial to remain aware of changing patient needs and the effectiveness of nursing care.

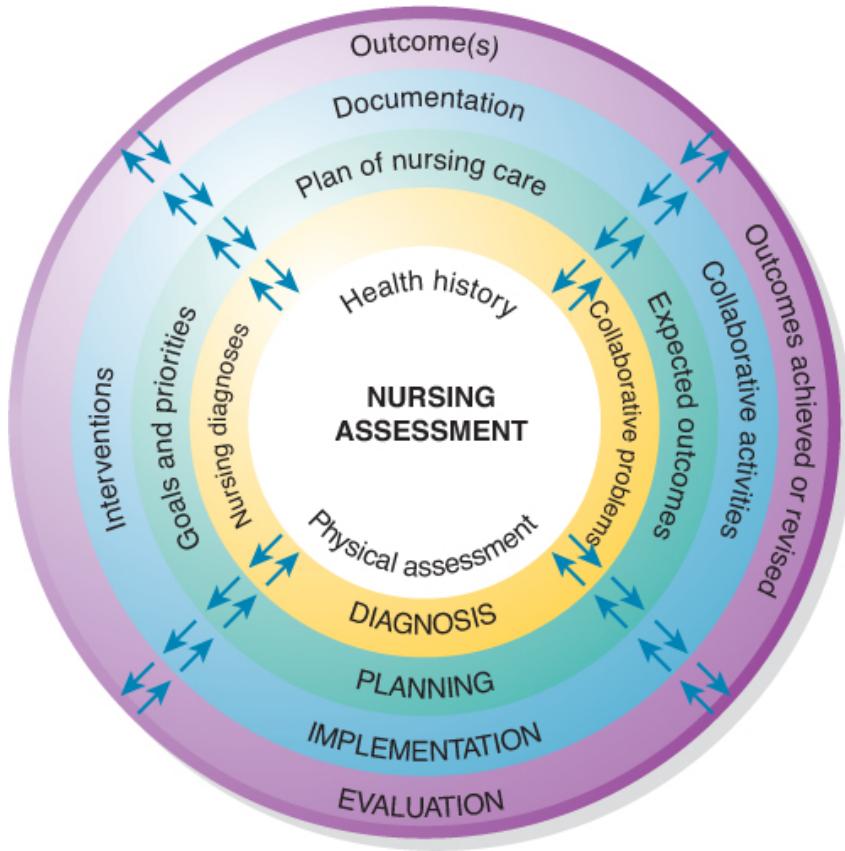


Figure 1-3 • The nursing process is depicted schematically in this circle. Starting from the innermost circle, nursing assessment, the process moves outward through the formulation of nursing diagnoses and collaborative problems; planning, with setting of goals and priorities in the nursing plan of care; implementation and documentation; and, finally, the ongoing process of evaluation and outcomes.

Chart 1-2

Steps of the Nursing Process

Assessment

1. Conduct the health history.
2. Perform the physical assessment.
3. Interview the patient's family or significant others.
4. Study the health record.
5. Organize, analyze, synthesize, and summarize the collected data.

Diagnosis

Nursing Diagnoses

1. Identify the patient's nursing problems or potential problems.
2. Identify the defining characteristics of the nursing problems.
3. Identify the etiology of the nursing problems.
4. State nursing diagnoses concisely and precisely.

Collaborative Problems

1. Identify potential problems or complications that require collaborative interventions.
2. Identify health care members with whom collaboration is essential.

Planning

1. Assign priority to the nursing diagnoses.
2. Specify the goals.
 - a. Develop immediate, intermediate, and long-term goals.
 - b. State the goals in realistic and measurable terms.
3. Identify nursing interventions appropriate for goal attainment.
4. Establish expected outcomes.
 - a. Make sure that the outcomes are realistic and measurable.
 - b. Identify critical times for the attainment of outcomes.
5. Develop the written plan of nursing care.
 - a. Include nursing diagnoses, goals, nursing interventions, expected outcomes, and critical times.
 - b. Write all entries precisely, concisely, and systematically.
 - c. Keep the plan current and flexible to meet the patient's changing problems and needs.
6. Involve the patient, family or significant others, nursing team members, and other health care team members in all aspects of planning.

Implementation

Put the plan of nursing care into action.

1. Coordinate the activities of the patient, family or significant others, nursing team members, and other health care team members.
2. Record the patient's responses to the nursing actions.

Evaluation

1. Collect data.
2. Compare the patient's actual outcomes with the expected outcomes. Determine the extent to which the expected outcomes were achieved.
3. Include the patient, family or significant others, nursing team members, and other health care team members in the evaluation.
4. Identify alterations that need to be made in the nursing diagnoses, collaborative problems, goals, nursing interventions, and expected outcomes.
5. Continue all steps of the nursing process: assessment, diagnosis, planning, implementation, and evaluation.

Health History

The health history is conducted to determine a person's state of wellness or illness and is best accomplished as part of a planned interview. The interview is a personal dialogue between a patient and a nurse that is conducted to obtain information. The nurse's approach to the patient largely determines the amount and quality of the information received. To achieve a relationship of mutual trust and respect, the nurse must communicate a sincere interest in the patient. Examples of therapeutic communication techniques are found in [Table 1-2](#).

A health history guide may help in obtaining pertinent information and directing the course of the interview. Various health history formats designed to guide the interview are available; however, they must be adapted to the responses, health problems, and needs of the person (see [Chapter 4](#) for more information about the health history).

Physical Assessment

A physical assessment may be carried out before, during, or after the health history, depending on a patient's physical and emotional status and the immediate priorities of the situation. The purpose of the physical assessment is to identify those aspects of a patient's physical, psychological, and emotional state that indicate a need for nursing care. It requires the use of sight, hearing, touch, and smell as well as appropriate interview skills and techniques. Physical examination techniques, as well as techniques and strategies for assessing behaviors and role changes, are presented in [Chapter 4](#) and in the first chapter of each unit of this book, beginning with Unit 4 and continuing through Unit 15.

Other Components of the Assessment

Additional relevant information should be obtained from the patient's family or significant others, from other members of the health care team, and from the patient's EHR. Depending on the patient's immediate needs, this information may have been completed before the health history and the physical assessment were obtained. A review of a past medical history or records from previous admissions may provide important information for consideration. Whatever the sequence of

events, the nurse should use all available sources of pertinent data to complete the nursing assessment.

Recording the Data

After the health history and physical assessment are completed, the information obtained is recorded in the patient's permanent record. These records are more commonly becoming electronic (i.e., EHRs). The ANA (2009) advocates that when EHRs are used, "patients should receive written, easily understood notification of how their health records are used and when their individually identifiable health information is disclosed to third parties" (p. 1). It is imperative that the patient's right to privacy and confidentiality are not violated through the use of EHRs. Regardless of whether the record is in a traditional paper format or an EHR, it must provide a means of communication among members of the health care team and facilitate coordinated planning and continuity of care (Räsänen & Günther, 2019). The record fulfills other functions as well:

TABLE 1-2 Select Therapeutic Communication Techniques

Technique	Definition	Therapeutic Value
Listening	Active process of receiving information and examining one's reactions to the messages received	Nonverbally communicates nurse's interest in the patient
Silence	Periods of no verbal communication among participants for therapeutic reasons	Gives patient time to think and gain insights, slows the pace of the interaction, and encourages the patient to initiate conversation while conveying the nurse's support, understanding, and acceptance
Restating	Repeating to the patient what the nurse believes is the main thought or idea expressed	Demonstrates that the nurse is listening and validates, reinforces, or calls attention to something important that has been said
Reflection	Directing back to the patient their feelings, ideas, questions, or content	Validates the nurse's understanding of what the patient is saying and signifies empathy, interest, and respect for the patient
Clarification	Asking the patient to explain what they mean or attempting to verbalize vague ideas or unclear thoughts of the patient to enhance the nurse's understanding	Helps to clarify the patient's feelings, ideas, and perceptions and to provide an explicit correlation between them and the patient's actions
Focusing	Questions or statements to help the patient develop, explore, or expand an idea or verbalize feelings	Allows the patient to discuss central issues and keeps communication goal directed
Broad openings	Encouraging the patient to select topics for discussion	Indicates acceptance by the nurse and the value of the patient's initiative
Humor	Discharge of energy through the comic enjoyment of the imperfect	Promotes insight by bringing repressed material to consciousness, resolving paradoxes, tempering aggression, and revealing new options; a socially acceptable form of sublimation
Informing	Providing information	Helpful in health teaching or patient education about relevant aspects of the patient's well-being and self-care
Sharing perceptions	Asking the patient to verify the nurse's understanding of what the patient is thinking or feeling	Conveys the nurse's understanding to the patient and has the potential to clarify confusing communication; may promote additional reflection
Theme identification	Underlying issues or problems experienced by the patient that emerge repeatedly during	Allows the nurse to best promote the patient's exploration and understanding of important problems

	the course of the nurse–patient relationship	
Suggesting	Presentation of alternative ideas for the patient's consideration relative to problem solving	Increases the patient's perceived options or choices

Adapted from Stuart, G. W. (2012). *Principles and practice of psychiatric nursing* (10th ed.). St. Louis, MO: CV Mosby.

- Serves as the legal and business record for a health care agency and for the professional staff members who are responsible for the patient's care. Various systems are used for documenting patient care, and each health care agency selects the system that best meets its needs.
- Serves as a basis for evaluating the quality and appropriateness of care and for reviewing the effective use of patient care services.
- Provides data that are useful in research, education, and short- and long-range planning.

Diagnosis

The assessment component of the nursing process serves as the basis for identifying nursing diagnoses and collaborative problems. Soon after the completion of the health history and the physical assessment, nurses organize, analyze, synthesize, and summarize the data collected and determine the patient's need for nursing care.

Nursing Diagnoses

Nursing diagnoses, the first taxonomy created in nursing, have fostered autonomy and accountability in nursing and have helped to delineate the scope of practice. Many state nurse practice acts include nursing diagnosis as a nursing function, and nursing diagnosis is included in the ANA's *Scope and Standards of Practice* (2015b) and the standards of nursing specialty organizations. Nursing diagnoses are routinely validated, refined, and updated to reflect current clinical practice and research.

NANDA International (NANDA-I; formerly known as the North American Nursing Diagnosis Association) was the first official organization responsible for developing the taxonomy of nursing diagnoses. In 2000, the International Classification for Nursing Practice (ICNP®) was established as an alternative system to support nursing care and standardization in documentation for practicing nurses at the point of care and across specialties (Coenen, 2003; International Council of Nurses [ICN], 2019). ICNP offers nursing diagnoses, intervention statements, and outcome statements designed to assist nurses within each step of the nursing process and all phases of care and was most recently updated in 2019. The nursing diagnoses used throughout this book are ICNP diagnoses. Because ICNP is proprietary to ICN, which has a global health focus, ICNP terms are spelled using the British method.

Choosing a Nursing Diagnosis

When identifying a nursing diagnosis for a particular patient, nurses must first identify the commonalities among the assessment data collected. These common features lead to the categorization of related data that reveal the existence of a problem and the need for nursing intervention. The identified problems are then defined as specific nursing diagnoses. Nursing diagnoses represent actual or potential health problems, state of health promotion, or potential risks that can be managed by independent nursing actions.

It is important to remember that nursing diagnoses are not medical diagnoses; they are not medical treatments prescribed by the primary provider, and they are not diagnostic studies. Rather, they are succinct statements of specific patient problems that guide nurses in the development of the plan of nursing care.

To give additional meaning to the nursing diagnosis, the characteristics and etiology of the problem are identified and included as part of the diagnosis. For example, the nursing diagnoses and their defining characteristics and etiology for a patient who has anemia may include the following:

- Activity intolerance associated with imbalance between supply and demand of oxygen
- Impaired peripheral tissue perfusion associated with decreased hemoglobin
- Impaired nutritional status associated with fatigue and inadequate intake of essential nutrients

Collaborative Problems

In addition to nursing diagnoses and their related nursing interventions, nursing practice involves certain situations and interventions that do not fall within the definition of nursing diagnoses. These activities pertain to potential problems or complications that are medical in origin and require collaborative interventions with the primary provider and other members of the health care team. The term *collaborative problem* is used to identify these situations.

Collaborative problems are certain physiologic complications that nurses monitor to detect changes in the status or onset of complications. Nurses manage collaborative problems using primary provider- and nurse-prescribed interventions to minimize complications (Carpenito, 2017). When treating collaborative problems, the primary nursing focus is monitoring patients for the onset of complications or changes in the status of existing complications. The complications are usually related to the disease process, treatments, medications, or diagnostic studies. The nurse recommends nursing interventions that are appropriate for managing the complications and implements the treatments prescribed by the patient's primary provider. According to Carpenito (2017), collaborative problems do not have patient goals; therefore, the approach to evaluation is different from a nursing diagnosis. The algorithm in [Figure 1-4](#) depicts the differences between nursing diagnoses and collaborative problems.

After the nursing diagnoses and collaborative problems have been identified, they are recorded on the plan of nursing care.

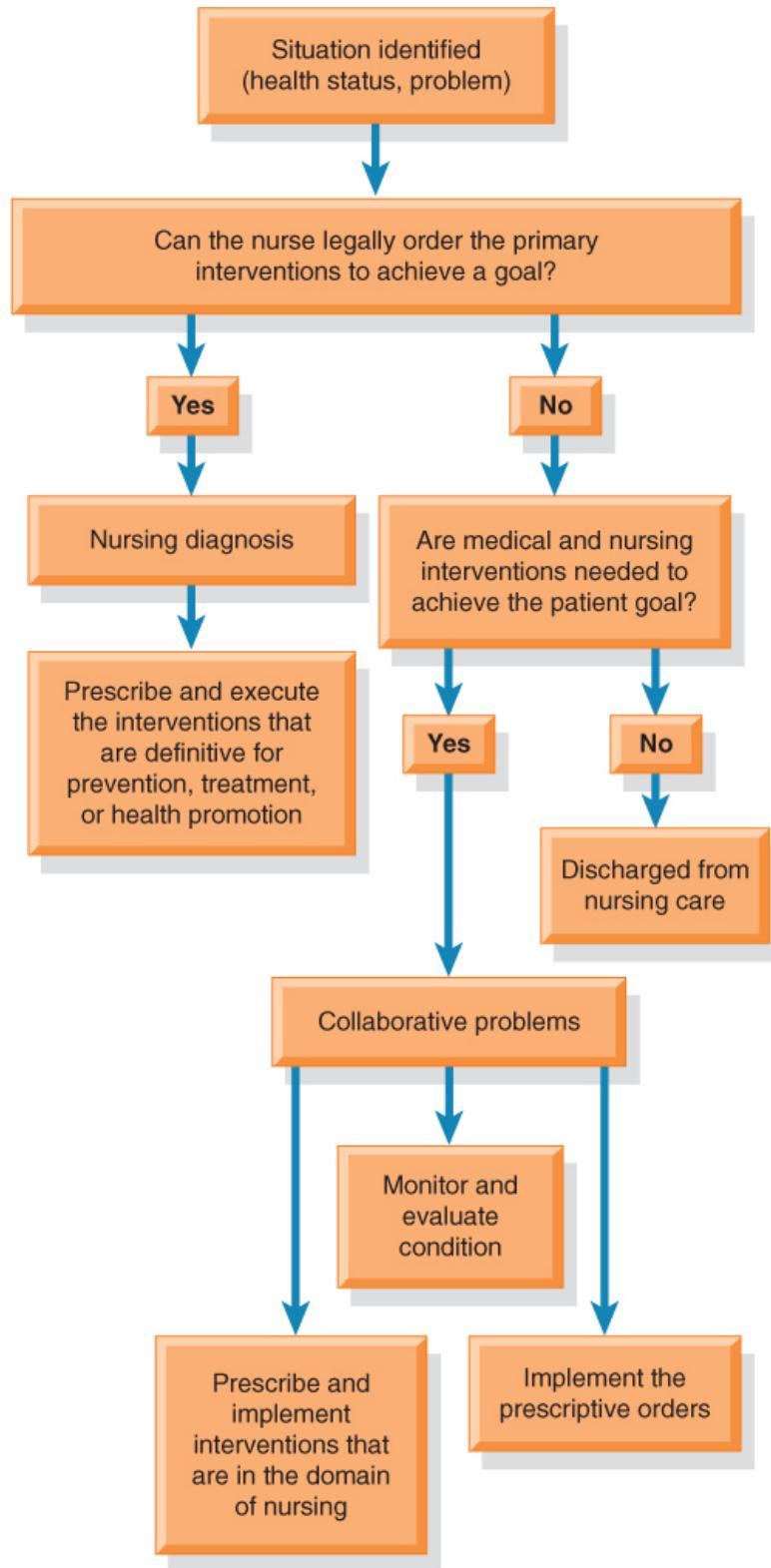


Figure 1-4 • Differentiating nursing diagnoses and collaborative problems. Redrawn with permission from Carpenito, L. J. (2017). *Nursing diagnosis: Application to clinical practice* (15th ed., p. 25). Philadelphia, PA: Lippincott Williams & Wilkins.

Planning

Once the nursing diagnoses have been identified, the planning component of the nursing process begins. This phase involves the following steps:

1. Assigning priorities to the nursing diagnoses and collaborative problems
2. Specifying realistic and measurable expected outcomes
3. Specifying the immediate, intermediate, and long-term goals of nursing action
4. Identifying specific nursing interventions appropriate for attaining the outcomes
5. Identifying interdependent interventions
6. Documenting the nursing diagnoses, collaborative problems, expected outcomes, nursing goals, and nursing interventions on the plan of nursing care
7. Communicating to appropriate personnel any assessment data that point to health care needs that can best be met by other members of the health care team

Setting Priorities

Assigning priorities to the nursing diagnoses and collaborative problems is a joint effort by the nurse and the patient or family members. Any disagreement about priorities is resolved in a way that is mutually acceptable. Consideration must be given to the urgency of the problems, with the most critical problems receiving the highest priority. Maslow Hierarchy of Needs provides one framework to prioritize problems (see previous discussion).

Establishing Expected Outcomes

Expected outcomes of the nursing interventions, identified either as long term or short term, are written in terms of the patient's behaviors and the time period in which the outcomes are to be met. The outcomes must be attainable and quantifiable (Carpenito, 2017). Resources for identifying appropriate expected outcomes include the ICNP and the standard outcome criteria developed by the Nursing Outcomes Classification (NOC) (Moorhead, Swanson, Johnson, et al., 2018) ([Chart 1-3](#)) and by health care agencies for people with specific health problems. These outcomes can be associated with nursing diagnoses and interventions and can be used when appropriate. However, the NOC may need to be adapted to establish realistic criteria for the specific patient involved.

The expected outcomes that define the patient's desired behavior are used to measure the progress made toward resolving the problem. The expected outcomes also serve as the basis for evaluating the effectiveness of the nursing interventions and for deciding whether additional nursing care is needed or whether the plan of care needs to be revised.

Establishing Goals

After the priorities of the nursing diagnoses and expected outcomes have been established, goals (immediate, intermediate, and long term) and the nursing actions appropriate for attaining the goals are identified. The patient and family are included in establishing goals for the nursing actions. Immediate goals are those that can be attained within a short time frame. Intermediate and long-term goals require a longer time frame to be achieved and usually involve preventing complications and other health problems and promoting self-care and rehabilitation. For example, goals for a patient with a nursing diagnosis of impaired mobility associated with pain and edema following total knee replacement may be stated as follows:

- Immediate goal: Stands at bedside for 5 minutes 6 to 12 hours after surgery
- Intermediate goal: Ambulates 15 to 20 minutes with walker or crutches in hospital and home
- Long-term goal: Ambulates independently 1 to 2 miles each day

Determining Nursing Actions

In planning appropriate nursing actions to achieve the desired goals and outcomes, the nurse, with input from the patient and significant others, identifies individualized interventions based on the patient's circumstances and preferences that address each outcome. Interventions should identify the activities needed, who will implement them, as well as the frequency. Determination of interdisciplinary activities is made in collaboration with other health care providers as needed. The patient's medications and other prescribed treatments should be integrated into the plan of care to assist the nurse in determining how all interventions contribute to resolution of the identified problems.

The nurse identifies and plans patient education as needed to assist the patient in learning certain self-care activities. Planned interventions should be ethical and appropriate to the patient's culture, age, developmental level, and gender. Standardized interventions, such as those found on standardized care plans, the ICNP, or in the Nursing Interventions Classification (NIC) (Butcher, Bulechek, Dochterman, et al., 2018) can be used. [Chart 1-4](#) describes the NIC system and provides an example of an NIC system intervention. It is important to individualize prewritten interventions to promote optimal effectiveness for each patient. Actions of nurses should be based on established standards.

Implementation

The implementation phase of the nursing process involves carrying out the proposed plan of nursing care. The nurse assumes responsibility for implementation and coordinates the activities of all those involved in implementation, including the patient and family, and other members of the health care team so that the schedule of activities facilitates the patient's recovery. The plan of nursing care serves as the basis for implementation as such:

- The immediate, intermediate, and long-term goals are used as a focus for the implementation of the designated nursing interventions.
- While implementing nursing care, the nurse continually assesses the patient and the patient's individual response to the nursing care.
- Revisions are made in the plan of care as the patient's condition, problems, and responses change and when reordering of priorities is required.

Implementation includes direct or indirect execution of the planned interventions. It is focused on resolving the patient's nursing diagnoses and collaborative problems and achieving expected outcomes, thus meeting the patient's health needs. The following are examples of nursing interventions:

- Supervise the patient performing active range-of-motion exercises three times a day.

Chart 1-3

Nursing Outcomes Classification

The Nursing Outcomes Classification (NOC) is a classification of patient outcomes that are sensitive to nursing interventions. Each outcome is a neutral statement about a variable patient condition, behavior, or perception, coupled with a rating scale. The outcome statement and scale can be used to identify baseline functioning, expected outcomes, and actual outcomes for individual patients. The following table is an example of a nursing-sensitive outcome.

Cardiac Pump Effectiveness (0400)

Definition: Adequacy of blood volume ejected from the left ventricle to support systemic perfusion pressure.

Outcome Target Rating Cardiac Pump Effectiveness	Maintain at	Increase to					
	Severe Deviation From Normal Range 1	Substantial Deviation From Normal Range 2	Moderate Deviation From Normal Range 3	Mild Deviation From Normal Range 4	No Deviation From Normal Range 5		
Indicators							
040001	Systolic blood pressure	1	2	3	4	5	NA
040019	Diastolic blood pressure	1	2	3	4	5	NA
040002	Apical heart rate	1	2	3	4	5	NA
040003	Cardiac index	1	2	3	4	5	NA
040004	Ejection fraction	1	2	3	4	5	NA
040006	Peripheral pulses	1	2	3	4	5	NA
040007	Heart size	1	2	3	4	5	NA
040020	Urine output	1	2	3	4	5	NA
040022	24-hour intake and output balance	1	2	3	4	5	NA
040025	Central venous pressure	1	2	3	4	5	NA
	Severe	Substantial	Moderate	Mild	None		
040009	Neck vein distention	1	2	3	4	5	NA
040010	Dysrhythmia	1	2	3	4	5	NA
040011	Abnormal heart sounds	1	2	3	4	5	NA
040012	Angina	1	2	3	4	5	NA
040013	Peripheral edema	1	2	3	4	5	NA
040014	Pulmonary edema	1	2	3	4	5	NA
040015	Diaphoresis	1	2	3	4	5	NA
040016	Nausea	1	2	3	4	5	NA
040017	Fatigue	1	2	3	4	5	NA
040023	Dyspnea at rest	1	2	3	4	5	NA
040026	Dyspnea with mild exertion	1	2	3	4	5	NA
040024	Weight gain	1	2	3	4	5	NA
040027	Ascites	1	2	3	4	5	NA
040028	Hepatomegaly	1	2	3	4	5	NA
040029	Impaired cognition	1	2	3	4	5	NA
040030	Activity intolerance	1	2	3	4	5	NA
040031	Pallor	1	2	3	4	5	NA
040032	Cyanosis	1	2	3	4	5	NA
040033	Flushed	1	2	3	4	5	NA

Used with permission from Moorhead, S., Swanson, E., Johnson, M., et al. (Eds.). (2018). *Nursing outcomes classification (NOC)* (6th ed.). St. Louis, MO: Mosby-Elsevier.

- Teach the patient who is postoperative to use an incentive spirometer 10 times every hour while awake.
- Monitor the patient for adverse effects of opioid analgesic medications, including sedation and respiratory depression.
- Assist the patient in developing a plan to reduce dietary sodium and increase daily activity.
- Administer sublingual nitroglycerin as prescribed to the patient who complains of angina.

- Assess electrolyte levels prior to administering scheduled intravenous diuretics.

Chart 1-4

Nursing Interventions Classification

The Nursing Interventions Classification (NIC) is an in-depth, evidence-based taxonomy of interventions that includes independent and collaborative interventions. These interventions are performed in a variety of health care settings. Intervention labels are terms such as *bleeding precautions*, *medication administration*, or *pain management: acute*. Listed under each intervention are multiple discrete nursing actions that together constitute a comprehensive approach to the treatment of a particular condition. Not all actions are applicable to every patient; nursing judgment and critical thinking will determine which actions to implement. The following is an example of a nursing intervention:

Fluid Resuscitation

Definition

Administering prescribed intravenous (IV) fluids rapidly

Activities

Obtain and maintain a large-bore IV.

Collaborate with primary providers to ensure administration of both crystalloids (e.g., normal saline and lactated Ringer's) and colloids (e.g., Hespan, and Plasmanate), as appropriate.

Administer IV fluids, as prescribed.

Obtain blood specimens for crossmatching, as appropriate.

Administer blood products, as prescribed.

Monitor hemodynamic response.

Monitor oxygen status.

Monitor for fluid overload.

Monitor output of various body fluids (e.g., urine, nasogastric drainage, and chest tube).

Monitor BUN, creatinine, total protein, and albumin levels.

Monitor for pulmonary edema and third spacing.

Used with permission from Butcher, H. K., Bulecheck, G. M., Dochterman, J. M., et al. (Eds.). (2018). *Nursing interventions classification (NIC)* (7th ed.). St. Louis, MO: Elsevier.

- Check gastric residuals in the patient receiving tube feedings before each feeding.

Clinical judgment, critical thinking, and good decision-making skills are essential in the selection of appropriate evidence-based and ethical nursing interventions. All nursing interventions are patient centered and outcome directed

and are implemented with compassion, skill, confidence, and a willingness to accept and understand the patient's responses.



Concept Mastery Alert

Implementation is nursing action. Therefore, statements involving implementation always start with a verb.

Although many nursing actions are independent, others are interdependent, such as carrying out prescribed treatments, administering medications and therapies, and collaborating with other health care team members to accomplish specific expected outcomes and to monitor and manage potential complications. Such interdependent functioning is just that—interdependent. Requests or prescriptions from other health care team members should not be followed blindly but must be assessed critically and questioned when necessary. The implementation phase of the nursing process ends when the nursing interventions have been completed.

Evaluation

Evaluation, the final step of the nursing process, allows the nurse to determine the patient's response to the nursing interventions and the extent to which the objectives have been achieved. The plan of nursing care is the basis for evaluation. The nursing diagnoses, collaborative problems, priorities, nursing interventions, and expected outcomes provide the specific guidelines that dictate the focus of the evaluation. Through evaluation, the nurse can answer the following questions:

- Were the nursing diagnoses and collaborative problems accurate?
- Did the patient achieve the expected outcomes within the critical time periods?
- Have the patient's nursing diagnoses been resolved?
- Have the collaborative problems been resolved?
- Do priorities need to be reordered?
- Have the patient's nursing needs been met?
- Should the nursing interventions be continued, revised, or discontinued?
- Have new problems evolved for which nursing interventions have not been planned or implemented?
- What factors influenced the achievement or lack of achievement of the objectives?
- Should changes be made to the expected outcomes and outcome criteria?

Objective data that provide answers to these questions are collected from all available sources (e.g., patients, families, significant others, health care team

members). These data are included in patients' records and must be substantiated by direct patient observation before the outcomes are documented.

Documentation of Outcomes and Revision of the Plan

Outcomes are documented concisely and objectively. Documentation should relate outcomes to the nursing diagnoses and collaborative problems, describe the patient's responses to the interventions, indicate whether the outcomes were met, and include any additional pertinent data. As noted previously, the nurse individualizes a plan of care for each patient's particular circumstances. [Chart 1-5](#) gives an example of a plan of nursing care that has been developed for a 22-year-old woman admitted to a postoperative surgical unit after having an emergent laparoscopic appendectomy.

The plan of care is subject to change as a patient's needs change, as the priorities of needs shift, as needs are resolved, and as additional information about a patient's state of health is collected. As the nursing interventions are implemented, the patient's responses are evaluated and documented, and the plan of care is revised accordingly. A well-developed, continuously updated plan of care is the greatest assurance that the patient's nursing diagnoses, and collaborative problems are addressed, and their basic needs are met.

Chart 1-5



PLAN OF NURSING CARE

Example of a Plan of Nursing Care for a Patient Post Laparoscopic Appendectomy

NURSING DIAGNOSIS: Acute pain**GOAL:** Relief of pain and discomfort

Nursing Interventions	Rationale	Expected Outcomes
<ol style="list-style-type: none">1. When taking vital signs, use pain scale to assess pain and discomfort characteristics: location, quality, frequency, durations, etc., at baseline and on an ongoing basis.2. Assure the patient that you know that pain is real and will assist in reducing it.3. Assess other factors contributing to patient's pain: fear; fatigue; other symptoms; psychosocial and/or spiritual distress, etc.4. Administer prescribed analgesic regimen, and provide education to patient and family regarding regimen.5. Address myths or misconceptions and lack of knowledge about use of opioid analgesics.6. Collaborate with patient, primary provider/surgeon, and other health care team members when changes in pain management are necessary.	<ol style="list-style-type: none">1. Provides baseline data.2. Fear that pain will not be considered real increases anxiety and reduces pain tolerance.3. Provides data about factors that decrease patient's ability to tolerate pain and increase pain level.4. Analgesics tend to be more effective when given early in pain cycle, around the clock at regular intervals, or when given in long-acting forms; breaks the pain cycle; premedication with analgesics is used for activities that cause increased pain or breakthrough pain.5. Barriers to adequate pain management involve patients' fear of side effects, fatalism about the possibility of achieving pain control, fear of distracting providers from treating the postoperative pain, belief that pain is	<ul style="list-style-type: none">• Reports decreased level of pain and discomfort on pain scale.• Reports less disruption in activity and quality of life from pain and discomfort.• Reports decrease in other symptoms and psychosocial distress.• Adheres to analgesic regimen as prescribed.• Barriers to adequately addressing pain do not interfere with strategies for managing pain.• Takes an active role in administration of analgesia.• Identifies additional effective pain relief strategies.• Uses previously employed successful pain relief strategies appropriately.• Reports effective use of nonpharmacologic pain relief

7. Encourage strategies of pain relief that patient has used successfully in previous pain experience.
8. Offer nonpharmacologic strategies to relieve pain and discomfort: distraction, guided imagery, relaxation, cutaneous stimulation, therapeutic touch, Reiki, etc.
- indicative of progressive disease, and fears about addiction. Professional health providers also have demonstrated limited knowledge about pain management, potential analgesic side effects, and management and risk of addiction.
6. New methods of administering analgesia must be acceptable to the patient, primary provider/surgeon, and health care team to be effective; patient's participation decreases sense of powerlessness.
7. Encourages success of pain relief strategies accepted by patient and family.
8. Increases options and strategies available to patient that serve as adjuncts to pharmacologic interventions.
- Strategies and a decrease in pain.
 - Reports that decreased level of pain permits early ambulation postoperatively.

NURSING DIAGNOSIS: Risk for infection (i.e., wound infection, pneumonia, urinary tract infection [UTI])

GOAL: No evidence of infection

Nursing Interventions	Rationale	Expected Outcomes
1. Assess wound site for signs of infection	1. Some manifestations of	• No drainage, increased

	<p>or increased inflammation:</p> <ol style="list-style-type: none"> If there is a dressing or bandage present, verify whether and when it will be changed by the primary provider/surgeon. Note the color, consistency, and amount of drainage, if present; if so, also note if any odor is present; notify the primary provider/surgeon as indicated. Note any changes in appearance of wound over time, particularly if it becomes increasingly edematous or erythematous. 	<p>Inflammation are to be expected (e.g., wound tenderness, slight erythema, and edema); however, this should decrease over time and there should be no evidence of an infection at the wound site.</p> <ol style="list-style-type: none"> The primary provider/surgeon may wish to remove the first dressing or bandage, to assess the status of the wound and presence of drainage firsthand. Drainage may indicate an infectious process, particularly if it is malodorous. Increased wound edema or erythema may indicate an infection. 	<p>erythema, or edema at the laparoscopic wound site.</p> <ul style="list-style-type: none"> Temperature within normal limits (i.e., between 36.1°C [97°F] and 38.0°C [100.4°F]). Lung sounds clear to auscultation; no cough. Voids clear yellow urine without complaints of burning on micturition or feelings of bladder fullness. Laboratory results, if assessed, are within normal limits.
3.	<p>Monitor for manifestations of atelectasis or pneumonia.</p> <ol style="list-style-type: none"> Assess for adventitious lung sounds (e.g., rales, wheezes) or for decreased air movement. 	<p>Changes in vital signs, particularly temperature, may suggest an infection; if these changes are marked, they may suggest sepsis (see Chapter 11 for further discussion of the clinical manifestations of</p>	

- b. Encourage early movement (e.g., demonstrate and encourage use of incentive spirometer, encourage early ambulation).
 - c. Preemptively treat postoperative pain, as described above.
 - 4. Monitor micturition status; note when patient first voids, the amount, and if there are any complaints of burning or bladder fullness; notify the primary provider/surgeon as indicated; monitor laboratory results, including the CBC and urinalysis as indicated.
- sepsis); laboratory results, particularly the presence of leukocytosis with a shift to the left on the differential of the white blood cell count (WBC) on the complete blood count (CBC), may suggest an infection is present. Postoperatively, most patients will have a slightly elevated temperature (up to 38.0°C [100.4°F]), which is consistent with the inflammatory process. A temperature higher than this in a previously healthy adult suggests some type of underlying infectious process.
- 3. Atelectasis and pneumonia are prevalent postoperative pulmonary complications (see [Chapter 16](#), [Table 16-4](#)).
 - a. Lung sounds should be clear to auscultation bilaterally; the presence of adventitious sounds may suggest the development of atelectasis or pneumonia; diminished lung

sounds may suggest poor air movement from splinting respirations, which can lead to respiratory compromise.

- b. Movement mobilizes respiratory secretions and respiratory effort.
 - c. Pain interferes with the ability to move; pain results in splinting of respiratory effort.
4. Urinary retention and urinary tract infections are prevalent postoperative complications (see [Chapter 16](#), [Table 16-4](#)); CBC results may reveal leukocytosis with a shift to the left on the WBC differential; urinalysis results may reveal the presence of blood cells (e.g., red blood cells [RBCs], WBCs) that may suggest a urinary tract infection.

NURSING DIAGNOSIS: Impaired nutritional status associated with perioperative *nil per os* (NPO) status

GOAL: Will consume typical diet by discharge

Nursing Interventions	Rationale	Expected Outcomes
1. Assess for return of gastrointestinal function postoperatively. a. Auscultate for the presence of bowel sounds. b. Ask the patient if they have passed flatus. c. Encourage early ambulation as this will assist with return of gastrointestinal function.	1. Gastrointestinal motility is diminished post surgery; peristalsis should return within hours and is evidenced by return of bowel sounds and passing of flatus.	• Will advance diet, as tolerated. • No complaints of nausea.
2. Advance diet as tolerated and prescribed by primary provider/surgeon. a. Assess for complaints of nausea. If present, may give antiemetic medications as prescribed (e.g., ondansetron) and delay advancement of diet.	2. Patient will need to demonstrate ability to tolerate fluids and food prior to discharge. a. Complaints of nausea are prevalent post laparoscopic surgery; if patient vomits, that may delay recovery (e.g., disrupt wound, delay intake of nutrients); administering antiemetic medications may preempt complications.	

NURSING DIAGNOSIS: Activity intolerance associated with fatigue post surgery

GOAL: Participation in activities of daily living within tolerance

Nursing Interventions	Rationale	Expected Outcomes
<ol style="list-style-type: none"> 1. Assess factors contributing to activity intolerance and fatigue. 2. Promote atmosphere conducive to physical and mental rest: <ol style="list-style-type: none"> a. Encourage alternation of rest and activity. b. Encourage limitation of visitors and stress-producing interactions. 	<ol style="list-style-type: none"> 1. Indicates factors contributing to severity of fatigue 2. Promotes rest, activity tolerance, and decreased overall stress 	<ul style="list-style-type: none"> • Identifies factors contributing to fatigue • Alternates periods of rest and activity • Limits visitors to ensure adequate rest periods

NURSING DIAGNOSIS: Lack of knowledge regarding methods to ensure postoperative recovery

GOAL: Increased knowledge about expected postoperative recovery and transition back to preoperative baseline functional status

Nursing Interventions	Rationale	Expected Outcomes
<ol style="list-style-type: none"> 1. Educate patient on expectations for recovery, discharge, and transition to home. <ol style="list-style-type: none"> a. Demonstrate wound care to patient, as prescribed by primary provider/surgeon; ask patient to return demonstrate wound care. b. Educate patient on use of prescribed analgesic medications 	<ol style="list-style-type: none"> 1. Inpatient recovery time after a laparoscopic appendectomy is short (e.g., 1 day, assuming there are no complications [see Chapter 16, Table 16-4]); therefore, preparing patient for discharge must commence expeditiously. 	<ul style="list-style-type: none"> • Demonstrates appropriate care of wound. • Verbalizes understanding of continued analgesic regimen, including when to take prescriptive analgesic medications (e.g., oxycodone), and whether there are any activity restrictions associated with their use (e.g., no driving).

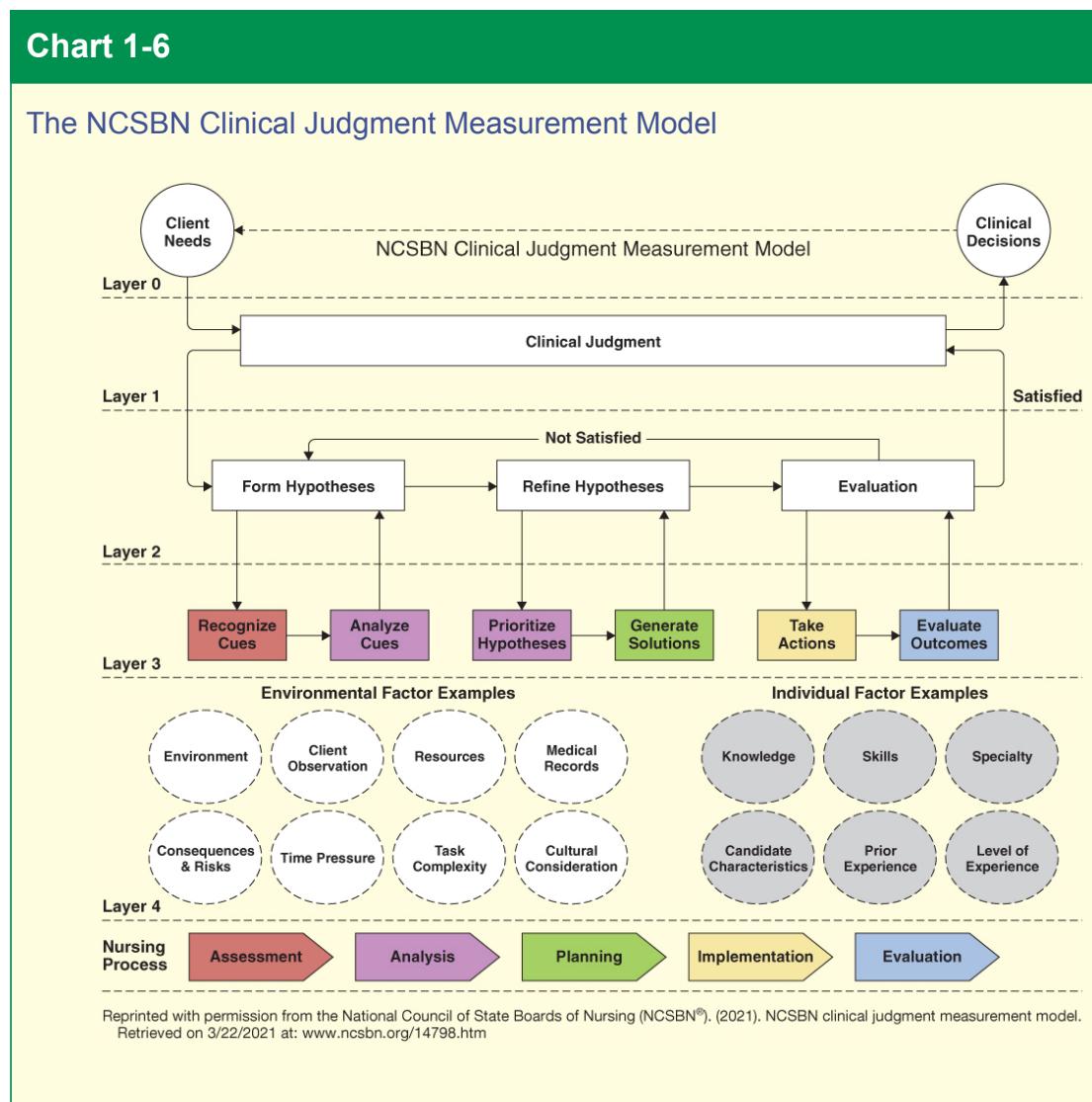
- (e.g., oxycodone), including actions, indications, side effects, and when to take them (e.g., prior to ambulation).
- c. Educate patient on activity restrictions (e.g., bathing, lifting, return to work or school) as prescribed by primary provider/surgeon.
 - d. Educate patient on when to follow up with primary provider/surgeon postoperatively, for scheduled postoperative appointment and as needed.
- Verbalizes understanding of activity restrictions, including bathing, lifting, return to work/school, as prescribed by primary provider/surgeon.
 - Verbalizes adherence to scheduled postoperative appointment.

Frameworks for a Common Approach to Nursing

Various frameworks or taxonomies can be used for determining nursing diagnoses, establishing outcomes, designing interventions, and guiding clinical decision making. Ultimately, a framework that uses a language common to all aspects of nursing, regardless of the classification system, is desirable. In 2001, a taxonomy of nursing practice was developed for the harmonization of NANDA-I, NIC, and NOC. This three-part combination links nursing diagnoses, accompanying interventions, and outcomes, organizing them in the same way. Similarly, the ICNP has developed catalogues that align nursing diagnoses, outcome statements, and intervention statements. Such organization of concepts in a common language or taxonomy may facilitate the process of clinical judgment and critical thinking, because interventions and outcomes are more accurately matched with appropriately developed nursing diagnoses (Carpenito, 2017). More recently, the National Council of State Boards of Nursing (NCSBN®) developed the NCSBN Clinical Judgment Measurement Model, which offers a framework to measure clinical decision making and clinical judgment in the context of the National Council Licensure Examination (NCLEX-RN® examination; see [Chart 1-6](#)). [Figure 1-5](#) illustrates the application of this model to the nursing process.

Ethical Nursing Care

In the complex health care world, nurses are faced with numerous ethical issues. Consequently, there has been a heightened interest in the field of ethics in an attempt to gain a better understanding of how these issues can be addressed. Specifically, the focus on ethics in health care has intensified in response to controversial developments, including advanced technology, genomics, medical futility, scarcity of resources, and end-of-life issues, to name a few.



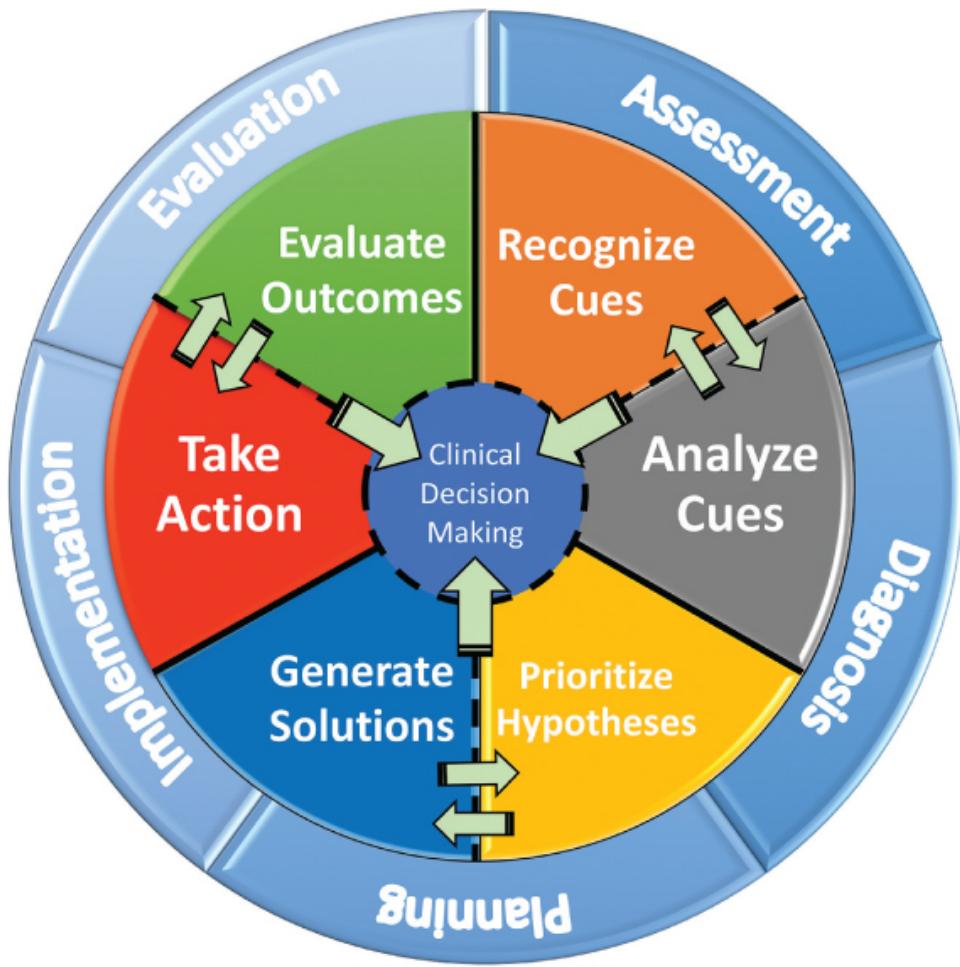


Figure 1-5 • Clinical judgment domains. Reprinted with permission from Brenton, A. & Petersen, E. K. (2019). *Next generation NCLEX® (NGN) Educator Webinar Part I*. Chicago, IL: National Council of State Boards of Nursing (NCSBN®).

Today, sophisticated technology can prolong life well beyond the time when death would have occurred in the past. Expensive experimental procedures, clinical trials, complex equipment and treatments are available to prolong life, even when such attempts may not provide quality of life. The development of technologic support has influenced the quality and delivery of nursing care at all stages of life and also has contributed to an increase in average life expectancy. For example, robotic technology is helping older adults living in the community to better manage chronic health problems (Bakas, Sampsel, Israel, et al., 2018). Adults with end-stage heart failure who are not candidates for cardiac transplantation can live longer with the support of newer generation left ventricular assist devices (LVADs), which require less invasive surgery and are associated with less complications than older model LVADs (Kubrusly, 2019). Advances in immunotherapy have increased life expectancies for patients diagnosed with advanced stage melanomas and nonsquamous cell lung cancers.

(Munro, 2019). Patients who would have died of organ failure are living longer because of organ transplantation and stem cell transplant.

These advances in technology have been a mixed blessing. Questions have been raised about whether it is appropriate to use such technology and, if so, under what circumstances. Although many patients do achieve a good quality of life, others face extended suffering as a result of efforts to prolong life, usually at great expense both emotionally and financially. Ethical issues also surround those practices or policies that seem to allocate health care resources unjustly on the basis of age, race, gender, disability, or social mores. Older adults may be at risk for being denied health care because of their advanced age and the bias known as ageism (see [Chapter 8](#) for a further discussion of ageism).

Ethical dilemmas that nurses may encounter in the medical-surgical nursing arena are diverse and occur in all settings. An awareness of underlying concepts helps nurses use reason to work through these dilemmas. Basic concepts related to moral philosophy, such as ethics and its principles, theories, and approaches, are included in this chapter. Understanding the role of the professional nurse in ethical decision making not only helps nurses articulate their ethical positions and develop the skills needed to make ethical decisions, but also helps them use the nursing process to develop plans of care from an ethical perspective.

Ethics versus Morals

The terms *ethics* and *morality* are used to describe beliefs about right and wrong and to suggest appropriate guidelines for action. In essence, **ethics** is the formal, systematic study of moral beliefs to understand, analyze, and evaluate matters of right and wrong; whereas, **morality** includes specific values, characters, or actions whose outcomes are often examined through systematic ethical analysis. Because the distinction between ethics and morality is slight, the terms are often used interchangeably.

Ethics Theories

One classic theory in ethics is teleologic theory or consequentialism, which focuses on the ends or consequences of actions. The best-known form of this theory, utilitarianism, is based on the concept of “the greatest good for the greatest number.” The choice of action is clear under this theory, because the action that maximizes good over bad is the correct one. The theory poses difficulty when one must judge intrinsic values and determine whose good is the greatest. In addition, it is important to ask whether good consequences can justify any amoral actions that might be used to achieve them.

Chart 1-7 ETHICAL DILEMMA

Common Ethical Principles

The following common ethical principles may be used to validate moral claims.

Autonomy

This word *autonomy* is derived from the Greek words *autos* ("self") and *nomos* ("rule" or "law") and therefore refers to self-determination. The principle of autonomy entails the right of patients to receive adequate and accurate information so that they have the ability to make a choice free from external constraints. It is synonymous with self-determination.

Beneficence and Nonmaleficence

Beneficence is the duty to perform acts that can be of benefit others. It also entails taking positive action to prevent patients from harming themselves or others, including society as a whole. There is also an implied commitment to help people with disability.

Nonmaleficence is the duty to not inflict harm. The only time when it is considered morally permissible to exercise power over a competent person against their will is when by doing so, harm to others is prevented.

Double Effect

The double effect is a principle that may morally justify some actions that produce both good and evil effects.

All four of the following criteria must be fulfilled:

1. The action itself is good or morally neutral.
2. The agent sincerely intends the good and not the evil effect (the evil effect may be foreseen but is not intended).
3. The good effect is not achieved by means of the evil effect.
4. There is proportionate or favorable balance of good over evil.

Distributive Justice

From a broad perspective, justice states that like cases should be treated alike. More specifically, distributive justice is an ethical principle commonly applicable to clinical situations. This principle is upheld when benefits and burdens are distributed equitably and fairly without consideration of age, gender, socioeconomic status, religion, ethnicity, or sexual orientation. Simply stated, there is an ethical obligation to distribute or allocate resources fairly.

Adapted from Beauchamp, T. L., & Childress, J. F. (2019). *Principles of biomedical ethics* (8th ed.). New York: Oxford University Press.

Another theory in ethics is the deontologic or formalist theory, which argues that ethical standards or principles exist independently of the ends or consequences. In a given situation, nurses have a "sense of duty" to act based on the one relevant principle, or the most relevant of several ethical principles. Their actions must be independent of the ends or consequences. Problems arise with

this theory when personal and cultural biases influence the choice of the most primary ethical principle.

Approaches to Ethics

Two approaches to ethics are meta-ethics and applied ethics. An example of meta-ethics (understanding the concepts and linguistic terminology used in ethics) in the health care environment is analysis of the concept of informed consent. Nurses are aware that patients must give consent before surgery; however, sometimes a question arises as to whether a patient is truly informed and mentally competent. Delving more deeply into the concept of informed consent would be a meta-ethical inquiry (see [Chapter 14](#) for more information about informed consent before surgery).

Applied ethics refers to identification of ethical problems relevant to a specific discipline and that discipline's practice. It addresses the implications of actions or practices in terms of their moral permissibility. Various disciplines use the frameworks of general ethical theories and principles and apply them to specific problems within their domain. Nursing ethics may be considered a form of applied ethics because it addresses moral situations that are specific to the nursing profession and patient care. Common ethical principles that can be used to validate moral claims in clinical practice include autonomy, beneficence and nonmaleficence, double effect, and distributive justice. Brief definitions of these important principles can be found in [Chart 1-7](#).

Moral Situations

Many situations exist in which ethical analysis is needed. Some are **moral dilemmas**, or situations in which a clear conflict exists between two or more moral principles or competing moral claims, and nurses must choose the lesser of two evils. Other situations represent **moral problems**, in which there may be competing moral claims or principles, although one claim or principle is clearly dominant. Some situations result in **moral uncertainty**, when one cannot accurately define what the moral situation is or what moral principles apply but has a strong feeling that something is not right. Still other situations may result in **moral distress**, in which one is aware of the correct course of action, but institutional constraints stand in the way of pursuing the correct action. Altaker, Howie-Esquivel, and Cataldo (2018) found that moral distress in critical-care nurses was related to perceptions of a poor ethical climate and poor personal empowerment (see [Nursing Research Profile in Chart 1-8](#)).

Many scenarios may occur in clinical practice that require an ethical analysis. For example, an older adult patient with a history of advanced dementia and heart failure is admitted to the hospital with shortness of breath and diagnosed with aspiration pneumonia. This is the patient's third hospitalization in the last year for aspiration pneumonia. The patient fails a swallow evaluation and the speech-language pathologist recommends that the patient remain NPO (nothing by mouth). The primary provider coordinates a family meeting to discuss options for

nutrition which include inserting a percutaneous feeding tube or carefully hand feeding the patient to promote comfort. The team learns that the patient never completed a living will or assigned a health care representative. The patient's son recalls his mother telling him once on a trip to Italy that "eating was one of her greatest pleasures." However, the patient's daughter is adamant that her mother receives a feeding tube, despite learning that feeding tubes do not increase survival and are associated with complications in patients with significant cognitive deficits. Both the son and daughter have a close relationship with their mother, but neither have had a formal discussion with her about her end-of-life wishes. They do not have any other siblings and their father died several years ago suddenly from a cerebral aneurysm. The son is reluctant to go against his sister's wishes. The nurse has worked with other patients and families in similar situations and knows that his role is to advocate for his patient. He is familiar with current literature which suggests enteral feedings do not improve nutritional or functional status in this population and feels strongly that a feeding tube will not enhance the patient's quality of life. The primary provider is concerned that the daughter will create "problems" for the hospital if a feeding tube is not inserted and states that "he does not have time to deal with her" so schedules the patient for the procedure. The nurse feels strongly that this is the wrong decision and that the daughter would benefit from more education and time to process this complex decision. However, the nurse does not feel empowered to voice his concerns to the primary provider and is left feeling a sense of moral distress; he knows the right course of action, but institutional factors, including existing power hierarchies among nurses and primary providers and lack of time and additional supportive services, prevent him from acting. The nurse wishes that he had had more time to discuss this case with his charge nurse or nurse manager, or to consult the palliative care team which is not in the hospital on the weekends, and today is a Saturday.

Chart 1-8 NURSING RESEARCH PROFILE

Moral Distress in Critical-Care Nurses

Altaker, K. W., Howie-Esquivel, J., & Cataldo, J. K. (2018). Relationships among palliative care, ethical climate, empowerment, and moral distress in intensive care unit nurses. *American Journal of Critical Care*, 27(4), 295–302.

Purpose

Between 10% and 29% of patients admitted to intensive care units (ICUs) die. Difficulty delivering adequate end-of-life comfort care can cause moral distress among nurses who work in ICUs. Delivering quality comfort care can be predicated upon the ability of the critical-care nurses to appropriately access palliative care services. Moral distress may also be affected by the overall ethical climate in the ICU, as well as by the personal sense of empowerment by the individual critical-care nurse. Therefore, the purpose of this study was to evaluate relationships between critical-care nurses' moral distress, palliative care service access, ICU ethical climate, and personal empowerment.

Design

A Web-based survey was sent to a nationally representative sample of critical-care nurses who belonged to the American Association of Critical-Care Nurses. In order to be eligible for the study, participants had to be currently working as a direct provider of nursing care in an adult ICU and had to have provided care to at least one dying patient within the past 6 months. Of those who agreed to participate, 235 completed all survey items. Items included in the survey were derived from psychometrically validated instruments including the Moral Distress Scale-Revised, the Hospital Ethical Climate Survey, and the Psychological Empowerment Instrument. In addition, survey items that assessed participants' perceptions of access to, use of, and barriers to palliative care in the ICU were developed and included in the survey.

Findings

Moral distress was negatively associated with feelings of empowerment ($r = -0.145$; $p = 0.02$) and with the ICU ethical climate ($r = -0.354$; $p < 0.001$). Multiple regression analysis found that the factors that contributed to variance in moral distress included the ICU ethical climate, access to palliative care services, size of the ICU, and personal characteristics of the nurse, such as ethnicity and educational level. The factor that contributed the most to moral distress was the ICU ethical climate, with a positive ICU ethical climate correlating with lower levels of moral distress.

Nursing Implications

Findings from this study suggest that critical-care nurses who feel less empowered also feel greater moral distress; however, this relationship was not clear when the variable of ICU ethical climate was analyzed. It seems that personal characteristics of the critical-care nurse, including feelings of empowerment, as well as the ethical climate within the ICU, have roles in determining whether the critical-care nurse experiences moral distress. An unexpected finding was that critical-care nurses who reported access to

palliative care services reported greater moral distress. The quality of the interprofessional relationships between critical-care nurses and interdisciplinary members of palliative care teams must be explored. Further studies must be conducted to better discern the causes of moral distress among critical-care nurses so that appropriate interventions may be targeted to mitigate moral distress, which can cause nurse burnout and patient care avoidance.

It is essential that nurses freely engage in dialogue concerning moral situations, even though such dialogue is difficult for everyone involved. Improved interdisciplinary collaboration is supported when all members of the health care team can voice their concerns and come to an understanding of the moral situation. Consultation with an ethics committee could be helpful to assist the health care team, patient, and family to identify the moral dilemma and possible approaches to the dilemma (see the Ethics Committees section). Nurses should be familiar with agency policy supporting patient self-determination and resolution of ethical issues.

Types of Ethical Problems in Nursing

As a profession, nursing is accountable to society. Nursing has identified its standards of accountability through formal codes of ethics that explicitly state the profession's values and goals. The ICN has endorsed a globally applicable *Code of Ethics for Nurses* (ICN, 2012). Likewise, the ANA established a *Code of Ethics for Nurses* that includes ethical standards, each with its own interpretive statements (ANA, 2015a). The interpretive statements provide guidance to address and resolve ethical dilemmas by incorporating universal moral principles. In addition, the ANA sponsors a Center for Ethics and Human Rights that contains a repository of position statements that can be used to guide nursing practice ([Chart 1-9](#)).

Ethical issues have always affected the role of professional nurses. The accepted definition of professional nursing not only supports the advocacy role for nurses, but also the claim that nurses must be actively involved in the decision making process regarding ethical concerns surrounding health care and human responses. Nurses are morally obligated to present ethical conflicts within a logical, systematic framework. Health care settings in which nurses are valued members of the team promote interdisciplinary communication and may enhance patient care. The nurse presented in the case study in the previous section is morally obligated to address his concerns constructively. He should carve out the time to discuss his concerns within his chain of command, through notifying his charge nurse of his concerns for the patient. To practice effectively in these settings, nurses must be aware of ethical issues and serve as patient advocates to assist patients in asserting their autonomy in decision making.

Chart 1-9

Position Statements from the American Nurses Association Center for Ethics and Human Rights

Position Statement	Latest Approval/Revision Date
Addressing Nurse Fatigue to Promote Safety and Health	Revised 9/10/14
Capital Punishment and Nurses' Participation in Capital Punishment	Revised 2016
Euthanasia, Assisted Suicide, and Aid in Dying	Revised 4/24/19
Nurse's Role in Providing Ethically and Developmentally Appropriate Care to People with Intellectual and Developmental Disabilities	Approved 10/10/19
Nursing Advocacy for LGBTQ+ Populations	Approved 4/19/18
Nursing Care and Do Not Resuscitate (DNR) and Allow Natural Death (AND)	Approved 3/12/12
Nutrition and Hydration at the End of Life	Revised 6/7/17
Privacy and Confidentiality	Revised 6/2015
Reduction of Patient Restraint and Seclusion in Health Care Settings	Approved 3/12/12
Registered Nurses' Role and Responsibilities in Providing Expert Care and Counseling at End of Life	Revised 2016
Risk and Responsibility in Providing Nursing Care	Approved 6/2015
Stem Cell Research	Approved 1/10/07
The Nurses' Role in Ethics and Human Rights: Protecting and Promoting Individual Worth, Dignity, and Human Rights in Practice Setting	Approved 2/2016
Therapeutic Use of Marijuana and Related Cannabinoids	Revised 2016

Nursing theories that incorporate the biopsychosocial–spiritual dimensions emphasize a holistic viewpoint, with humanism or caring at the core. Caring and compassion are often cited as virtues inherent within the moral foundation for professional nursing practice. For nurses to embrace this professional ethos, they must be aware not only of major ethical dilemmas but also of those daily interactions with health care consumers that frequently give rise to less easily identifiable ethical challenges. Although technologic advances and diminished resources have been instrumental in raising numerous ethical questions and controversies, including life-and-death issues, nurses should not ignore the many routine situations that involve ethical considerations. Some of the most common issues faced by nurses today include confidentiality, the use of restraints, truth-telling, refusing to provide care, and end-of-life decisions and palliative care.

Confidentiality

All nurses should be aware of the confidential nature of information obtained in daily practice. Confidentiality acknowledges and respects each person's privacy. If information is not pertinent, nurses should question whether it is prudent to document it in a patient's record. In the practice setting, discussion of patients

with other members of the health care team is often necessary. However, these discussions should occur in a private area where it is unlikely that the conversation will be overheard. Nurses should also be aware that the use of family members or hospital ancillary personnel as interpreters for patients who are not fluent in English language or who are deaf violates patients' rights of confidentiality. Translation services should be provided for non-English-speaking patients, and interpreters should be provided for those who use sign language by the hospital or institution.

Another threat to confidentiality is the widespread use of computer-based technologies, particularly EHRs, and people's easy access to them. The growing demand for telehealth innovations and the increasing use of this method can result in unchecked access to health information. In addition, personal and health information is often made available to numerous individuals and corporate stakeholders, which may increase the potential for misuse of health care information. Because of these possibilities of maleficence, sensitivity to the principle of confidentiality is essential. The ANA (2015) published a position statement that addresses patients' rights to privacy and confidentiality of their health information.

Federal legislation has been developed to protect the right of confidentiality. According to the Health Insurance Portability and Accountability Act (HIPAA) (HHS, 2003), efforts must be made to protect each patient's private health information (PHI), whether it is transmitted by verbal, written, or electronic means of communication. Communication should be confined to the appropriate settings and with appropriate individuals and should occur for the appropriate purposes of facilitating patient care. Violations of protection of any patient's privacy could result in criminal or civil litigation (HHS, 2003).

Restraints

The use of restraints (including physical and pharmacologic measures) and patient seclusion are additional issues with ethical overtones because of the limits on a person's autonomy and human dignity when these measures are used. Nurses must weigh carefully the risks of limiting autonomy and increasing the risks of injury by using restraints against the risks of injury if not using restraints, which have been documented as resulting in physical harm and death. The ANA (2012) advocates that in situations where restraints and seclusion must be used, all staff must be educated on safety measures. In addition, there must be adequate staff that are vigilant in monitoring their use. These interventions may be utilized only when there is no other viable option available. **The Joint Commission**, a nonprofit organization that accredits hospitals and health care organizations, and CMS have designated standards for the use of restraints (see The Joint Commission and CMS Web sites listed in the Resources section).

Trust Issues

Truth-telling or veracity is one of the basic principles in the nurse–patient relationship. Truth-telling is based upon the principle of autonomy; it requires that the nurse understands and supports patient self-determination (Beauchamp & Childress, 2019). For example, failure to disclose a diagnosis to a patient deprives the person of the right to make informed decisions. Three ethical dilemmas in clinical practice that can directly conflict with this principle are the use of placebos (nonactive substances used for treatment), not revealing a diagnosis to a patient, and revealing a diagnosis to people other than the patient with the diagnosis. All involve the issue of trust, which is an essential element in the nurse–patient relationship.

Placebos may be used in experimental research, in which a patient is involved in the decision making process and is aware that placebos are being used in the treatment regimen. However, the use of a placebo as a substitute for an active drug to show that a patient does not have actual symptoms of a disease is deceptive, has both ethical and legal implications, and severely undermines the nurse–patient relationship.

Informing a patient of his or her diagnosis when the family and primary provider have chosen to delay full disclosure of pertinent information is an ethical dilemma that can occur in nursing practice. The nurse may experience moral distress when asked by the patient for a truthful diagnosis. The nurse may use evasive comments with the patient in these situations. This area is indeed complex, because it challenges a nurse's **moral integrity**. Nurses could consider the following strategies:

- Avoid lying to the patient.
- Provide all information related to nursing procedures and diagnoses.
- Act as a patient advocate and communicate the patient's requests for information to the family and primary provider. The family is often unaware of the patient's repeated questions to the nurse. With a better understanding of the situation, the family members may change their perspective.
- Make a referral to the institution's ethics committee.

Although providing the information may be the morally appropriate behavior, the manner in which the patient is told is important. Nurses must be compassionate and caring when informing patients; disclosure of information merely for the sake of patient autonomy does not convey respect for others and in some circumstances may result in emotional distress. Family support or the support of a spiritual advisor (e.g., chaplain) may be needed to reduce the impact of distressing information or a poor prognosis.

Disclosing the patient's diagnosis to others without the patient's consent is a HIPAA violation and therefore is not only unethical but also illegal. Failure to protect the patient's right to privacy and a breach of confidentiality is unethical.

Refusing to Provide Care

Any nurse who feels morally obliged to refuse to provide care for a particular type of patient faces an ethical dilemma. Reasons for refusal range from a conflict of personal values to a fear that the nurse would place either the patient or self in jeopardy. Feelings related to care of people of different ethnicities or sexual orientation also surface as societal changes emerge. The ethical obligation to care for all patients is clearly identified in the *Code of Ethics for Nurses* (ANA, 2015a). Accordingly, the nurse must give patient-centered care to all patients, regardless of their socioeconomic status, sexual orientation, gender expression, ethnicity, or proximity to death. In particular, patients facing end-of-life decisions must receive supportive care, which must be extended to their family and surrogate decision makers (ANA, 2015a).

End-of-Life Issues

Dilemmas that center on death and dying are prevalent in medical-surgical nursing practice. With the availability of increasingly sophisticated and advanced technology, it may be difficult to accept that nothing more can be done to prolong life or that technology may prolong life but at the expense of the patient's comfort and quality of life. When providing end-of-life care, nurses serve as the patient's advocate and manage pain and suffering. Nurses have the moral obligation to facilitate a patient's right to self-determination. Furthermore, nurses should facilitate end-of-life discussions between the patient and the family in order to prevent suffering and preserve the patient's dignity (ANA, 2015a).

Many people who are terminally ill seek legal options for a peaceful and dignified death. Nurses who deliver palliative care must understand that their actions are targeted at relieving pain and suffering and not hastening death. According to Provision 1.4 of the *Code of Ethics for Nurses*, "The nurse should provide interventions to relieve pain and other symptoms in the dying patient consistent with palliative care practice standards and may not act with the sole intent to end life (2015a, p. 3)," even if the intent to end life is motivated by compassion or respect for patient autonomy.

End-of-life issues shift the focus from curative care to palliative and end-of-life care. Focusing on the caring as well as the curing role may help nurses deal with these difficult moral situations. Needs of patients and families require holistic and interdisciplinary approaches. End-of-life issues that often involve ethical dilemmas include pain control, "do not resuscitate" (DNR) orders, life support measures, and administration of food and fluids. These issues are discussed in detail in [Chapter 13](#).

Preventive Ethics

When a nurse is faced with two conflicting alternatives, it is the nurse's moral responsibility to choose the lesser of the two evils. These situations often result in feelings of moral distress in the nurse who is obliged to make a choice.

Patient Self-Determination

Frequently, dilemmas occur when health care practitioners are unsure of the patient's wishes because the patient is unconscious or mentally incompetent and cannot communicate. The Patient Self-Determination Act, enacted in December 1991, encourages people to prepare advance directives in which they indicate their wishes concerning the degree of supportive care they wish if they become incapacitated. This legislation requires that patients be informed about advance directives by the staff of the health care facility.

Advance directives are legal documents that specify a person's wishes before hospitalization and provide valuable information that may assist health care providers in decision making. A living will is one type of advance directive. Typically, living wills are limited to situations in which the patient's medical condition is deemed terminal. Because it is difficult to define *terminal* accurately, living wills are not always honored. Another potential drawback is that living wills are frequently written while people are in good health. It is not unusual for people to change their minds as an illness progresses; therefore, patients retain the option to nullify these documents.

Identifying a health care representative, in which one person identifies another person to make health care decisions on his or her behalf, is another type of advance directive. It is the responsibility of the health care representative to act as the patient stated in the advance directive. For example, patients may have clarified their wishes concerning various medical situations. If there is no advance directive, the health care representative must act in good faith and make decisions that they believe the patient would make if mentally competent. Laws concerning advance directives vary among state jurisdictions. However, even in states where these documents are not legally binding, they provide helpful information to determine the patient's prior expressed wishes in situations in which this information can no longer be obtained.

Advance directives are limited in scope to hospital and long-term care facility environments. Emergency medical system (EMS) personnel (e.g., paramedics) therefore cannot legally follow advance directives. Yet, there are many patients with debilitating long-term chronic and eventually fatal illnesses who reside at home. Some of these patients may not wish to have invasive, life-sustaining emergency interventions should their status rapidly deteriorate. To protect the wishes of these patients to forego life-sustaining treatments, a document titled Physician Orders for Life-Sustaining Treatment (POLST) has been legally endorsed by many states. POLST gives EMS personnel the ability to rapidly determine whether a patient wishes to have cardiopulmonary resuscitation (CPR) or receive any type of emergency interventions that may sustain life in the event when the patient suddenly becomes incapacitated (National POLST Paradigm, 2019).

Ethics Committees

Institutional ethics committees exist in many hospitals to assist clinicians with ethical dilemmas. The purpose of these multidisciplinary committees varies among institutions. In some hospitals, the committees exist solely for the purpose

of developing policies; whereas in others, they may have a strong educational or consultation focus. Consultations can be conducted on the nursing unit, at the patient's bedside, or in a designated conference room. These committees usually are composed of people with some advanced training in ethics and are important resources for the health care team, patient, and family. Nurses with a particular interest or expertise in the area of ethics can serve as members of these committees, which are valuable resources for staff nurses. In addition, primary providers, social workers, and hospital chaplains are often members of the team.

Ethical Decision Making

Ethical dilemmas are common and diverse in nursing practice. Situations vary, and experience indicates that there are no clear solutions to these dilemmas (Beauchamp & Childress, 2019). However, the fundamental philosophical principles are the same, and the process of moral reflection helps nurses justify their actions. The systematic approach to ethical decision making can follow the steps of the nursing process. Ethics charts contained in all units within this text present case scenarios that challenge the reader to identify the ethical principles involved that may or may not be in conflict ([Chart 1-10](#)). [Chart 1-10](#) outlines the steps of an ethical analysis that may be used to resolve the moral dilemmas presented in these charts.

Chart 1-10 ETHICAL DILEMMA

Steps of an Ethical Analysis

The following guidelines reflect an active process in decision making, similar to the nursing process detailed in this chapter. Nurses can use these guidelines to engage in ethical decision making. Key resources that may assist in ethical decision making are also included.

Assessment

1. Once the ethical issue has been identified, assess the ethical/moral situations of the problem. This step entails recognition of the ethical, legal, and professional dimensions involved.
 - a. Does the situation entail substantive moral problems (conflicts among ethical principles or professional obligations)? Examine the ethical issue using the principles of autonomy, beneficence, justice, and nonmaleficence.
 - b. Are there procedural conflicts? (e.g., Who should make the decisions? Any conflicts among the patient, health care providers, family, and guardians?)
 - c. Identify the significant people involved and those affected by the decision.
 - d. Identify agency or hospital policy or protocol to use when a conflict exists. Is there an ethics committee or council? How is an ethics consult made, and who may request this consultation? What other resources are available to help resolve this conflict?

Planning

2. Collect information.
 - a. Include the following information: the medical facts, treatment options, nursing diagnoses, legal data, and the values, beliefs, cultures, and religious components.
 - b. Make a distinction between the factual information and the values/beliefs.
 - c. Validate the patient's capacity, or lack of capacity, to make decisions.
 - d. Identify any other relevant information that should be elicited.
 - e. Identify the ethical/moral issues and the competing claims.
 - f. If it is an end-of-life issue, determine whether an advance directive exists and whether a medical power of attorney or a health care representative has been identified.

Implementation

3. List the alternatives. Compare alternatives with applicable ethical principles and the 2015 ANA *Code of Ethics for Nurses*. Choose either of the frameworks that follow, or other frameworks, and compare outcomes.
 - a. *Utilitarian approach:* Predict the consequences of the alternatives; assign a positive or negative value to each consequence; choose the consequence that predicts the highest positive value or "the greatest good for the greatest number."
 - b. *Deontologic approach:* Identify the relevant moral principles; compare alternatives with moral principles; appeal to the "higher-level" moral principle if there is a conflict.

Evaluation

4. Decide and evaluate the decision.
 - a. What is the best or morally correct action?
 - b. Give the ethical reasons for your decision.
 - c. What are the ethical reasons against your decision or your biases?
 - d. How do you respond to the reasons against your decision?

Resources

American Nurses Association, Center for Ethics and Human Rights: An online resource that contains a repository of positions papers, codes, and other materials aimed at improving the ethical competence of nurses, www.nursingworld.org/ethics

The Hastings Center: A nonprofit, nonpartisan research institute dedicated to interdisciplinary bioethics, www.thehastingscenter.org

National Center for Ethics in Health Care: Provides key analysis of topics in health care ethics, publishes ethics-related news, and posts seminal national reports in ethics, www.ethics.va.gov

Adapted from Beauchamp, T. L., & Childress, J. F. (2019). *Principles of biomedical ethics* (8th ed.). New York: Oxford University Press.

CRITICAL THINKING EXERCISES

1  Recently a team of staff nurses working on a pulmonary step-down unit was asked to examine the incidence of tracheotomy-related skin breakdown and found a 30% increase over the last year. The team reported these findings to the evidence-based practice council who determined the need to examine nursing interventions to improve skin integrity. As part of this team, what steps will you take to identify best practices? Based on this review, how will you determine which nursing practices would be most effective in helping to reduce the incidence of tracheotomy-related skin breakdown on your unit?

2  You are part of an interprofessional team discussing the plan of care for a patient who experienced an ischemic stroke. After the meeting, the physical therapist asks you to explain how you formulate a nursing diagnosis and prioritize goals and interventions for your patients. How do you respond? The physical therapist also asks you for suggestions on ways the team could improve communication and teamwork to better address collaborative problems. Using professional practice guidelines, what recommendations do you share with the physical therapist?

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*Asterisk indicates nursing research article.

**Double asterisk indicates classic reference.

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Resources

- American Association of Colleges of Nursing (AACN), www.aacn.nche.edu
 American Nurses Association (ANA), www.nursingworld.org
 American Nurses Association Center for Ethics and Human Rights,
www.nursingworld.org/ethics
 Campaign for Action: Future of Nursing, campaignforaction.org
 Centers for Medicare & Medicaid Services (CMS), www.cms.hhs.gov
 Development of Healthy People 2030, <https://www.healthypeople.gov/2020/About-Healthy-People/Development-Healthy-People-2030/Framework>
 Healthy People 2030, www.healthypeople.gov
 Institute for Healthcare Improvement (IHI), www.ihi.org
 International Council of Nurses (ICN), www.icn.ch
 Interprofessional Education Collaborative (IPEC), ipeccollaborative.org
 NANDA International, www.nanda.org
 National Academy of Sciences, Engineering, Medicine (formerly the Institute of Medicine [IOM]), iom.nationalacademies.org
 National Center for Ethics in Health Care (NCEHC), www.ethics.va.gov
 National League for Nursing, lnn.org
 QSEN Institute: Quality and Safety Education for Nurses, qsen.org
 The Hastings Center, www.thehastingscenter.org
 The Joint Commission, www.jointcommission.org

The TIGER Initiative, www.himss.org/professional-development/tiger-initiative
World Health Organization (WHO), who.int

2 Medical-Surgical Nursing

LEARNING OUTCOMES

On completion of this chapter, the learner will be able to:

1. Discuss principles of medical-surgical nursing practice as well as characteristics and settings of select nursing practice specialties in today's health care delivery system.
2. Describe the significance of the nurse as coordinator of care transitions.
3. Specify the components of a comprehensive assessment of functional capacity.
4. Use the nursing process as a framework for care of the patient with self-care deficits or with impaired physical mobility.
5. Describe the role and practice settings of home health nursing and the significance of continuity of care in transition into community or home settings.

NURSING CONCEPTS

- Accountability
- Collaboration
- Evidence-Based Practice
- Functional Ability
- Mobility
- Safety

GLOSSARY

- activities of daily living (ADLs):** personal care activities, such as bathing, dressing, grooming, eating, toileting, and transferring
- adaptive device:** a type of assistive technology that is used to change the environment or help the person modify the environment
- assistive device:** a type of assistive technology that helps people with disability perform a given task
- assistive technology:** any item, piece of equipment, or product system that is used to improve the functional capabilities of individuals with disability; this term encompasses both assistive devices and adaptive devices
- critical-care nursing:** a specialty area of practice that provides nursing services to critically ill patients across the lifespan in acute care settings such as the hospital intensive unit; current practice settings have expanded to include virtual care and community settings
- home health nursing:** a specialty area of practice that provides nursing services to patients across the lifespan in a home setting; practice roles include holistic care planning which incorporates resource and service coordination as part of an interdisciplinary team
- impairment:** loss or abnormality of psychological, physiologic, or anatomic structure or function at the organ level (e.g., dysphagia, hemiparesis); an abnormality of body structure, appearance, an organ, or system function resulting from any cause
- instrumental activities of daily living (IADLs):** complex skills needed for independent living, such as shopping, cooking, housework, using the telephone, managing medications and finances, and being able to travel by car or public transportation
- medical-surgical nursing:** a specialty area of practice that provides nursing services to patients from adolescence through the end of life in hospital-based and community-based settings
- orthosis:** an external appliance that provides support, prevents or corrects joint deformities, and improves function
- prosthesis:** a device used to replace a body part
- rehabilitation:** making able again; learning or relearning skills or abilities or adjusting existing functions to meet maximum potential
- rehabilitation nursing:** a specialty area of evidence-based practice that provides holistically-focused nursing services to patients who have been incapacitated by illness or injury or are facing potentially life-altering health conditions throughout their lifespan
- rehospitalization:** admission to the hospital within 30 days of a prior discharge from a hospitalization
- telehealth:** the use of technology to provide health care services
- third-party payer:** an organization or insurance company that provides reimbursement for services covered by a health plan

transfer: movement of a patient from one place to another, such as a bed to chair, chair to commode, or wheelchair to tub

transitional care: a process of ensuring consistency and coordination of care as patients move within and between health care settings

The profession of nursing is ever expanding to meet the health needs of patients, families, and communities. The practice of medical-surgical nursing continues to evolve, too, and is no longer restricted to the traditional environment of the inpatient hospital-based medical-surgical unit. The shift in delivery of medical-surgical nursing from only inpatient settings to also include outpatient settings is a result of multiple factors, including population trends (the growing number of older adults), changes in federal legislation, tighter insurance regulations, and decreasing hospital revenues. Transitions in the health care industry, the nursing profession, and changing patterns of disease and wellness have also affected the shift in care delivery settings. On an increasing basis, hospitals, health care organizations, and providers are held accountable for providing health care using best practices, as evidenced by meeting performance benchmarks for quality and efficiency; this system is known as pay for performance or value-based purchasing. Under this system, hospitals, health care organizations, and providers can reduce costs and earn additional income by carefully monitoring the types of services they provide, discharging patients as soon as possible, and keeping patients who are discharged from the hospital from being readmitted. Consequently, patients who transition from the hospital to the home or to residential or long-term care facilities are in the early stages of recovery. With these changes in health care delivery and accountability, specialty practices under the scope of medical-surgical nursing practice have arisen to further identify evidence-based nursing care and interventions. This chapter provides an overview of medical-surgical nursing and other associated nursing specialty practices.

The Practice of Nursing in Today's Health Care Delivery System

Novice, entry-level registered nurses, as well as those with advanced degrees who work in highly specialized settings, all engage in the practice of nursing. The American Nurses Association (ANA, 2015b) notes that the profession of nursing's scope of practice encompasses the full range of nursing practice, pertinent to general and specialty practice. "The depth and breadth in which individual registered nurses and advanced practice registered nurses engage in the total scope of nursing practice is dependent on education, experience, role, and the population served" (p. 2). The ANA (2015b, pp. 7–9) also identifies the following tenets characteristic of all nursing practice:

- Caring and health are central to the practice of the registered nurse.
- Nursing practice is individualized.

- Registered nurses use the nursing process to plan and provide individualized care for health care consumers (see [Chapter 1](#)).
- Nurses coordinate care by establishing partnerships.
- A strong link exists between the professional work environment and the registered nurse's ability to provide quality health care and achieve optimal outcomes.

The profession of nursing has a distinct disciplinary body of knowledge, education, and specialty standards of practice (ANA, 2015b); social contract (ANA, 2010; Fowler, 2015); and code of ethics (ANA, 2015a). Nursing's Standards of Practice describe basic competencies in delivering nursing care using the nursing process, whereas the Standards of Professional Performance describe expectations for behavioral competencies (ANA, 2015b, pp. 5–6), which include that the registered nurse:

- Practices ethically
- Practices in a manner that is congruent with cultural diversity and inclusion principles
- Communicates effectively in all areas of practice
- Collaborates with the health care consumer and other key stakeholders in the conduct of nursing practice
- Leads within the professional practice setting and the profession
- Seeks knowledge and competence that reflect current nursing practice and promote futuristic thinking
- Integrates evidence and research findings into practice
- Contributes to quality nursing practice
- Evaluates one's own and others' nursing practice
- Utilizes appropriate resources to plan, provide, and sustain evidence-based nursing services that are safe, effective, and fiscally responsible
- Practices in an environmentally safe and healthy manner

Medical-Surgical Nursing

Medical-surgical nursing is a specialty area of practice that provides nursing services to patients from adolescence through the end of life in a variety of inpatient and outpatient clinical settings. These settings may include traditional hospital medical-surgical units as well as intensive care units (ICUs), acute and subacute care rehabilitation units, clinics, ambulatory care units, urgent care centers, home health care agencies, and long-term care facilities (Academy of Medical-Surgical Nurses [AMSN], 2018; AMSN 2019). The *Scope and Standards of Medical-Surgical Nursing Practice* (AMSN, 2018) mirror the scope of practice and standards for practice set by the ANA (2015b) for professional nursing practice; the AMSN (2018) further delineates specific role expectations for the medical-surgical nurse. Medical-surgical nurses can demonstrate proficiency in

their role by completing certification requirements. They may also enhance practice by completing graduate degree programs in nursing (AMSN, 2018).

The Nurse as Coordinator of Care Transitions

Nearly one third of the \$3.5 trillion spent on health care in the United States is spent on hospitalizations, including hospital readmissions within 30 days of a prior hospital discharge, called **rehospitalizations** (Centers for Medicare & Medicaid Services [CMS], 2018a). Rehospitalizations raise concerns not only about costs, but also about health care quality (Bailey, Weiss, Barrett, et al., 2019). Approximately 20% of patients insured by Medicare experience rehospitalization. Rehospitalizations in those over 65 years of age are not only costly; these patients may experience weakness and stress which can make them vulnerable to falls and other adverse events (Agency for Healthcare Research and Quality [AHRQ], 2019). Medicare is one example of a health insurance plan holding hospitals accountable for readmissions within 30 days of hospital discharge through a reduction in reimbursement for costs associated with these readmissions (Bailey et al., 2019). Rehospitalizations can result from breakdowns in care transitions including during the discharge planning processes, as evidenced by patients' inability to manage their own care; and, as a result of poor communication between the hospital and the next level of care (e.g., home health agency, primary care office) regarding patients' needs and resources (AHRQ, 2019). Altogether, these factors have led to an increasing focus on **transitional care**, a process of ensuring consistency and coordination of care as patients move within and between care settings (Carr, 2019). For example, transitional care takes place as a patient is transferred from intensive care to a medical-surgical unit within an acute care setting. Another important time of transitional care occurs with patient discharge from the acute care setting to continued care out in the community. See **Chart 2-1** for a Nursing Research Profile on transitional care and the important components needed to assure positive outcomes during this transition process. A number of models and programs of transitional care describe the process as an interdisciplinary team approach in which team members include both the patient and the caregivers. Nurses in a variety of settings are important transitional care team members, managing many aspects of the transition process (Carr, 2019).

Chart 2-1 NURSING RESEARCH PROFILE

Important Components of Transitional Care

Naylor, M. D., Shaid, E. C., Carpenter, D., et al. (2017). Components of comprehensive and effective transitional care. *Journal of the American Geriatrics Society*, 65(6), 1119–1125.

Purpose

Transitional care is recognized as important in assuring improved health care outcomes and health care quality while decreasing costs associated with unnecessary hospital readmissions. A national study called Project ACHIEVE that focused on Medicare beneficiaries was conducted to identify key aspects of transitional care that lead to positive patient and caregiver outcomes.

Design

Project ACHIEVE included experts, patients, and caregivers in a multimethod approach that included interviews, focus groups, and review of literature, which led to the identification and definition of critical components of transitional care. The working group collected case studies to evaluate how these components connect to the real experience of transitional care, selecting one case study for concept mapping of the components, all leading to further refinement of the critical components.

Findings

Eight core components were identified and visualized on a transitional care model: patient engagement, caregiver engagement, complexity management, patient education, caregiver education, patient and caregiver well-being, care continuity, and accountability. Each of the eight components was defined with examples of the issues as they related to patients and caregivers. Additional information provided suggestions for interdisciplinary interventions from the reviewed evidence.

Nursing Implications

Transitional care is a team approach that includes the patient and caregiver, and so research into transitional care should include these important stakeholders. The model and definitions for transitional care yielded from Project ACHIEVE provide a common framework for interdisciplinary health care team members who can then focus on providing optimal patient outcomes. Nurses who work in transitional care can utilize these core components in assessment of individual patients, and then tailor interventions to needed components. The model also provides a framework for program development, evaluation, and future refinement through additional investigation of transitional care.

Patient care must be coordinated seamlessly from the inpatient hospital environment through transitions into the community setting. Various nursing roles have evolved to provide improved care coordination and care transitions, including the nurse navigator, case manager, and the clinical nurse leader (CNL). Nurse navigators are registered nurses employed by hospitals and health networks

who work with a given population of patients with a common diagnosis or disease (e.g., cancer). Their role involves helping the patient and the patient's family transition through different levels of care (e.g., from hospital to a skilled nursing facility, from home care to assisted care). One example of an essential role function for the oncology nurse navigator (ONN) is education. In this role, the ONN assesses patients, families, and caregivers for their educational needs and recognizes barriers to education, which can impact health in areas such as diagnosis, treatment, and management of treatment associated side effects (Baileys, McMullen, Lubejko, et al., 2018).

Case management is a system of coordinating health care services to ensure cost-effectiveness, accountability, and quality care. Case managers may be nurses or may have backgrounds in other health professions, such as social work. The case manager coordinates the care of a caseload of patients through facilitating communication between nurses, other health care personnel who provide care, and insurance companies. In some settings, particularly the community setting, the case manager focuses on coordinating the treatment plan of the patient with complex conditions. The case manager may follow the patient throughout hospitalization and at home after discharge in an effort to coordinate health care services that will avert or delay rehospitalization. The caseload is usually limited in scope to patients with similar diagnoses, needs, and therapies (Case Management Society of America [CMSA], 2019).

A CNL is a certified nurse generalist with a master's degree in nursing educated to help patients navigate the complex health care system (American Association of Colleges of Nursing [AACN], 2019a). The CNL coordinates care for a distinct group of patients, may provide direct care as the situation warrants, and assumes a leadership role among members of the health care team. The CNL integrates evidence-based practices with advocacy, care coordination, outcomes measurement, risk assessment, quality improvement, and interprofessional communication skills (AACN, 2019a). Currently, CNLs are being utilized in hospital-based environments as well as in community settings.

Critical-Care Nursing

Critical-care nursing is a specialty area of practice that provides nursing services to critically ill patients across the lifespan, traditionally delivered in acute care settings such as the hospital ICU. Current practice settings for critical-care nursing have now expanded to include virtual care and a variety of community settings, including the home (American Association of Critical-Care Nurses [AACN], 2019b). When patients face actual or potential life-threatening illness, critical-care nurses provide holistic nursing interventions individualized to each patient.

The *Scope and Standards for Progressive and Critical-Care Nursing* (AACN, 2019b) mirror the scope and standards set by the ANA (2015b) for professional nursing practice; these are revised as needed based on health care trends and technologic advances in the care of patients facing critical illness. The AACN

(2019b) further delineates specific role expectations with the nursing process as the foundation and guide. For example, the standard of assessment includes competencies in holistic data collection based on current evidence and the recognition of assessment priorities for each individual patient. The current *Scope and Standards* (AACN, 2019b) recognize two types of nursing care provided by the progressive care nurse and the critical-care nurse. The progressive care nurse provides care for the acutely ill patient who is moving toward physiologic stability yet still at risk for life-threatening illness. The critical-care nurse provides care for those acute care patients with an actual or at high risk of life-threatening illness. The AACN also sets the standards for proficiency in progressive and critical-care nursing that may lead to specialty certification. In addition to specialty certification, there are opportunities for nurses to enhance critical-care nursing practice by completing graduate nursing programs leading to advanced practice as a critical-care clinical nurse specialist or acute care nurse practitioner.

The AACN recognizes the role of the critical-care nurse in care transitions and the need to begin discharge planning early, even during the critical or acute phase of hospitalization (Alspach, 2018). With caregiver tasks ranging from activities of daily living (ADLs) and instrumental activities of daily living (IADLs) (see later discussion) to advocacy and coordination, the critical-care nurse can involve family members or significant others of the patient who is critically ill in rounds and patient care planning, begin to assess their capabilities, and start the education needed so that family members or significant others can manage the role of caregiver.

Rehabilitation Nursing

Rehabilitation means to make able again; it involves learning or relearning skills or abilities or adjusting existing functions to meet maximum potential. Thus, rehabilitation is a goal-oriented process of caring for people with disability or chronic disorders. This philosophy of practice works to restore or optimize abilities rather than focus on disability (Association of Rehabilitation Nursing [ARN], 2013). Rehabilitation is an integral part of nursing because every major illness or injury carries the threat of disability or **impairment**, which involves a loss of function or an abnormality in body structure or function. **Rehabilitation nursing** is a specialty area of practice that focuses on returning patients to optimal functionality through a holistic approach to care that is based on scientific evidence (ARN, 2019a). The ARN has developed an *ARN Competency Model for Professional Rehabilitation Nurses* with resources. The domains in the model (nurse-led interventions, promotion of successful living, leadership and interprofessional care) encompass all competencies needed to promote rehabilitation nursing of people with disability and/or chronic illness (ARN, 2019b). The ARN further describes the roles of the rehabilitation nurse as teacher, caregiver, collaborator, and patient advocate working in a variety of inpatient and outpatient settings (ARN, 2019a).

Rehabilitation services are required by more people than ever before because of advances in technology that save or prolong the lives of seriously ill and injured patients and patients with disability. Increasing numbers of patients who are recovering from serious illnesses or injuries are returning to their homes and communities with ongoing needs. Significant disability caused by war and terrorism also increases the demand for rehabilitation services. All patients, regardless of age, gender, ethnic group, socioeconomic status, or diagnosis, have a right to rehabilitation services.

A person is considered to have a disability, such as a restriction in performance or function in everyday activities, if they have difficulty talking, hearing, seeing, walking, climbing stairs, lifting or carrying objects, performing ADLs, doing schoolwork, or working at a job. The disability is considered severe if the person cannot perform one or more activities, receives federal benefits because of an inability to work, uses an assistive device for mobility, or needs help from another person to accomplish basic activities. The purpose of **assistive technology** is to incorporate devices to improve the functional capabilities of people with disability; these may include any item, piece of equipment, or product system that may be acquired commercially, off the shelf, modified, or customized. Types of assistive technology may include **adaptive devices**, which help a person with a disability to either modify or change the environment (e.g., an access ramp used in place of steps for a person who uses a wheelchair), and **assistive devices**, which help a person with a disability perform a given task (e.g., a lap board with pictures used to assist a person who cannot talk to communicate) (see [Chapter 7](#) for further discussion on disability).

Assessment of Functional Ability

Comprehensive assessment of functional capacity is the basis for developing a rehabilitation program. Functional capacity is a person's ability to perform ADLs and IADLs. **Activities of daily living (ADLs)** are those self-care activities that the patient must accomplish each day to meet personal needs; they include personal hygiene/bathing, dressing/grooming, feeding, toileting, and transferring. Many patients cannot perform such activities easily. **Instrumental activities of daily living (IADLs)** include those complex skills needed for independent living, such as meal preparation, grocery shopping, household and financial management, medication management, telephone usage, and transportation.

The nurse observes the patient performing specific activities (e.g., eating, dressing) and notes the degree of independence; the time taken; the patient's mobility, coordination, and endurance; and the amount of assistance required. The nurse also carefully assesses joint motion, muscle strength, cardiovascular reserve, and neurologic function, because functional ability depends on these factors as well. Observations are recorded on a functional assessment tool. These tools provide a way to standardize assessment parameters and include a scale or score against which improvements may be measured. They also clearly communicate the patient's level of functioning to all members of the rehabilitation team. Rehabilitation staff members use these tools to provide an initial assessment

of the patient's abilities and to monitor the patient's progress in achieving independence.

One of the most frequently used tools to assess the patient's level of independence is the Functional Independence Measure (FIM™) (Keith, Granger, Hamilton, et al., 1987). The FIM is a minimum data set, measuring 18 self-care items including eating, bathing, grooming, dressing upper body, dressing lower body, toileting, bladder management, and bowel management. The FIM addresses transfers and the ability to ambulate and climb stairs and also includes communication and social cognition items. Scoring is based on a seven-point scale, with items used to assess the patient's level of independence. The Alpha FIM, a short version of the FIM, is used frequently within 72 hours of admission in acute care settings to measure functional independence and the amount of assistance the patient needs to perform ADLs.

Although there are many disease-specific tools used to assess the patient's functional ability, some frequently used generic measures include the following (Fidecki, Wysokiński, Wrońska, et al., 2017):

- The Katz Index of Independence in Activities of Daily Living (Katz Index) (Katz, Downs, Cash, et al., 1970) is used to assess six areas of ADLs (i.e., bathing, dressing, toileting, transferring, continence, feeding) and rate them as done independently or done with assistance.
- The Barthel Index (Mahoney & Barthel, 1965) is used to measure the patient's level of independence in ADLs, continence, toileting, transfers, and ambulation (or wheelchair mobility). This scale does not address communicative or cognitive abilities.

A detailed functional evaluation of secondary conditions related to the patient's disability, such as muscle atrophy and deconditioning, skin integrity, bowel and bladder control, and sexual function, together with residual strengths unaffected by disease or disability, is necessary. In addition, the nurse assesses the patient's physical, mental, emotional, spiritual, social, and economic status, as well as cultural and familial environment. These elements may provide a context to the functional findings and influence the rehabilitation plan. For example, the patient's perception of what it means to have a disability and the implications that this might have on familial and social roles can influence the rehabilitation process.

NURSING PROCESS

The Patient with Self-Care Deficits in Activities of Daily Living

An ADL program is started as soon as the rehabilitation process begins, because the ability to perform ADLs is frequently the key to independence, return to the home, and transition into the community.

Assessment

The nurse must observe and assess the patient's ability to perform ADLs to determine the level of independence in self-care and the need for nursing intervention. **Chart 2-2** depicts behaviors that may indicate struggles with function or movement and thus should be assessed. For example, bathing requires obtaining bath water and items used for bathing (e.g., soap, washcloth), washing, and drying the body after bathing. Dressing requires getting clothes from the closet, putting on and taking off clothing, and fastening the clothing. Self-feeding requires using utensils to bring food to the mouth and chewing and swallowing the food. Toileting includes removing clothing to use the toilet, cleansing oneself, and readjusting clothing. Grooming activities include combing hair, brushing one's teeth, shaving or applying makeup, and handwashing. Patients who can sit up and raise their hands to their head can begin self-care activities. Assistive devices are often essential in achieving some level of independence in ADLs.

Additional assessment should include gaining an understanding of the patient's and family members' perspectives on the patient's condition and how it affects functional ability. The nurse should also be aware of the patient's medical conditions or other health problems, the effect that they have on the ability to perform ADLs, and the family's involvement in the patient's ADLs. This information is valuable in setting goals and developing the plan of care to maximize self-care.

Nursing Diagnoses

Based on the assessment data, major nursing diagnoses may include the following:

- Impaired ability to perform hygiene
- Impaired ability to dress
- Impaired self feeding
- Impaired self toileting
- Impaired health maintenance

Chart 2-2



ASSESSMENT

Assessing Potential Struggles in Function or Movement

Be alert for the following behaviors:

- Holding onto a hand rail to pull the body while going up stairs
- Holding onto a bedside rail or bedcovers to pull to a sitting position in bed
- Leaning to one side and using both hands on the hand rail while going down the stairs or a ramp
- Holding onto furniture or doorways and watching the feet while walking in the house
- Lifting a leg (or arm) by using the other leg (or arm) as support or by lifting with the pants leg (or sleeve)
- Tilting the head to reach the back or side of the hair while grooming
- Pushing up, rocking forward and back, and/or leaning the body over for momentum ("nose over toes") when rising to stand from a chair
- Leaning over from the waist without bending the knees and then placing one hand on the thigh, as if it were a prop, and pushing against the thigh to assist in moving to the upright position
- Turning to reach for an object and then using the other arm or an object to support the reaching arm at the elbow or wrist
- Positioning a chair before sitting down by using the front or back of the knees and then using the back of the knees to guide sitting down; using the torso and hips to lean against a table or chair
- Reaching and leaning with the body rather than with an arm
- Walking with a lean to one side, a limp, a waddle, or other variation of a gait
- Scanning (i.e., observing or being aware of surroundings) ineffectively while eating or grooming
- Rolling or scooting the body, sliding forward in a seat, or other maneuvers to move off a bed or out of a chair

Adapted from Weber, J. R., & Kelley, J. H. (2018). *Health assessment in nursing* (6th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Planning and Goals

Major goals for the patient include performing the following activities independently or with assistance, using adaptive or assistive devices as appropriate: bathing/hygiene, dressing/grooming, feeding, and toileting. A related goal is patient expression of satisfaction with the extent of independence achieved in self-care activities. Another major goal is that the patient acknowledges adjustments in new lifestyle and ADLs and can identify resources to facilitate optimal functioning (Carpenito, 2017).

Nursing Interventions

Repetition, practice, and demonstrations help patients achieve maximum independence in personal care activities. The nurse's role is to provide an

optimal learning environment that minimizes distractions. The nurse can identify the patient's optimal time to work on activities, encourage concentration, identify endurance issues that may affect safety, and provide cues and reminders to patients with specific disability, such as alteration in or loss of sensation that may occur with stroke (Gregory & Galloway, 2017). Patients with impaired mobility, sensation, strength, or dexterity may need to use assistive devices to accomplish self-care.

FOSTERING SELF-CARE ABILITIES

A patient's approach to self-care may be affected by altered or impaired mobility and influenced by family or cultural expectations. The inability to perform self-care as carried out previously may lead to ineffective coping behaviors, such as social isolation, dependency on caregivers, or depression. The nurse must motivate the patient to learn and accept responsibility for self-care. It helps to encourage an "I'd rather do it myself" attitude. The nurse must also help the patient identify the safe limits of independent activity; knowing when to ask for assistance is particularly important.

The nurse educates, guides, and supports the patient who is learning or relearning how to perform self-care activities while maintaining a focus on patient strengths and optimal level of function. Consistency in instructions and assistance given by health care providers, including rehabilitation therapists (e.g., physiotherapists, occupational therapists, recreation therapists, speech-language pathologists, primary providers) facilitates the learning process. Recording the patient's performance provides data for evaluating progress and may be used as a source for motivation and morale building. Guidelines for educating patients and families about ADLs are presented in [Chart 2-3](#).

Often, performing a simple maneuver requires the patient with a disability to concentrate intensely and exert considerable effort; therefore, self-care techniques need to be adapted to accommodate the individual patient's lifestyle. Because a self-care activity usually can be accomplished in several ways, common sense and a little ingenuity may promote increased independence. For example, a person who cannot quite reach his or her head may be able to do so by leaning forward. Encouraging the patient to participate in a support group may also help the patient discover creative solutions to self-care problems.

Chart 2-3 PATIENT EDUCATION



Educating Patients About Activities of Daily Living

The nurse instructs the patient to:

1. Be realistic about the goal of the activity and set short-term goals that can be accomplished in the near future.
2. Identify several approaches to accomplish the task (e.g., there are several ways to put on a given garment).
3. Select the approach most likely to succeed.
4. Identify the motions necessary to accomplish the activity (e.g., to pick up a glass, extend arm with hand open; place open hand next to glass; flex fingers around glass; move arm and hand holding glass vertically; flex arm toward body).
5. Focus on gross functional movements initially, and gradually include activities that use finer motions (e.g., buttoning clothes, eating with a fork).

The nurse should also be sure to:

1. Specify the approach selected to accomplish the task on the patient's plan of care and the patient's level of accomplishment on the progress notes.
2. Encourage the patient to perform the activity up to maximal capacity within the limitations of the disability.
3. Monitor the patient's tolerance.
4. Minimize frustration and fatigue.
5. Support the patient by giving appropriate praise for effort put forth and for acts accomplished.
6. Assist the patient to perform and practice the activity in real-life situations and in a safe environment.

Preexisting cultural norms may influence the degree of self-care the patient is willing to consider. Cultural and ethnic beliefs about hygiene can vary among individuals and families. The nurse must recognize these beliefs, work through any issues with the patient and family, and communicate pertinent findings to the rehabilitation team.

RECOMMENDING ADAPTIVE AND ASSISTIVE DEVICES

If the patient has difficulty performing an ADL, an adaptive or assistive device (self-help device) may be useful. Such devices may be obtained commercially or can be constructed by the nurse, occupational therapist, patient, or family. The devices may include built-up handles on toothbrushes or razors; long, curved handles on mirrors or shoe horns; suction cups to hold items in place; shower chairs; raised toilet seats; and universal cuffs to grip self-care items. Some of these are shown in [Figure 2-1](#). To assist premenopausal women with managing menstruation, clothing adaptations (e.g., Velcro crotch flaps for ease of access), mirrors, self-sticking sanitary pads, packaged wipes, and loose underwear may be used.



Quality and Safety Nursing Alert

To avoid injury or bleeding, people who take anticoagulant medication should be encouraged to use an electric razor. Women may wish to consider depilatory creams or electrolysis.

A wide selection of computerized devices is available, or devices can be designed to help individual patients with severe disability to function more independently. The AbleData project (see Resources list at the end of this chapter) offers a computerized listing of commercially available aids and equipment for patients with disability.

The nurse should be alert to “gadgets” coming on the market and evaluate their potential usefulness. The nurse must exercise professional judgment and caution in recommending devices, because in the past, unscrupulous vendors have marketed unnecessary, overly expensive, or useless items to patients.

HELPING PATIENTS ACCEPT LIMITATIONS

If the patient has a severe disability, independent self-care may be an unrealistic goal. In this situation, the nurse educates the patient how to take charge by directing their care. The patient may require a personal caregiver to perform ADLs. Family members may not be appropriate for providing bathing/hygiene, dressing/grooming, feeding, and toileting assistance, and spouses may have difficulty providing bowel and bladder care for patients and maintaining the role of sexual partners. If a personal caregiver is necessary, the patient and family members must learn how to manage an employee effectively. The nurse helps the patient accept self-care dependency. Independence in other areas, such as social interaction, should be emphasized to promote a positive self-concept.

ENSURING EFFECTIVE HEALTH MANAGEMENT

The nurse ensures effective health management by educating the patient and caregiver in appropriate language so that they understand the nature of the health condition or disorder and the resulting changes in ADLs. This understanding facilitates transition to a new way of life upon discharge. Barriers that may impede successful health maintenance are identified and strategies employed to mitigate them. The transition team, under the guidance of the nurse, collaborates on identifying and securing resources that are needed to make the transition successful and prevent complications (Carpenito, 2017).

Evaluation

Expected patient outcomes may include:

1. Demonstrates independent self-care in bathing/hygiene or with assistance, using adaptive devices as appropriate
 - a. Bathes self at maximal level of independence
 - b. Uses adaptive and assistive devices effectively

- c. Reports satisfaction with level of independence in bathing/hygiene



Figure 2-1 • Adaptive and assistive devices. **A.** Raised toilet seat.
B. Shower chair.

2. Demonstrates independent self-care in dressing/grooming or with assistance, using adaptive devices as appropriate
 - a. Dresses/grooms self at maximal level of independence
 - b. Uses adaptive devices effectively
 - c. Reports satisfaction with level of independence in dressing/grooming
 - d. Demonstrates increased interest in appearance
3. Demonstrates independent self-care in feeding or with assistance, using adaptive and assistive devices as appropriate
 - a. Feeds self at maximal level of independence
 - b. Uses adaptive and assistive devices effectively
 - c. Demonstrates increased interest in eating
 - d. Maintains adequate nutritional intake
4. Demonstrates independent self-care in toileting or with assistance, using adaptive and assistive devices as appropriate
 - a. Toilets self at maximal level of independence
 - b. Uses adaptive and assistive devices effectively
 - c. Indicates positive feelings regarding level of toileting independence
 - d. Experiences adequate frequency of bowel and bladder elimination
 - e. Does not experience incontinence, constipation, urinary tract infection, or other complications
5. Demonstrates knowledge about effective health maintenance

- a. Verbalizes knowledge of health problem/disorder and resulting changes in functional abilities and lifestyle
 - b. Identifies and secures resources needed to maintain health upon discharge
-

NURSING PROCESS

The Patient with Impaired Physical Mobility

Problems commonly associated with immobility include weakened muscles, joint contracture, and deformity. Each joint of the body has a normal range of motion; if the range is limited, the functions of the joint and the muscles that move the joint are impaired, and painful deformities may develop. The nurse must identify patients at risk for such complications. The nurse needs to assess, plan, and intervene to prevent complications of immobility.

Another problem frequently seen in rehabilitation nursing is an altered ambulatory/mobility pattern. Patients with disability may be either temporarily or permanently unable to walk independently and unaided. The nurse assesses the mobility of the patient and designs care that promotes independent mobility within the prescribed therapeutic limits. If a patient cannot exercise and move his or her joints through their full range of motion, contractures may develop. A contracture is a shortening of the muscle and tendon that leads to deformity and limits joint mobility. When the contracted joint is moved, the patient experiences pain; in addition, more energy is required to move when joints are contracted.

Disability brings change to the patient and family unit as well as adjustments in lifestyle, mobility, and interactions as members of a community. Whether temporary or permanent, patients can grieve the loss of health and will need to process the loss as part of the adaptation process and plan of care (Carpenito, 2017).

Assessment

Mobility may be restricted owing to pain, paralysis, loss of muscle strength, systemic disease, an immobilizing device (e.g., cast, brace), or prescribed limits to promote healing. Assessment of mobility includes positioning, ability to move, muscle strength and tone, joint function, and the prescribed mobility limits. The nurse must collaborate with physical therapists or other team members to assess mobility.

During position change, transfer, and ambulation activities, the nurse assesses the patient's abilities, the extent of disability, and residual capacity for physiologic adaptation. The nurse observes for orthostatic hypotension, pallor, diaphoresis, nausea, tachycardia, and fatigue.

In addition, the nurse assesses the patient's ability to use various assistive devices that promote mobility. If the patient cannot ambulate without assistance, the nurse assesses the patient's ability to balance, transfer, and use assistive devices (e.g., crutches, walker). Crutch walking requires high energy expenditure and produces considerable cardiovascular stress; therefore, people with reduced exercise capacity, decreased arm strength, and problems with balance because of aging or multiple diseases may be unable to use crutches. A walker is more stable and may be a better choice for such patients. If the

patient uses an orthosis, the nurse monitors the patient for effective use and potential problems associated with its use.

The assessment process includes gaining an understanding of the meaning of illness or disability for the patient and family, whether it be a temporary or permanent loss of normal functioning or lifestyle. Signs and symptoms evidenced by the patient or family members such as disbelief, crying, expressions of emotions such as sorrow and anger can be part of the grieving process. The nurse collaborates with the interdisciplinary team to develop a holistic plan of care that addresses relevant actual or potential nursing diagnoses (Carpenito, 2017).

Nursing Diagnosis

Based on the assessment data, major nursing diagnoses may include the following:

- Impaired mobility
- Activity intolerance or risk for activity intolerance
- Risk for injury
- Risk for disuse
- Impaired walking
- Impaired wheelchair mobility
- Impaired mobility in bed
- Grief

Planning and Goals

Major goals for the patient may include absence of contracture and deformity, maintenance of muscle strength and joint mobility, independent mobility, increased activity tolerance, and prevention of further disability. A major goal for the patient and family may include that they express an understanding of the meaning of the illness or disability and its associated losses.

Nursing Interventions

POSITIONING TO PREVENT MUSCULOSKELETAL COMPLICATIONS

Deformities and contractures can often be prevented by proper positioning. Maintaining correct body alignment when the patient is in bed is essential regardless of the position selected. During each patient contact, the nurse evaluates the patient's position and assists the patient to achieve and maintain proper positioning and alignment. The most common positions that patients assume in bed are supine (dorsal), side-lying (lateral), and prone. The nurse helps the patient assume these positions and uses pillows to support the body in correct alignment. At times, a splint (e.g., wrist or hand splint) may be made by the occupational therapist to support a joint and prevent deformity. The nurse must ensure proper use of the splint and provide skin care.

Preventing External Rotation of the Hip. The patient who is in bed for an extended period of time may develop external rotation deformity of the hip because the ball-and-socket joint of the hip tends to rotate outward when the

patient lies on their back. A trochanter roll (i.e., a flannel sheet or bath towel folded in thirds lengthwise and rolled toward the patient or a commercially manufactured roll) extending from the crest of the ilium to the midthigh prevents this deformity; with correct placement, it serves as a mechanical wedge under the projection of the greater trochanter.



Concept Mastery Alert

Abduction moves the body part away from the body; adduction moves the body part toward the body. External rotation occurs as the leg moves outward. To prevent external rotation deformity, the patient's hip should *not* be abducted or moved away from the body.

Preventing Footdrop. Footdrop is a deformity in which the foot is plantar flexed (the ankle bends in the direction of the sole of the foot). If the condition continues without correction, the patient will not be able to hold the foot in a normal position and will be able to walk only on their toes, without touching the ground with the heel of the foot. The deformity is caused by contracture of both the gastrocnemius and soleus muscles. Damage to the peroneal nerve or loss of flexibility of the Achilles tendon may also result in footdrop. To prevent this disabling deformity, the patient is positioned to sit at a 90-degree angle in a wheelchair with the feet on the footrests or flat on the floor.

When the patient is supine in bed, padded splints or protective boots are used to keep the patient's feet at right angles to the legs. Frequent skin inspection of the feet must also be performed to determine whether positioning devices have created any unwanted pressure areas.

The patient is encouraged to perform the following ankle exercises several times each hour: dorsiflexion and plantar flexion of the feet, flexion and extension (curl and stretch) of the toes, and eversion and inversion of the feet at the ankles. The nurse provides frequent passive range-of-motion exercises if the patient cannot perform active exercises.



Quality and Safety Nursing Alert

Prolonged bed rest, lack of exercise, incorrect positioning in bed, and the weight of bedding that forces the toes into plantar flexion must be avoided to prevent footdrop. Patients should be encouraged to wear shoes for support and protection to prevent footdrop.

MAINTAINING MUSCLE STRENGTH AND JOINT MOBILITY

Optimal function depends on the strength of the muscles and joint motion, and active participation in ADLs promotes maintenance of muscle strength and joint mobility. Range-of-motion exercises and specific therapeutic exercises may be included in the nursing plan of care.

Performing Range-of-Motion Exercises. Range of motion involves moving a joint through its full range in all appropriate planes ([Chart 2-4](#)). To maintain or increase the motion of a joint, range-of-motion exercises are initiated as soon as the patient's condition permits. The exercises are planned for individual patients to accommodate the wide variation in the degrees of motion that people of varying body builds and age groups can attain.

Range-of-motion exercises may be active (performed by the patient under the supervision of the nurse), assisted (with the nurse helping if the patient cannot do the exercise independently), or passive (performed by the nurse). Unless otherwise prescribed, a joint should be moved through its range of motion three times, at least two times a day. The joint to be exercised is supported, the bones above the joint are stabilized, and the body part distal to the joint is moved through the range of motion of the joint. For example, the humerus must be stabilized while the radius and ulna are moved through their range of motion at the elbow joint.

A joint should not be moved beyond its free range of motion; the joint is moved to the point of resistance and stopped at the point of pain. If muscle spasms are present, the joint is moved slowly to the point of resistance. Gentle, steady pressure is then applied until the muscle relaxes, and the motion is continued to the joint's final point of resistance.

Chart 2-4

Range-of-Motion Terminology



- Abduction:** movement away from the midline of the body
- Adduction:** movement toward the midline of the body
- Flexion:** bending of a joint so that the angle of the joint diminishes
- Extension:** the return movement from flexion; the joint angle is increased
- Rotation:** turning or movement of a part around its axis
- Internal:** turning inward, toward the center
- External:** turning outward, away from the center
- Dorsiflexion:** movement that flexes or bends the hand back toward the body or the foot toward the leg
- Palmar flexion:** movement that flexes or bends the hand in the direction of the palm
- Plantar flexion:** movement that flexes or bends the foot in the direction of the sole
- Pronation:** rotation of the forearm so that the palm of the hand is down
- Supination:** rotation of the forearm so that the palm of the hand is up
- Opposition:** touching the thumb to each fingertip on same hand
- Inversion:** movement that turns the sole of the foot inward
- Eversion:** movement that turns the sole of the foot outward

To perform assisted or passive range-of-motion exercises, the patient must be in a comfortable supine position with the arms at the sides and the knees extended. Good body posture is maintained during the exercises. The nurse also uses good body mechanics during the exercise session.

Performing Therapeutic Exercises. Therapeutic exercises are prescribed by the primary provider and performed with the assistance and guidance of the physical therapist or nurse. The patient should have a clear understanding of the goal of the prescribed exercise. Written instructions about the frequency, duration, and number of repetitions, as well as simple line drawings of the exercise, help to ensure adherence to the exercise program. Return demonstration of the exercises also helps the patient and family to follow the instructions correctly.

When performed correctly, exercise assists in maintaining and building muscle strength, maintaining joint function, preventing deformity, stimulating circulation, developing endurance, and promoting relaxation. Exercise is also valuable in helping to restore motivation and the well-being of the patient. Weight-bearing exercises may slow the bone loss that occurs with disability. There are five types of exercise: passive, active-assistive, active, resistive, and isometric. The description, purpose, and action of each of these exercises are summarized in [Table 2-1](#).

PROMOTING INDEPENDENT MOBILITY

When the patient's condition stabilizes, their physical condition permits, and the patient is able to stand, the patient is assisted to sit up on the side of the bed and then to stand. Tolerance of this activity is assessed. Orthostatic (postural) hypotension may develop when the patient assumes a vertical position. Because of inadequate vasomotor reflexes, blood pools in the splanchnic (visceral or intestinal) area and in the legs, resulting in inadequate cerebral circulation. If indicators of orthostatic hypotension (e.g., drop in blood pressure, pallor, diaphoresis, nausea, tachycardia, dizziness) are present, the activity is stopped, and the patient is assisted to a supine position in bed.

Some disabling conditions, such as spinal cord injury (SCI), acute brain injury, and other conditions that require extended periods in the recumbent position, prevent the patient from assuming an upright position at the bedside. Several strategies can be used to help the patient assume a 90-degree sitting position. A reclining wheelchair with elevating leg rests allows a slow and controlled progression from a supine position to a 90-degree sitting position. A tilt table (a board that can be tilted in 10-degree increments from a horizontal to a vertical position) may also be used. The tilt table promotes vasomotor adjustment to positional changes and helps patients with limited standing balance and limited weight-bearing activities avoid the decalcification of bones and low bone mass associated with disuse syndrome and lack of weight-bearing exercise. Physical therapists may use a tilt table for patients who have not been upright owing to illness or disability. Gradual elevation of the head of the bed may help. When getting patients with SCI out of bed, it is important to

gradually raise the head of the bed to a 90-degree angle; this may take approximately 10 to 15 minutes.

Graduated compression stockings are used to prevent venous stasis. For some patients, a compression garment (leotard) or snug-fitting abdominal binder and elastic compression bandaging of the legs are needed to prevent venous stasis and orthostatic hypotension. When the patient is standing, the feet are protected with a pair of properly fitted shoes. Extended periods of standing are avoided because of venous pooling and pressure on the soles of the feet. The nurse monitors the patient's blood pressure and pulse and observes for signs and symptoms of orthostatic hypotension and cerebral insufficiency (e.g., the patient reports feeling faint and weak), which suggest intolerance of the upright position. If the patient does not tolerate the upright position, the nurse should return the patient to the reclining position and elevate their legs.

TABLE 2-1 Therapeutic Exercises

	Description	Purposes	Action
Passive	An exercise carried out by the therapist or the nurse without assistance from the patient	To retain as much joint range of motion as possible; to maintain circulation	Stabilize the proximal joint and support the distal part; move the joint smoothly, slowly, and gently through its full range of motion; avoid producing pain.
Active-assistive	An exercise carried out by the patient with the assistance of the therapist or the nurse	To encourage normal muscle function	Support the distal part, and encourage the patient to take the joint actively through its range of motion; give no more assistance than is necessary to accomplish the action; short periods of activity should be followed by adequate rest periods.
Active	An exercise accomplished by the patient without assistance; activities include turning from side to side and from back to abdomen and moving up and down in bed	To increase muscle strength	When possible, active exercise should be performed against gravity; the joint is moved through full range of motion without assistance; make sure that the patient does not substitute another joint movement for the one intended.
Resistive	An active exercise carried out by the patient working against resistance produced by either manual or mechanical means	To provide resistance to increase muscle power	The patient moves the joint through its range of motion, while the therapist resists slightly at first and then with progressively increasing resistance; sandbags and weights can be used and are applied at the distal point of the involved joint; the movements should be performed smoothly.
Isometric or muscle setting	Alternately contracting and relaxing a muscle while keeping the part in a fixed position; this exercise is performed by the patient	To maintain strength when a joint is immobilized	Contract or tighten the muscle as much as possible without moving the joint, hold for several seconds, then let go and relax; breathe deeply.

Assisting Patients with Transfer. A **transfer** is movement of the patient from one place to another (e.g., bed to chair, chair to commode, wheelchair to tub). As soon as the patient is permitted out of bed, transfer activities are

started. The nurse assesses the patient's ability to participate actively in the transfer and determines, in conjunction with occupational therapists or physical therapists, the adaptive equipment required to promote independence and safety. A lightweight wheelchair with brake extensions, removable and detachable armrests, and leg rests minimize structural obstacles during the transfer. Tub seats or benches make transfers in and out of the tub easier and safer. Raised, padded commode seats may also be warranted for patients who must avoid flexing the hips greater than 90 degrees when transferring to a toilet. It is important that the nurse educate the patient about hip precautions (e.g., no adduction past the midline, no flexion greater than 90 degrees, and no internal rotation); abduction pillows can be used to keep the hip in correct alignment if precautions are warranted.

It is important that the patient maintains muscle strength and, if possible, performs push-up exercises to strengthen the arm and shoulder extensor muscles. The push-up exercises require the patient to sit upright in bed; a book is placed under each of the patient's hands to provide a hard surface, and the patient is instructed to push down on the book, raising the body. The nurse should encourage the patient to raise and move the body in different directions by means of these push-up exercises.

The nurse or physical therapist instructs the patient how to transfer. There are several methods of transferring from the bed to the wheelchair when the patient cannot stand, and the technique chosen should consider the patient's abilities and disability. It is helpful to demonstrate the technique to the patient. If the physical therapist is involved in teaching the patient to transfer, the nurse and physical therapist must collaborate so that consistent instructions are given to the patient. During transfer, the nurse assists and coaches the patient. [Figure 2-2](#) shows weight-bearing and non-weight-bearing transfers. For example, with a weight-bearing transfer from bed to chair, the patient stands up, pivots until his back is opposite the new seat, and sits down. If the patient's muscles are not strong enough to overcome the resistance of body weight, a polished lightweight board (transfer board, sliding board) may be used to bridge the gap between the bed and the chair. The patient slides across on the board with or without assistance from a caregiver. This board may also be used to transfer the patient from the chair to the toilet or bathtub bench. It is important to avoid the effects of shear on the patient's skin while sliding across the board. The nurse should make sure that the patient's fingers do not curl around the edge of the board during the transfer, because the patient's body weight can crush the fingers as they move across the board.

Safety is a primary concern during a transfer, and the following guidelines are recommended:

- Wheelchairs and beds must be locked before transfer begins.
- Detachable arm- and footrests are removed to make getting in and out of the chair easier.
- One end of the transfer board is placed under the buttocks and the other end on the surface to which the transfer is being made (e.g., the chair).

- The patient is instructed to lean forward, push up with his or her hands, and then slide across the board to the other surface.

Nurses frequently assist patients who are weak and incapacitated out of bed. The nurse supports and gently assists the patient during position changes, protecting the patient from injury. The nurse avoids pulling on a weak or paralyzed upper extremity to prevent dislocation of the shoulder. The patient is assisted to move toward the stronger side.

In the home setting, getting in and out of bed and performing chair, toilet, and tub transfers are difficult for patients with weak muscles and loss of hip, knee, and ankle motion. A rope attached to the headboard of the bed enables a patient to move toward the center of the bed, and the use of a rope attached to the footboard facilitates getting in and out of bed. The height of a chair can be raised with cushions on the seat or with hollowed-out blocks placed under the chair legs. Grab bars can be attached to the wall near the toilet and tub to provide leverage and stability.

Preparing for Ambulation. Regaining the ability to walk is a prime morale builder. However, to be prepared for ambulation—whether with a brace, walker, cane, or crutches—the patient must strengthen the muscles required. Therefore, exercise is the foundation of preparation. The nurse and physical therapist instruct and supervise the patient in these exercises.

For ambulation, the quadriceps muscles, which stabilize the knee joint, and the gluteal muscles are strengthened. To perform quadriceps-setting exercises, the patient contracts the quadriceps muscle by attempting to push the popliteal area against the mattress and at the same time raising the heel. The patient maintains the muscle contraction for a count of five and relaxes for a count of five. The exercise is repeated 10 to 15 times hourly. Exercising the quadriceps muscles prevents flexion contractures of the knee. In gluteal setting, the patient contracts or “pinches” the buttocks together for a count of five, relaxes for a count of five; the exercise is repeated 10 to 15 times hourly.

If assistive devices (i.e., walker, cane, crutches) will be used, the muscles of the upper extremities are exercised and strengthened. Push-up exercises are especially useful. While in a sitting position, the patient raises the body by pushing the hands against the chair seat or mattress. The patient should be encouraged to do push-up exercises while in a prone position as well. Pull-up exercises done on a trapeze while lifting the body are also effective for conditioning. The patient is taught to raise the arms above the head and then lower them in a slow, rhythmic manner while holding weights. Gradually, the weight is increased. The hands are strengthened by squeezing a rubber ball.

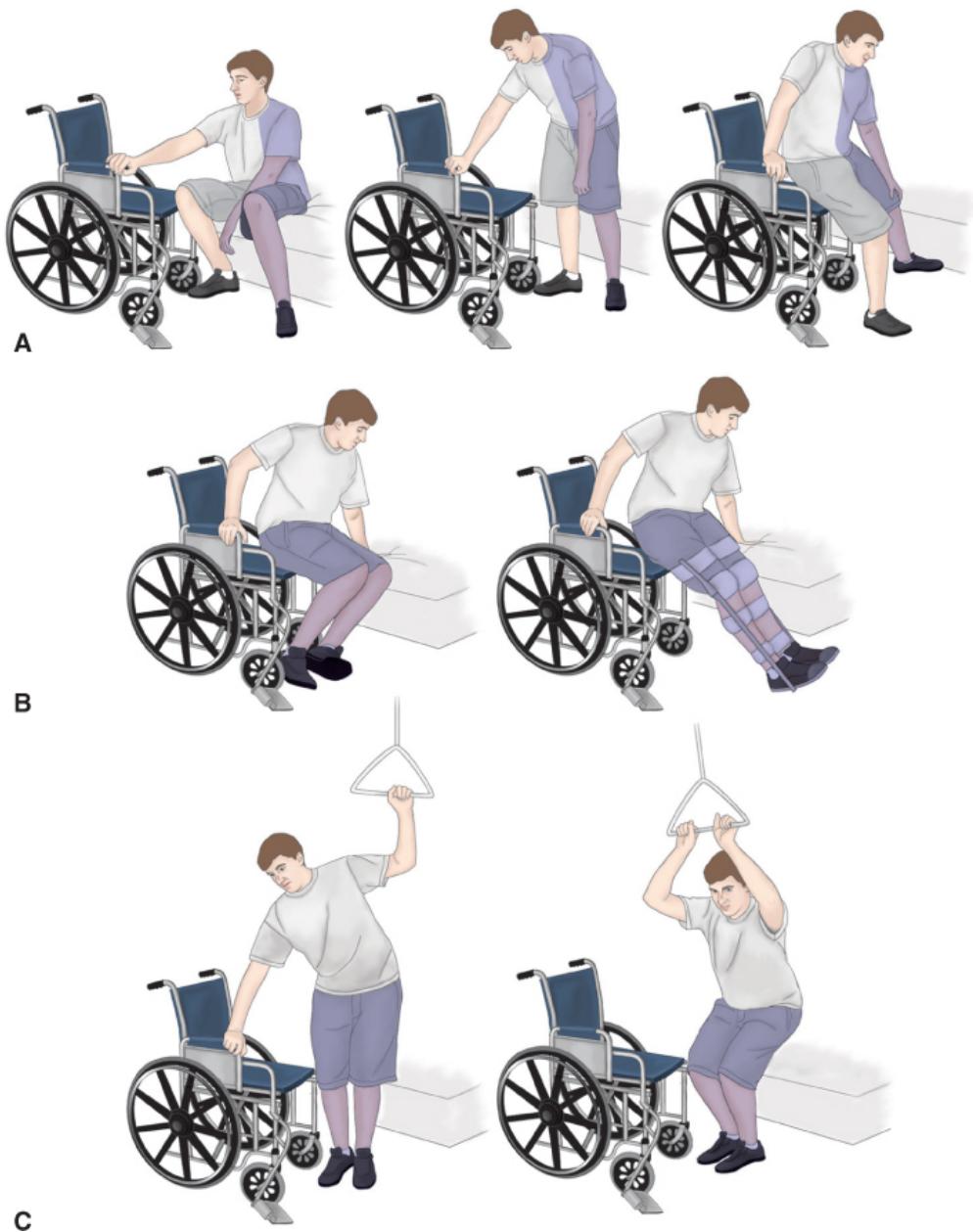


Figure 2-2 • Methods of patient transfer from the bed to a wheelchair. The wheelchair is in a locked position. Colored areas indicate non-weight-bearing body parts. **A.** Weight-bearing transfer from bed to chair. The patient stands up, pivots until his back is opposite the new seat, and sits down. **B. (Left)** Non-weight-bearing transfer from chair to bed. **(Right)** With legs braced. **C. (Left)** Non-weight-bearing transfer, combined method. **(Right)** Non-weight-bearing transfer, pull-up method. One of the wheelchair arms is removed to make getting in and out of the chair easier.

Typically, the physical therapist designs exercises to help the patient develop sitting and standing balance, stability, and coordination needed for

ambulation. After sitting and standing balance is achieved, the patient is able to use parallel bars. Under the supervision of the physical therapist, the patient practices shifting weight from side to side, lifting one leg while supporting weight on the other, and then walking between the parallel bars.

A patient who is ready to begin ambulation must be fitted with the appropriate assistive device, instructed about the prescribed weight-bearing limits (e.g., non-weight-bearing, partial weight-bearing ambulation), and taught how to use the device safely. [Figure 2-3](#) illustrates some of the more common assistive devices used in rehabilitation settings. The nurse continually assesses the patient for stability and adherence to weight-bearing precautions and protects the patient from falling. The nurse provides contact guarding by holding on to a gait belt that the patient wears around the waist. The patient should wear sturdy, well-fitting shoes and be advised of the dangers of wet or highly polished floors and throw rugs. The patient should also learn how to ambulate on inclines, uneven surfaces, and stairs.

AMBULATING WITH AN ASSISTIVE DEVICE: CRUTCHES, A WALKER, OR A CANE

Crutches are for partial weight-bearing or non-weight-bearing ambulation. Good balance, adequate cardiovascular reserve, strong upper extremities, and erect posture are essential for crutch walking. Ambulating a functional distance (at least the length of a room or house) or maneuvering stairs on crutches requires significant arm strength, because the arms must bear the patient's weight ([Fig. 2-4](#)). The nurse or physical therapist determines which gait is best ([Chart 2-5](#)).

A walker provides more support and stability than a cane or crutches. A pick-up walker is best for patients with poor balance and poor cardiovascular reserve, and a rolling walker, which allows automatic walking, is best for patients who cannot lift. A cane helps the patient walk with balance and support and relieves the pressure on weight-bearing joints by redistributing weight.



Figure 2-3 • Mechanical aids to walking. **A.** Two types of walkers: pick-up and rolling. **B.** Three types of canes: C-cane, functional cane, and quad cane.

Before patients can be considered to be independent in walking with crutches, a walker, or a cane, they should learn to sit, stand from sitting, and go up and down stairs using the device. [Table 2-2](#) describes how patients can ambulate and maneuver using each of the three devices and nursing actions to support using assistive devices.

ASSISTING PATIENTS WITH AN ORTHOSIS OR PROSTHESIS

Orthoses and prostheses are designed to facilitate mobilization and to maximize the patient's quality of life. An **orthosis** is an external appliance that provides support, prevents or corrects deformities, and improves function. Orthoses include braces, splints, collars, corsets, and supports that are designed and fitted by orthotists or prosthetists. Static orthoses (no moving parts) are used to stabilize joints and prevent contractures. Dynamic orthoses are flexible and are used to improve function by assisting weak muscles. A **prosthesis** is an artificial body part that may be internal, such as an artificial knee or hip joint, or external, such as an artificial leg or arm.



Figure 2-4 • For a person walking with crutches, the tripod stance, with crutches out to the sides and in front of the toes, increases stability.

In addition to learning how to apply and remove the orthosis and maneuver the affected body part correctly, patients must learn how to properly care for the skin that comes in contact with the appliance. Skin problems or pressure injuries may develop if the device is applied too tightly or too loosely, or if it is adjusted improperly. The nurse instructs the patient to clean and inspect the skin daily, to make sure the brace fits snugly without being too tight, to check that the padding distributes pressure evenly, and to wear a cotton garment without seams between the orthosis and the skin.

If the patient has had an amputation, the nurse promotes tissue healing, uses compression dressings to promote residual limb shaping, and minimizes contracture formation. A permanent prosthetic limb cannot be fitted until the tissue has healed completely and the residual limb shape is stable and free from edema. The nurse also helps the patient cope with the emotional issues surrounding loss of a limb and encourages acceptance of the prosthesis. The prosthetist, nurse, and primary provider collaborate to provide instructions related to skin care and care of the prosthesis.

SUPPORTING THE GRIEVING PROCESS

Developing a trusting nurse–patient relationship provides an opportunity to support patients and families as they grieve and process the meaning of the illness or disability, whether it be a temporary or permanent loss of normal functioning and lifestyle. The nurse helps the grieving process by providing clear, simple communications that do not minimize the loss. The nurse also educates the patient and family about the grieving process, normal grief reactions, and signs and symptoms of complicated grieving. Time should be planned to share feelings in a safe setting which provides needed privacy. In many cases, just being present and listening supports the grieving process. Patients and families may benefit from community resources such as support groups as well as connection to their local faith community for spiritual support through the changes associated with disability (Carpenito, 2017).

Chart 2-5

Crutch Gaits

Shaded areas are weight bearing. Arrow indicates advance of foot or crutch.
(Read chart from bottom, starting with beginning stance.)

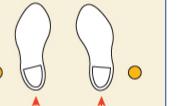
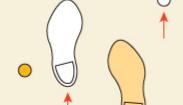
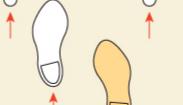
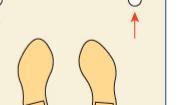
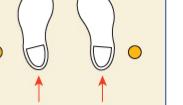
4-POINT GAIT	2-POINT GAIT	3-POINT GAIT	SWING-TO	SWING-THROUGH
<ul style="list-style-type: none"> • Partial weight bearing both feet • Maximal support provided • Requires constant shift of weight  <p>4. Advance right foot</p>	<ul style="list-style-type: none"> • Partial weight bearing both feet • Provides less support • Faster than a 4-point gait  <p>4. Advance right foot and left crutch</p>	<ul style="list-style-type: none"> • Non-weight bearing • Requires good balance • Requires arm strength • Faster gait • Can use with walker  <p>4. Advance right foot</p>	<ul style="list-style-type: none"> • Weight bearing both feet • Provides stability • Requires arm strength • Can use with walker  <p>4. Lift both feet/swing forward/land feet next to crutches</p>	<ul style="list-style-type: none"> • Weight bearing • Requires arm strength • Requires coordination/balance • Most advanced gait  <p>4. Lift both feet/swing forward/land feet in front of crutches</p>
 <p>3. Advance left crutch</p>	 <p>3. Advance left foot and right crutch</p>	 <p>3. Advance left foot and both crutches</p>	 <p>3. Advance both crutches</p>	 <p>3. Advance both crutches</p>
 <p>2. Advance left foot</p>	 <p>2. Advance right foot and left crutch</p>	 <p>2. Advance right foot</p>	 <p>2. Lift both feet/swing forward/land feet next to crutches</p>	 <p>2. Lift both feet/swing forward/land feet in front of crutches</p>
 <p>1. Advance right crutch</p>	 <p>1. Advance left foot and right crutch</p>	 <p>1. Advance left foot and both crutches</p>	 <p>1. Advance both crutches</p>	 <p>1. Advance both crutches</p>
 <p>Beginning stance</p>	 <p>Beginning stance</p>	 <p>Beginning stance</p>	 <p>Beginning stance</p>	 <p>Beginning stance</p>

TABLE 2-2 Nursing Actions Involved in Using Assistive Devices

		Crutches	Walker	Cane
Patient Preparation	Measure patient standing or lying down: If standing, set crutch length approximately 5 cm (2 inches) below axilla. If lying down, measure from anterior fold of axilla to sole of the foot and add 5 cm. If using patient's height, subtract 40 cm (16 inches) to obtain crutch height. Adjust hand grip to allow 20 to 30 degrees of flexion at elbow. Use foam rubber pad on underarm piece to relieve pressure of crutch.	Adjust height to individual patient. Patient's arms should be in 20 to 30 degrees of flexion at elbows when hands are resting on hand grips.	With patient flexing elbow at 30-degree angle, hold handle of cane level with greater trochanter and place tip of cane 15 cm (6 inches) lateral to base of 5th toe. Fit cane with gently flaring tip that has flexible, concentric rings to provide stability, absorb shock, and enable greater speed and less fatigue with walking.	
Assessment	Assess safety. Crutches should have large rubber tips, and patients should wear firm-soled, well-fitting shoes. Assess balance by asking patient to stand on unaffected leg by a chair. Assess stability and stamina (tolerance). Sweating and shortness of breath indicate that rest is necessary.	Assess safety. Patients should wear firm-soled, well-fitting shoes. Assess stability and stamina (tolerance). Sweating and shortness of breath indicate that rest is necessary.	Assess safety. Patients should wear firm-soled, well-fitting shoes. Assess stability and stamina (tolerance). Sweating and shortness of breath indicate that rest is necessary.	
Interventions and patient education	Assist with balance by using a transfer belt or holding patient near waist. Have patient practice shifting weight and maintaining balance. Protect patient from falls.	Walk with patient, holding at waist if needed for balance. Instruct patient to never pull self up using walker and to	Walk with patient, holding at waist if needed for balance. Have patient hold cane in hand opposite to affected extremity, if possible, to widen the base of support and reduce stress on involved extremity.	

	To maximize stability, encourage patient to use tripod stance, with crutches to the front and sides of toes. Have patient perform prescribed preparatory exercises to strengthen shoulder girdle and upper extremity muscles. ^a	look up when walking. Discuss full, partial, or non-weight bearing as prescribed. Protect patient from falls.	Instruct patient to move opposite arm and leg together. Protect patient from falls.
Ambulation Gait/action used	Determine which gait is best (see Chart 2-5 , Tripod Gait) ^b Four-point Three-point Two-point Swing-to Swing-through	Instruct patient to: Pick-up walker: lift device and move it forward with each step. Rolling walker: roll device forward and walk automatically.	Instruct patient to: Advance cane at same time that affected leg is moved forward. Keep cane fairly close to body to prevent leaning. Bear down on cane when unaffected extremity begins swing phase.
Sitting	Instruct patient to: Grasp hand-piece for control. Bend forward slightly while assuming sitting position. Place affected leg forward to prevent weight bearing and flexion while sitting.	Instruct patient to hold walker on hand grips for stability.	
Standing	Instruct patient to: Move forward to edge of chair, and keep unaffected leg slightly under seat. Place both crutches on side of affected extremity. Push down on hand-piece while rising to standing position.	Instruct patient to: Push off chair or bed to come to a standing position. Rolling walker: if walker has a brake, apply it before standing. Lift walker, placing it in front of self while leaning	Instruct patient to: Push off chair or bed to come to a standing position. Hold cane for stability. Step forward on unaffected extremity. Swing cane and affected extremity forward in a normal walking gait.

			slightly forward.
		Walk into walker, supporting weight on hands when advancing.	Balance on feet.
		Lift walker and place it in front of self again.	
Going down stairs	Instruct patient to: Walk forward as far as possible. Advance crutches to lower step; advance affected leg, then unaffected leg.	Continue pattern.	Instruct patient to: Step down on affected extremity. Place the cane and then unaffected extremity on down step.
Going up stairs	Instruct patient to: Advance unaffected leg first up next step. Advance crutches and affected extremity. Unaffected leg goes up first.	n/a	Instruct patient to: Step up on unaffected extremity. Place cane and affected extremity up on step.

^aFor patients who cannot support their weight through the wrist and hand because of arthritis or fracture, platform crutches that support the forearm and allow the weight to be borne through the elbow are available. If weight is borne on the axilla, the pressure of the crutch can damage the brachial plexus nerves, producing “crutch paralysis.”

^bTeach patients two gaits so that they can change from one to another to avoid fatigue. In addition, a faster gait can be used when walking an uninterrupted distance, and a slower gait can be used for shorter distances or in crowded places.

n/a, not applicable.

Evaluation

Expected patient outcomes may include:

1. Demonstrates improved physical mobility
 - a. Maintains muscle strength and joint mobility
 - b. Does not develop contractures
 - c. Participates in exercise program
2. Transfers safely
 - a. Demonstrates assisted transfers
 - b. Performs independent transfers
3. Ambulates with maximum independence
 - a. Uses ambulatory aid safely
 - b. Adheres to weight-bearing prescription
 - c. Requests assistance as needed

4. Demonstrates increased activity tolerance
 - a. Does not experience episodes of orthostatic hypotension
 - b. Reports absence of fatigue with ambulatory efforts
 - c. Gradually increases distance and speed of ambulation
5. Patient and family members verbalize loss and express feelings of grief
 - a. Describe the meaning of the loss as it relates to function or lifestyle
 - b. Share grief with each other and those who are important to well-being
 - c. Acquire knowledge of resources for support after discharge

Promoting Home, Community-Based, and Transitional Care

An important goal of rehabilitation is to assist the patient to return to the home environment after learning to manage the disability. A referral system maintains continuity of care when the patient is transferred to the home or to a long-term care facility. The plan for discharge is formulated when the patient is first admitted to the hospital, and discharge plans are made with the patient's functional potential in mind.



Educating Patients About Self-Care

Significant expenditures of time and resources are necessary to ensure that patients gain the skills and confidence to self-manage their health effectively after discharge from the hospital (Naylor, Shaid, Carpenter, et al., 2017). Formal programs provide patients with effective strategies for interpreting and managing disease-specific issues and skills needed for problem solving, as well as building and maintaining self-awareness and self-efficacy. Self-care programs often use multifaceted approaches, including didactic teaching, group sessions, individual learning plans, and Web-based resources. When planning the approach to self-care, the nurse must consider the individual patient's knowledge, experience, social and cultural background, level of formal education, and psychological status. The preparation for self-care must also be spread out over the course of the recovery period, and it must be monitored and updated regularly as the patient masters aspects of self-care. Preparation for self-care is also highly relevant for informal caregivers of patients in rehabilitation.

When a patient is discharged from acute care or a rehabilitation facility, informal caregivers, typically family members, often assume the care and support of the patient. Although the most obvious care tasks involve physical care (e.g., personal hygiene, dressing, meal preparation), other elements of the caregiving role include psychosocial support and a commitment to this supportive role. Thus, the nurse must assess the patient's support system (family, friends) well in advance of discharge. The positive attitudes of family and friends toward the patient, the patient's disability, and the return home are important in making a successful transition to home. Not all families can carry out the arduous programs

of exercise, physical therapy, and personal care that the patient may need. They may not have the resources or stability to care for family members with a severe disability. The physical, emotional, economic, and energy strains of a disabling condition may overwhelm even a stable family. Members of the rehabilitation team must not judge the family but rather should provide supportive interventions that help the family to attain its highest level of function.

The family members need to know as much as possible about the patient's condition and care so that they do not fear the patient's return home. The nurse develops methods to help the patient and family cope with problems that may arise. For example, the nurse may develop an ADLs checklist individualized for the patient and family to ensure that the family is proficient in assisting the patient with certain tasks ([Chart 2-6](#)).

Continuing and Transitional Care

A home health or transitional care nurse may visit the patient prior to discharge, interview the patient and the family, and review the ADLs sheet to learn which activities the patient can perform. This helps to ensure that continuity of care is provided and that the patient does not regress yet maintains the independence gained while in the hospital or rehabilitation setting. The family may need to purchase, borrow, or improvise needed equipment, such as safety rails, a raised toilet seat or commode, or a tub bench. Ramps may need to be built or doorways widened to allow full access.

Family members are taught how to use equipment and are given a copy of the equipment manufacturer's instruction booklet, the names of resource people, lists of equipment-related supplies, and locations where they may be obtained. A written summary of the care plan is included in family education. The patient and family members are reminded about the importance of routine health screening and other health promotion strategies.

A network of support services and communication systems may be required to enhance opportunities for independent living. The nurse uses collaborative, administrative skills to coordinate these activities and pull together the network of care. The nurse also provides skilled care, initiates additional referrals when indicated, and serves as a patient advocate and counselor when obstacles are encountered. The nurse continues to reinforce prior patient education and helps the patient to set and achieve attainable goals. The degree to which the patient adapts to the home and community environment depends on the confidence and self-esteem developed during the rehabilitation process and on the acceptance, support, and reactions of family members, employers, and community members.

Chart 2-6 HOME CARE CHECKLIST

Managing the Therapeutic Regimen at Home

At the completion of education, the patient and/or caregiver will be able to:

- State the impact of disability on physiologic functioning, ADLs, IADLs, roles, relationships, and spirituality.
- State changes in lifestyle (e.g., diet, activity) necessary to maintain health.
- State the name, dose, side effects, frequency, and schedule for all medications.
- State how to obtain medical supplies after discharge.
- Identify durable medical equipment needs, proper usage, and maintenance necessary for safe utilization:
 - Wheelchair—manual/power
 - Cushion
 - Grab bars
 - Sliding board
 - Mechanical lift
 - Raised padded commode seat
 - Padded commode wheelchair
 - Bedside commode
 - Crutches
 - Walker
 - Cane
 - Prosthesis
 - Orthosis
 - Shower chair
 - Specialty bed
- Demonstrate usage of adaptive equipment for activities of daily living:
 - Long-handled sponge
 - Reacher
 - Universal cuff
 - Plate mat and guard
 - Rocker knife, spork, weighted utensils
 - Special closures for clothing
 - Other
- Demonstrate mobility skills:
 - Transfers: bed to chair; in and out of toilet and tub; in and out of car
 - Negotiate ramps, curbs, stairs
 - Assume sitting from supine position
 - Turn side to side in bed
 - Maneuver wheelchair; manage armrests and leg rests; lock brakes
 - Ambulate safely using assistive devices
 - Perform range-of-motion exercises
 - Perform muscle-strengthening exercises

- Identify community resources for peer and caregiver/family support:
 - Identify sources of support (e.g., friends, relatives, faith community)
 - Identify phone numbers of support groups for people with disability and their caregivers/families
 - State meeting locations and times
- Demonstrate how to access transportation:
 - Identify locations of wheelchair accessibility for public buses or trains
 - Identify phone numbers for private wheelchair van
 - Contact Division of Motor Vehicles for handicapped parking permit
 - Contact Division of Motor Vehicles for driving test when appropriate
 - Identify resources for adapting private vehicle with hand controls or wheelchair lift
- Identify vocational rehabilitation resources:
 - State name and phone number of vocational rehabilitation counselor
 - Identify educational opportunities that may lead to future employment
- Identify community resources for recreation:
 - State local recreation centers that offer programs for people with disability
 - Identify leisure activities that can be pursued in the community
 - State how to reach primary provider with questions or if complications arise
 - State time and date of follow-up appointments
 - Identify the need for health promotion, disease prevention, and screening activities

ADLs, activities of daily living; IADLs, instrumental activities of daily living.

There is a growing trend toward independent living by people with severe disability, either alone or in groups that share resources. Preparation for independent living should include training in managing a household and working with personal caregivers as well as training in mobility. The goal is integration into the community—living and working in the community with accessible housing, employment, public buildings, transportation, and recreation.

State rehabilitation administration agencies provide services to assist people with disability in obtaining the help they need to engage in gainful employment. These services include diagnostic, medical, and mental health services. Counseling, training, placement, and follow-up services are available to help people with disability select and obtain jobs.

If the patient is transferred to a long-term care facility, the transition is planned to promote continued progress. Independence gained continues to be supported, and progress is fostered. Adjustment to the facility is promoted through communication. Family members are encouraged to visit, to be involved, and to take the patient home on weekends and holidays if possible.

Home Health Nursing

Home health care is a unique component of posthospital care for patients who return home to complete recuperation following an acute illness episode or exacerbation of chronic illness. Home health agencies can also provide advanced technologies in the home setting. All together, these services provided in the home setting work to maximize the patient's ability to function at his highest level of wellness (Rector, 2018).

The ANA defines **home health nursing** as a specialty area of practice that provides nursing services to patients across the lifespan in a home setting (Wilson, 2019). Home health nursing practice roles include holistic care planning, which incorporates resource and service coordination as part of a collaborative interdisciplinary team. This team includes home health aides; social workers; physical, speech, and occupational therapists; and primary providers. The approach provides health and social services with oversight of the total health care plan by a case manager, clinical nurse specialist, or nurse practitioner. Interdisciplinary collaboration is required if a home health agency is to receive Medicare certification (Rector, 2018).

Most home health agencies are reimbursed by various sources, including Medicare and Medicaid programs, private insurance, and direct patient payment. Older adults are the most frequent users of home care expenditures financed by Medicare, which allows nurses to manage and evaluate care of seriously ill patients who have complex, labile conditions and are at high risk for rehospitalization. Each funding source has its own requirements for services rendered, number of visits allowed, and amount of reimbursement the agency receives. The Omaha System's care documentation, referred to as the Outcome and Assessment Information Set (OASIS), has been a requirement for some time to ensure that outcome-based care is provided for all care reimbursed by Medicare. This system uses sociodemographic, environment, support system, health status, and functional status domains to assess and plan care for adult patients. OASIS is also used to collect data and improve performance or quality outcomes (CMS, 2018b).

Services Provided

Many home care patients are acutely ill or have chronic health problems or disability requiring that nurses provide more education and monitoring to patients and families. Home health nurses make home visits to provide skilled nursing care, follow-up care, and education to promote health and prevent complications. Home health care visits may be intermittent or periodic, and case management via telephone or Internet may be used to promote communication with home care consumers. The nurse instructs the patient and family about skills, self-care strategies, and health maintenance and promotion activities (e.g., nutritional counseling, exercise programs, stress management). Nursing care includes skilled assessment of the patient's physical, psychological, social, and environmental status ([Fig. 2-5](#)). Nursing interventions may include intravenous (IV) therapy and injections, parenteral nutrition, venipuncture, catheter insertion, pressure injury treatment, wound care, ostomy care, and patient and family education. Complex

technical equipment such as mechanical ventilation and procedures such as peritoneal dialysis may be involved in home health care. Nurses have a role in evaluating the safety and effectiveness of technology in the home setting. In addition, **telehealth** is useful in home health care in facilitating exchange of information via telephone or computers between patients and nurses regarding health information such as blood glucose readings, vital signs, and cardiac parameters. The use of a broad spectrum of computer and Internet resources, such as webcams, also facilitates exchange of information (Rector, 2018).

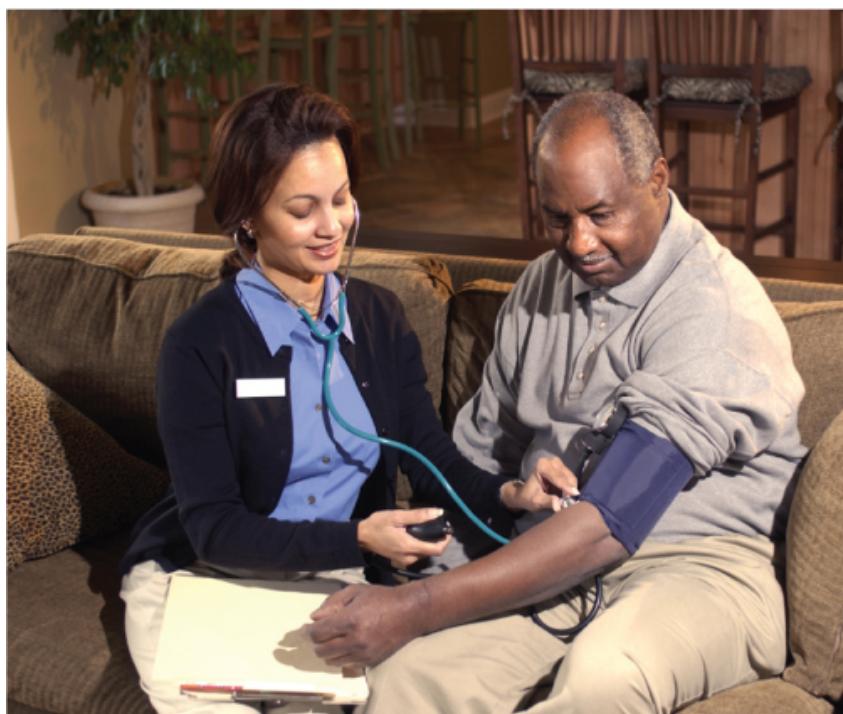


Figure 2-5 • Assessment is an important part of any home health visit.

The Home Setting

The home health nurse is a guest in the patient's home and must have permission to visit and give care. The nurse has minimal control over the lifestyle, living situation, and health practices of the visited patients. This lack of full decision making authority can create a conflict for the nurse and lead to problems in the nurse–patient relationship. To work successfully with patients in any setting, the nurse must be nonjudgmental and convey respect for patients' beliefs, even if they differ sharply from those of the nurse. This can be difficult when a patient's lifestyle involves activities that a nurse considers harmful or unacceptable, such as smoking, excessive use of alcohol, use of illicit drugs or misuse of prescription drugs, or overeating (Rector, 2018).

The cleanliness of a patient's home may not meet the standards of a hospital. Although the nurse can provide education points about maintaining clean surroundings, the patient and family decide if they will implement the nurse's

suggestions. The nurse must accept their decisions and deliver the care required regardless of the conditions of the setting. The kind of equipment and the supplies or resources that usually are available in acute care settings are often unavailable in the patient's home. The nurse has to learn to improvise when providing care, such as when changing a dressing or catheterizing a patient in a regular bed that is not adjustable and lacks a bedside table (Rector, 2018).

Infection control is as important in the home as it is in the hospital; however, it can be more challenging in the home and requires creative approaches. As in any situation, it is important to perform hand hygiene before and after giving direct patient care, even in a home that does not have running water. If aseptic technique is required, the nurse must have a plan for implementing this technique before going to the home. This applies to universal precautions, transmission-based precautions, and disposal of bodily secretions and excretions. If injections are given, the nurse must use a closed container to dispose of syringes. Injectable and other medications must be kept out of the reach of children during visits and stored in a safe place if the medications remain in the home.



Quality and Safety Nursing Alert

Friends, neighbors, or family members may ask the nurse about the patient's condition. The patient has a right to confidentiality, and information should be shared only with the patient's permission. The nurse should be mindful of any sensitive information (e.g., electronic health records [EHRs]) taken into the home and prevent it from being misplaced or picked up by others.

Home Health Visits

Most agencies have a policy manual that identifies the agency's philosophy and procedures and defines the services provided. The eligibility of a patient and provision of services may be prescribed by the type of insurance the patient carries. For example, Medicare beneficiaries must meet certain eligibility requirements such as homebound criteria and may be permitted only intermittent skilled services of a registered nurse or licensed therapist (CMS, 2019). Becoming familiar with these policies is essential before initiating a home visit. It is also important to know the state laws regarding what actions to take if the nurse finds a patient dead, suspects abuse, determines that a patient cannot safely remain at home, or observes a situation that possibly indicates harm to the community at large.

Preparing for a Home Visit

Before making a home visit, the nurse should review pertinent data about the patient that is typically provided on a referral form. It may be necessary to contact the referring agency if the purpose for the referral is unclear or important

information is missing. The nurse calls the patient to obtain permission to visit, schedules a time for the visit, and verifies the address. This initial phone conversation provides an opportunity to introduce oneself, identify the agency, and explain the reason for the visit. If the patient does not have a telephone, the nurse should see if the person who made the referral is able to contact the patient regarding the visit. If an unannounced visit to a patient's home must be made, the nurse should ask permission to come in before entering the house. Explaining the purpose of the referral at the outset and setting up the times for future visits before leaving are also recommended.

Conducting a Home Visit

Personal Safety Precautions

Home health nurses must pay attention to personal safety, because they often practice in unknown environments. Based on the principle of due diligence, agencies should investigate at-risk working environments prior to making the assignment and must inform employees accordingly. Agencies have policies and procedures concerning the promotion of safety for clinical staff, and training is provided to facilitate personal safety. The individual nurse and agency must proactively assess environments for safety. Suggested precautions to take when making a home visit are presented in [Chart 2-7](#).

Initial Home Visit

The first visit sets the tone for subsequent visits and is crucial in establishing the nurse–patient relationship. The situations encountered depend on numerous factors. Patients may be in pain and have additional factors that make them unable to care for themselves. Family members may be overwhelmed and doubt their ability to care for loved ones. They may not understand why the patient was sent home from the hospital before being totally rehabilitated. They may not comprehend what home care is or why they cannot have 24-hour nursing services. It is critical that the nurse conveys an understanding of what patients and families are experiencing and how the illness is affecting their lives.

Chart 2-7

Safety Precautions in Home Health Care

- Learn, or preprogram a phone with, the telephone numbers of the agency, police, and emergency services. Most agencies provide phones for nurses so that the agency can contact the nurse and the nurse can easily contact the agency.
- Carry agency identification and a charged phone to make telephone calls if you become lost or have problems; a mobile phone charger provides additional backup.
- Let the agency know your daily schedule and the telephone numbers of your patients (if available) so that you can be located if you do not return when expected.
- Know where the patient lives before leaving to make the visit, and either carry a map or use the navigation system in your car or the GPS software on your smartphone for quick referral.
- Keep your car in good working order, and have sufficient gas in the tank.
- Park the car near the patient's home, and lock the car during the visit.
- Do not drive an expensive car or wear expensive jewelry when making visits.
- Know the regular bus schedule, and know the routes when using public transportation or walking to the patient's house.
- When making visits in high-crime areas, visit with another person rather than alone (if possible).
- Try to schedule visits during daylight hours (when possible).
- Never walk into a patient's home uninvited; be vigilant for unrestrained pets.
- If you do not feel safe entering a patient's home, leave the area.
- Become familiar with the layout of the house, including exits from the house.
- If a patient or family member is visibly intoxicated, under the influence, or hostile, leave and reschedule the visit.
- If a family is having a serious argument or abusing the patient or anyone else in the household, leave, reschedule the visit, contact your supervisor, and report the abuse to the appropriate authorities.

GPS, Global Positioning System.

During the initial home visit, which may take 1 hour or more, the patient is evaluated and a plan of care is established that may be modified on subsequent visits. The nurse informs the patient of the agency's practices, policies, and hours of operation. If the agency is to be reimbursed for the visit, the nurse asks for insurance information, such as a Medicare or Medicaid card. The initial assessment includes evaluating the patient, the home environment ([Chart 2-8](#)), the patient's self-care abilities or the family's ability to provide care, and the patient's need for additional resources. After the assessment, necessary skilled interventions are accomplished. Most agencies provide nurses with bags that contain standard supplies and equipment needed during home visits. It is

important to keep the bag properly supplied and to bring any additional items that might be needed for the visit. Depending on insurance coverage, supplies may be delivered to the home or may need to be purchased by the patient. Home health nurses need to be prepared for the inevitability that a patient may not have the medical supplies needed for treatment, and work to procure all needed items.

One important aspect of the transition from hospital to home is self-management of the medication regimen. Older adults may have multiple prescribers, or may use alternative therapies such as herbal remedies as well as vitamins and other over-the-counter medications. While the patient is under the care of the home health agency, the home health nurse promotes medication management through the process of medication reconciliation. The nurse reviews current medication orders and assists with solving problems or medication discrepancies such as wrong dosages, duplicate medications, omissions, or use of a medication for something other than the prescribed reason (Kollerup, Curtis, & Schantz Laursen, 2018). Home health agencies may mandate medication reconciliation at each skilled nursing visit. As patients and families observe medication reconciliation, they begin to understand the importance of medication management. Managing the medication regimen is an important part of a successful transition home; without it, there is risk for readmission to the hospital.

Chart 2-8 ASSESSMENT

Assessing the Home Environment

Physical Facilities (check all that apply)

Exterior

- Steps
- Unsafe steps
- Porch
- Litter
- Noise
- Adequate lighting
- Other

Interior

- Accessible bathroom
- Level, safe floor surface
- Number of rooms
- Privacy
- Sleeping arrangements
- Refrigeration
- Trash management
- Animals
- Adequate lighting
- Steps/stairs
- Other

Safety Hazards (check all that apply)

- None
- Inadequate floor, roof, or windows
- Inadequate lighting
- Unsafe gas/electric appliances
- Inadequate heating
- Inadequate cooling
- Lack of fire safety devices
- Unsafe floor coverings
- Inadequate stair rails
- Lead-based paint (particularly for homes built prior to 1978) or lead in drinking water (particularly in homes built prior to 1986)
- Improperly stored hazardous material
- Improper wiring/electrical cords
- Other

Safety Factors (check all that apply)

- Fire/smoke detectors
- Working telephone

- Placement of electrical cords
- Emergency plan
- Emergency phone numbers displayed
- Safe portable heaters
- Oxygen in use
- Obstacle-free paths
- Other

Determining the Need for Future Visits

While assessing a patient's situation, the home health nurse evaluates and clearly documents the need for future visits and the optimal frequency for those visits. To make these judgments, the nurse should consider the questions listed in [Chart 2-9](#). With each subsequent visit, these same factors are evaluated to determine the continuing health needs of the patient. As progress is made and the patient—with or without the help of significant others—becomes more capable of self-care and more independent, the need for home visits may decline.

Ending the Visit

As the visit comes to a close, the nurse summarizes the main points of the visit for the patient and family and identifies expectations for future visits or patient achievements. The following points should be considered at the end of each visit:

- What are the main points the patient or family should remember from the visit?
- What positive attributes have been noted about the patient and the family that will give a sense of accomplishment?
- What were the main points of the education plan or the treatments needed to ensure that the patient and family understand what they must do? A written set of instructions should be left with the patient or family, provided they can read and see (alternative formats include video or audio recordings). Printed material must be in the patient's primary language and in large print when indicated.
- Whom should the patient or family call if someone needs to be contacted immediately? Are current emergency telephone numbers readily available? Is telephone service available, or can an emergency phone service be provided?
- What signs of complications should be reported immediately?
- How frequently will visits be made? How long will they last (approximately)?
- What is the day and time of the next visit? Will a different nurse make the visit?

Documenting the Visit

Documentation considerations for home visits follow fairly specific regulations. The patient's needs and the nursing care provided must be documented to ensure

that the agency qualifies for payment for the visit. Medicare, Medicaid, and other **third-party payers** (i.e., organizations that provide reimbursement for services covered under a health care insurance plan) require documentation of the patient's homebound status and the need for skilled professional nursing care. The medical diagnosis and specific detailed information on the functional limitations of the patient are usually part of the documentation. The goals and the actions appropriate for attaining those goals must be identified. Expected outcomes of the nursing interventions must be stated in terms of patient behaviors and must be realistic and measurable. In addition, the goals must reflect the nursing diagnosis or the patient's problems and must specify those actions that address the patient's problems. Inadequate documentation may result in nonpayment for the visit and care services.

Chart 2-9



ASSESSMENT

Assessing the Need for Home Visits

Current Health Status

- How well is the patient progressing?
- How serious are the present signs and symptoms?
- Has the patient shown signs of progressing as expected, or does it seem that recovery will be delayed?

Home Environment

- Are safety concerns apparent?
- Are family or friends available to provide care, or is the patient alone?

Level of Self-Care Ability

- Is the patient capable of self-care?
- What is the patient's level of independence?
- Is the patient ambulatory or bedridden?
- Does the patient have sufficient energy, or are they frail and easily fatigued?
- Does the patient need and use assistive devices?

Level of Nursing Care Needed

- What level of nursing care does the patient require?
- Does the care require basic skills or more complex interventions?

Prognosis

- What is the expectation for recovery in this particular instance?
- What are the chances that complications may develop if nursing care is not provided?

Educational Needs

- How well has the patient or family grasped the education points made?
- Is there a need for further follow-up and retraining?
- What level of proficiency does the patient or family show in carrying out the necessary care?

Mental Status

- How alert is the patient?
- Are there signs of confusion or thinking difficulties?
- Does the patient tend to be forgetful or have a limited attention span?

Level of Adherence

- Is the patient following the instructions provided?
- Does the patient seem capable of following the instructions?

- Are the family members helpful, or are they unwilling or unable to assist in caring for the patient as expected?

Discharge Planning for Transition to the Community or Home Care Setting

Discharge planning is an essential component of facilitating the transition of the patient from the acute care to the community or home care setting, or for facilitating the transfer of the patient from one health care setting to another. A documented discharge plan is mandatory for patients who receive Medicare or Medicaid health insurance benefits. Discharge planning begins with the patient's admission to the hospital or health care setting and must consider the potential for necessary follow-up care in the home or another community setting. Several different personnel (e.g., social workers, home health nurses, case managers) or agencies may be involved in the planning process.

The development of a comprehensive discharge plan requires collaboration between professionals at the referring agency and the home care agency, as well as other community agencies that provide specific resources upon discharge. The process involves identifying the patient's needs and developing a thorough plan to meet them. It is essential to have open lines of communication with family members to ensure understanding and cooperation.

Continuing the Transition through Community Resources and Referrals

Case managers and discharge planners often make referrals to other team members, such as home health aides and social workers. These nurses work collaboratively with the health care team and the referring agency or person. Continuous coordinated care among all health care providers involved in a patient's care is essential to avoid duplication of effort by the various personnel caring for the patient. These nurses must also be knowledgeable about community resources available to patients, as well as services provided by local agencies, eligibility requirements for those services, and any charges for the services (i.e., co-pays). Most communities have directories, which may include online directories or resource booklets, that list local health and social service agencies and their offerings. The Internet is useful in helping patients identify the location and accessibility of grocery and drug stores, banks, health care facilities, ambulances, primary providers, dentists, pharmacists, social service agencies, and senior citizens' programs. In addition, a patient's place of worship or faith community may be an important resource for services. The process includes informing the patient and family about the community resources available to meet their needs. When appropriate, nurses may make the initial contact.

CRITICAL THINKING EXERCISES

1 pc An 80-year-old community-dwelling woman with a new diagnosis of heart failure was transferred to your medical-surgical unit from the intensive care unit (ICU). The transfer report from the ICU nurse included the notation that prior to this admission and diagnosis, the patient lived alone at home. The patient has one son who lives locally. Both the patient and son agree with a plan to transition the patient from living alone to living with her son at his home. She has been prescribed new medications to take at home and will need to see her primary provider in 2 weeks. What are your priorities as you work on discharge planning for this patient? What referrals will you consider to achieve a successful transition from hospital to home?

2 ebp An 82-year-old man newly diagnosed with diabetes is being referred for home care after discharge from the hospital. He needs regular monitoring and diabetes education. He has several family members at home who have assisted with IADLs in the past; however, they all work. You are concerned about his ability to manage his diabetes as his family reports he will be home alone during the day and has decreased activity tolerance related to ADLs since his hospitalization and new diagnosis of diabetes. Identify a specific evidence-based question related to this patient in order to conduct a relevant and focused literature search. What key words would you use in this search, and what sources would be appropriate to search? What resources could you use to assist him to remain in his home for as long as possible? How would you go about obtaining this information? What is the strength of the evidence?

3 ipc You are a home health nurse caring for a 75-year-old man who has transitioned home from inpatient rehabilitation following a fall in which his hip was fractured. He had surgery to reduce the fracture and stabilize the hip. He lives with his wife who is also 75 and who has memory impairment. Both need assistance with IADLs. He needs assistance with ADLs as he continues the rehabilitation process at home. As the home health nurse and case manager, develop a list of resources and interdisciplinary services that will enhance this transition to the home setting.

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*Asterisk indicates nursing research.

**Double asterisk indicates classic reference.

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3 Health Education and Health Promotion

LEARNING OUTCOMES

On completion of this chapter, the learner will be able to:

1. Describe the purposes and significance of health education.
2. Distinguish between the concepts of adherence to a therapeutic regimen and health literacy.
3. Explain the variables that affect learning and apply them to the teaching—learning process.
4. Describe the components of health promotion and discuss major health promotion models.
5. Specify the variables that affect health promotion activities across the life cycle, and describe the role of the nurse in health promotion.

NURSING CONCEPTS

Community-Based Practice
Family
Health Promotion
Health, Wellness, and Illness
Managing Care
Stress and Coping
Teaching and Learning

GLOSSARY

adherence: the process of faithfully following guidelines or directions

community: an interacting population of individuals living together within a larger society

feedback: the return of information given to a person

health education: various learning experiences designed to promote behaviors that facilitate health

health literacy: the capability of a person to obtain, communicate, process, and understand essential health information for the purpose of securing health care services and for making health care decisions

health promotion: activities that assist people in developing resources to maintain or enhance well-being and improve quality of life

learning: the act of acquiring knowledge, attitudes, or skills

learning readiness: the optimum time for learning to occur; usually corresponds to the learner's perceived need and desire to obtain specific knowledge

nutrition: the science that deals with food and nourishment in humans

physical fitness: the condition of being physically healthy as a result of proper exercise and nutrition

self-responsibility: personal accountability for one's actions or behavior

stress management: behaviors and techniques used to strengthen a person's resources against stress

teaching: helping another person learn

therapeutic regimen: a routine that promotes health and healing

Effective health education lays a solid foundation for individual and **community** (population of individuals living together within a larger society) wellness. All nurses use teaching as a tool to assist patients and families in developing effective health behaviors and altering lifestyle patterns that predispose people to health risks. Health education is an influential factor directly related to positive health outcomes.

Purpose of Health Education

Today's health care environment mandates the use of an organized approach to **health education** (learning experiences designed to promote behaviors that facilitate health) so that patients can meet their specific health care needs. There are many reasons for providing health education.

Meeting Nursing Standards

Teaching, as a function of nursing, is included in all state nurse practice acts and in the American Nurses Association's (ANA's) *Scope and Standards of Practice* (ANA, 2015). Health teaching and health promotion are independent functions of nursing practice and essential nursing responsibilities. All nursing care is directed toward promoting, maintaining, and restoring health; preventing illness; and helping people adapt to the residual effects of illness. Many of these nursing activities are accomplished through patient education. Nurses are challenged to focus on the health education needs of communities and to provide specific patient and family education. Health education is important to nursing care because it affects the abilities of people and families to perform important self-care activities.

Every contact a nurse has with a health care consumer, whether or not that person is ill, should be considered an opportunity for health education. Although people have a right to decide whether to learn, nurses have the responsibility to present information that motivates people to recognize the need to learn. Therefore, nurses must use opportunities in all health care settings to promote wellness. There are many educational environments. Some examples include homes, hospitals, community health centers, schools, places of business, service agencies, shelters, and consumer action or support groups (deChesnay & Anderson, 2020).

Supporting Informed Decision Making and Self-Care

The emphasis on health education stems in part from the public's right to comprehensive health care, which includes up-to-date health information. It also reflects the emergence of an informed public that is asking more questions about health and health care. Because of the importance that American society places on health and the responsibility that all people must maintain and promote their own health, members of

the health care team, specifically nurses, are obligated to make health education available. Significant factors to consider when planning patient education include the availability of health care, the use of diverse health care providers to accomplish care management goals, and the increased use of complementary and alternative strategies rather than traditional approaches to care. Without adequate knowledge and training in self-care skills, consumers cannot make informed decisions about their health. Guidance from nurses may assist consumers to obtain health information from trustworthy, credible, and timely Internet resources, as well as from appropriate health promotion practitioners and researchers (Cohn, Lyman, Broshek, et al., 2018). People with chronic illnesses and disability are among those most in need of health education. As the lifespan of the population increases, the number of people with such illnesses also increases. Health information targeted at identifying and managing the exacerbations or issues commonly associated with having a chronic illness or disability is a major focus of health education. People with chronic illness need health care information to participate actively in and assume responsibility for self-care. Health education can help those with chronic illness adapt to their illness, prevent complications, carry out prescribed therapy, and solve problems when confronted with new situations. It can also help to prevent crisis situations and reduce the potential for rehospitalization resulting from inadequate information about self-care. The goal of health education is to teach people to live a healthy life and strive toward achieving their maximum health potential.

In addition to the public's right to and desire for health education, patient education is also a strategy for promoting self-care at home and in the community, reducing health care costs by preventing illness, effectively managing necessary therapies, avoiding expensive medical interventions, decreasing lengths of hospital stay, and facilitating earlier discharge. For health care agencies, offering community wellness programs is a public relations tool for increasing patient satisfaction and for developing a positive image of the institution. Patient education is also a cost-avoidance strategy in that positive staff-patient relationships may avert malpractice suits. Some insurance companies support health education through reimbursement for programs, such as diabetes management classes and fitness and weight management programs.

Promoting Adherence to the Therapeutic Regimen

One of the goals of patient education is to encourage people to adhere to their **therapeutic regimen** (a routine that promotes health and healing). **Adherence** (the process of faithfully following guidelines or directions) to treatment usually requires that a person make one or more lifestyle changes to carry out specific activities that promote and maintain health. Common examples of behaviors facilitating health include taking prescribed medications, maintaining a healthy diet, increasing daily activities and exercise, self-monitoring for signs and symptoms of illness and changes in baseline health status, practicing specific hygiene measures, seeking recommended health evaluations and screening, and performing other therapeutic and preventive measures.

Factors Affecting Adherence

Many people do not adhere to their prescribed regimens; rates of adherence are generally low, especially when the regimens are complex or of long duration (e.g., therapy for chronic inflammatory rheumatic diseases, hypertension, breast cancer, human immune deficiency virus [HIV] infection, hemodialysis). Nonadherence to prescribed therapy has been the subject of many studies (Al-Noumani, Wu, Barksdale, et al., 2019; Hine, Smith, Eshun-Wilson, et al., 2018; Lambert, Balneaves, Howard, et al., 2018; Lavielle, Puyraimond-Zenmour, Romand, et al., 2018). For the most part, findings have been inconclusive, and no one predominant causative factor has been identified. Instead, a wide range of variables influences the degree of adherence, including the following:

- Demographic variables, such as age, gender, race, socioeconomic status, and level of education
- Illness variables, such as the severity of the illness and the relief of symptoms afforded by the therapy
- Therapeutic regimen variables, such as the complexity of the regimen, treatment fatigue, and uncomfortable side effects
- Psychosocial variables, such as intelligence, motivation, availability of significant and supportive people (especially family members and significant others), competing or conflicting demands, attitudes toward health professionals, acceptance or denial of illness, substance abuse, and religious or cultural beliefs
- Financial variables, especially the direct and indirect costs associated with a prescribed regimen

Another factor to consider when the nurse is developing strategies to promote patient adherence is the concept of **health literacy** or the capability of a person to obtain, communicate, process, and understand essential health information for the purpose of securing health care services and for making health care decisions. A challenge for all health care providers is to improve the health literacy of patients. In establishing suitable health education materials, technologic innovations and services, providers must communicate health information in plain language and work with patients to promote accurate processing and understanding of the health information. Nurses must consider their knowledge of the myriad factors that affect health literacy in any given population. The primary factors influencing health literacy are the effective use of communication and cultural skills, along with the presentation of health care information, and a basic background of mathematical skills. Without such skills, patients are at risk for being unable to share personal health information, perform self-care management for both acute and chronic health conditions, navigate through health systems and complete health forms, and calculate information such as nutritional information on food labels (Carrara & Schulz, 2018; Osborne, 2018).

Health literacy skills are basic to understanding the body and how it functions, assessing lifestyle choices along with the variables that cause and perpetuate disease, as well as making health care decisions. If people have low health literacy, the consequence is poor overall health. Deconstructing this cycle of low health literacy leading to poor health status and higher risk of health problems is essential. To increase health literacy, providers must design and distribute accurate health information and must ensure that these health materials are culturally appropriate for various populations. It is imperative to build community partnerships to support education and public health activities. Nurses can be instrumental in performing evaluation research on the educational undertakings that support individuals, groups, or communities. Furthermore, nurses must be directly involved in facilitating change through the development of health care policies that address the promotion of a health literate society (Patton, Zalon, & Ludwick, 2019).

Nurses' success with health education is determined by both the development of strong health literacy and the ongoing assessment of the variables that affect patients' ability to adopt specific behaviors to obtain resources, and maintain a healthy social environment (Edelman & Kudzma, 2018). Programs are more likely to succeed if patients have

improved health literacy and providers pay careful attention to the variables affecting patient adherence. Both health literacy and the concept of adherence must be considered in the patient's teaching plan. Teaching strategies are discussed later in the chapter.

Motivation

The problem of nonadherence to therapeutic regimens is substantial and must be addressed before patients can achieve their maximum health potential. Patients' need for knowledge has not been found to be a sufficient stimulus for acquiring knowledge and thereby enabling complete adherence to a health regimen. Teaching directed toward stimulating patient motivation results in varying degrees of adherence. Research suggests that factors such as personal relevance of strategies for self-care, perceived control, and type of health problem must also be considered (Seibre, Toumpakari, Turner, et al., 2018; Whiteley, Brown, Lally, et al., 2018). The variables of choice, establishment of mutual goals, and quality of the patient–provider relationship also influence the behavioral changes that can result from patient education. Many factors are linked to motivation for learning.

Using a learning contract or agreement can also be a motivator for learning. Such a contract is based on assessment of patient needs; health care data; and specific, measurable goals (Miller & Stoeckel, 2019). The learning contract is recorded in writing and contains methods for ongoing evaluation. A well-designed learning contract is realistic and positive. In a typical learning contract, a series of measurable goals is established, beginning with small, easily attainable objectives and progressing to more advanced goals. Frequent, positive reinforcement is provided as the person moves from one goal to the next. For example, incremental goals such as weight loss of 1 to 2 pounds per week are more appropriate in a weight reduction program than a general goal such as a 30-pound weight loss.



Gerontologic Considerations

Nonadherence to therapeutic regimens is a significant problem for older adults, leading to increased morbidity, mortality, and cost of treatment (Abada, Clark, Sinha, et al., 2019; Taylor, Coogler, Cotter, et al., 2019). Many admissions to nursing homes and hospitals are associated with nonadherence.

Older adults frequently have one or more chronic illnesses that are managed with numerous medications, and their disease course may be complicated by periodic acute episodes (Miller, 2019). Older adults may have additional issues that affect adherence to therapeutic regimens, such as increased sensitivity to medications and their side effects, difficulty in adjusting to change and stress, financial constraints, forgetfulness, inadequate support systems, lifetime habits of self-treatment with over-the-counter medications, visual and hearing impairments, and mobility limitations. To promote adherence among older adults, all variables that may affect health behavior should be assessed (Fig. 3-1). Nurses must also consider that cognitive impairment may result in the older adult's inability to draw inferences, apply information, or understand the major points (Mauk, 2017; Touhy & Jett, 2018). The person's strengths and limitations must be assessed to encourage the use of existing strengths to compensate for limitations. Above all, health care professionals must work together to provide continuous, coordinated care; otherwise, the efforts of one health care professional may be negated by those of another.

The Nature of Teaching and Learning

Learning can be defined as acquiring knowledge, attitudes, or skills. **Teaching** is defined as helping another person learn. These definitions indicate that the teaching–learning process is an active one, requiring the involvement of both the teacher and the learner in the effort to reach the desired outcome—a change in behavior. The teacher does not simply give knowledge to the learner but instead serves as a facilitator of learning. Although learning can take place without teachers, most people who are attempting to learn new or altered health behaviors benefit from contact with a nurse. The interpersonal interaction between the person and the nurse who is attempting to meet the person's learning needs may be formal or informal, depending on the method and techniques of teaching.

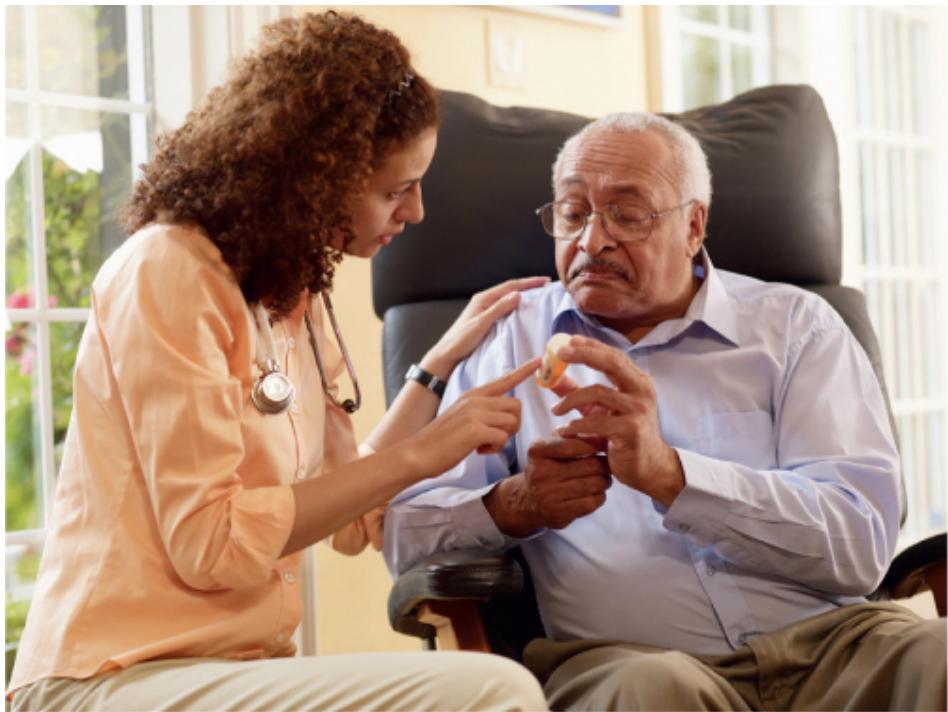


Figure 3-1 • Taking time to teach patients about their medication and treatment program promotes interest and cooperation. Older adults who are actively involved in learning about their medication and treatment program and the expected effects may be more likely to adhere to the therapeutic regimen.

There is no definitive theory about how learning occurs and how it is affected by teaching. However, learning can be affected by factors, such as readiness to learn, the learning environment, and the teaching techniques used (Miller & Stoeckel, 2019).

Learning Readiness

One of the most significant factors influencing learning is a person's **learning readiness** or the optimum time for learning to occur, which usually corresponds to the learner's perceived need and desire to obtain specific knowledge. For adults, readiness is based on culture, personal values, physical and emotional status, and past experiences in learning. The "teachable moment" occurs when the content and skills being taught are congruent with the task to be accomplished (Miller & Stoeckel, 2019).

Culture encompasses values, ideals, and behaviors, and the traditions within each culture provide the framework for solving the issues and concerns of daily living. Because people with different cultural backgrounds have different values and lifestyles, choices about health care vary. Culture is a major variable influencing readiness to learn because it affects how people learn and what information can be learned. Sometimes people do not accept health teaching because it conflicts with culturally mediated values. Before beginning health teaching, nurses must conduct an individual cultural assessment instead of relying only on generalized assumptions about a particular culture. A patient's social and cultural patterns must be appropriately incorporated into the teaching-learning interaction. See [Chapter 4, Chart 4-7](#), which describes cultural assessment components to consider when formulating a teaching plan.

A person's values include beliefs about behaviors that are desirable and undesirable. The nurse must know what value the patient places on health and health care. In clinical situations, patients express their values through their actions and the level of knowledge pursued (deChesnay & Anderson, 2020). When the nurse is unaware of the patient's values (cultural and personal), misunderstanding, lack of cooperation, and negative health outcomes may occur (McFarland & Wehbe-Alamah, 2018). A person's values and behaviors can be either an asset or a deterrent to readiness to learn. Therefore, patients are unlikely to accept health education unless their values and beliefs about health and illness are respected (Kersey-Matusiak, 2018).

Physical readiness is of vital importance, because until the person is physically capable of learning, attempts at teaching and learning may be both futile and frustrating. For example, a person in acute pain is unable to focus attention away from the pain long enough to concentrate on learning. Likewise, a person who is short of breath concentrates on breathing rather than on learning.

Emotional readiness also affects the motivation to learn. A person who has not accepted an existing illness or the threat of illness is not motivated to learn. A person who does not accept a therapeutic regimen, or who views it as conflicting with their present lifestyle, may consciously avoid learning about it. Until the person recognizes the need to learn and demonstrates an ability to learn, teaching efforts may be thwarted. However, it is not always wise to wait for the person to become emotionally ready to learn, because that time may never come unless the nurse makes an effort to stimulate the person's motivation. For example, a person with colon cancer who has a fasting blood sugar twice

the expected normal value may focus only on the cancer diagnosis and exclude or deny the health consequences of an abnormal blood sugar.

Illness and the threat of illness are usually accompanied by anxiety and stress. Nurses who recognize such reactions can use simple explanations and instructions to alleviate these anxieties and provide further motivation to learn. Because learning involves behavior change, it often produces mild anxiety, which can be a useful motivating factor.

Emotional readiness can be promoted by creating a warm, accepting, positive atmosphere and by establishing realistic learning goals. When learners achieve success and a feeling of accomplishment, they are often motivated to participate in additional learning opportunities. One example of a strategy that facilitates learner success is the teach-back technique. This technique is used to evaluate the recall and understanding of the learner after health teaching has occurred. It is a useful, in-the-moment feedback and evaluation method because it allows the educator to discover if the learner can effectively verbalize information or demonstrate a particular health behavior (Miller & Stoeckel, 2019). In addition, the teach-back strategy can be used with family members and caregivers to ascertain if they have retained and understood the health content. Having a strategy to actively involve the adult learner in making health care decisions and performing self-management skills promotes learner receptivity and motivation to integrate health principles into one's daily life. Furthermore, **feedback** (the return of information given to a person) about progress also motivates learning. Such feedback should be presented in the form of positive reinforcement when the learner is successful, and in the form of constructive suggestions for improvement when the learner is unsuccessful.

Experiential readiness refers to past experiences that influence a person's ability to learn. Previous educational experiences and life experiences in general are significant determinants of a person's approach to learning. People with little or no formal education may not be able to understand the instructional materials presented. People who have had difficulty learning in the past may be hesitant to try again. Many behaviors required for reaching maximum health potential require knowledge, physical skills, and positive attitudes. In their absence, learning may be very difficult and very slow. For example, a person who does not understand the basics of normal **nutrition** (the science that deals with food and nourishment in humans) may not be able to understand the restrictions of a specific diet. A person who does not view

the desired learning as personally meaningful may reject teaching efforts. A person who is not future oriented may be unable to appreciate many aspects of preventive health teaching. Experiential readiness is closely related to emotional readiness, because motivation tends to be stimulated by an appreciation for the need to learn and by those learning tasks that are familiar, interesting, and meaningful.

The Learning Environment

Learning may be optimized by minimizing factors that interfere with the learning process. For example, the room temperature, lighting, noise levels, use of functional assistive devices such as glasses and hearing aids, and other environmental conditions should be appropriate to the learning situation. In addition, the time selected for teaching should be suited to the needs of the individual person. Scheduling a teaching session at a time of day when a patient is fatigued, uncomfortable, or anxious about a pending diagnostic or therapeutic procedure, or when visitors are present, is not conducive to learning. However, if the family is to participate in providing care, the sessions should be scheduled when family members are present so that they can learn any necessary skills or techniques.

Teaching Techniques and Resources

Teaching techniques and methods enhance learning if they are appropriate to the patient's needs. Nurses use a variety of teaching techniques to educate patients in many different settings. Techniques that are available include the following:

- *Lectures:* Lectures are explanation methods of teaching and should be accompanied by discussion, because discussion affords learners opportunities to express their feelings and concerns, ask questions, and receive clarification.
- *Group teaching:* Group teaching allows people not only to receive needed information but also to feel secure as members of a group (promoting moral support). Assessment and follow-up are imperative to ensure that each person has gained sufficient knowledge and skills. Not all patients relate or learn well in groups.
- *Demonstration and practice:* Demonstration and practice are especially important when teaching skills. The nurse should

demonstrate the skill and then give the learner ample opportunity for practice. When special equipment is involved, such as syringes or colostomy bags, it is important to teach with the same equipment that will be used in the home setting to avoid confusion, frustration, and mistakes.

- *Reinforcement and follow-up:* Nurses must allow ample time for patients to learn and provide reinforcement. Follow-up sessions are imperative to promote the learner's confidence in their abilities and to plan for additional teaching sessions.
- *Motivational interviewing:* Pilot research suggests that using motivational interviewing as an enhanced educational method in an acute inpatient setting can increase both patient and caregiver knowledge as well as patient self-care (McKillop, Grace, de Melo Ghisi, 2018).
- *Electronic, online, or Internet information:* Electronic technologies are used to provide health information. Examples are interactive or noninteractive Internet learning, an online self-paced program, or a structured online course. There are also DVD, CD-ROM, podcasts, and recorded programs available over a television channel.
- *Teaching aids:* Teaching aids include books, pamphlets, pictures, films, slides, audiotapes, models, programmed instruction, other visual aids (e.g., charts), mobile device applications, and computer-assisted learning modules. They are invaluable when used appropriately and can save a significant amount of personnel time and related cost. However, all such aids should be reviewed before use to ensure that they meet the patient's learning needs and are free of advertisements that may confuse the patient. (See Resources section at the end of the chapter for additional information.)

The likelihood of success for educating patients is maximized when nurses, families, and other health care professionals work collaboratively to facilitate learning. Successful learning should result in improved self-care management skills, enhanced self-esteem, confidence, and a willingness to learn in the future. There are specific considerations for educating special populations. [Table 3-1](#) outlines some of the strategies to use when educating people with disability. (See [Chapters 7](#) and [8](#) for additional teaching strategies for people with disability and older adults.)



The Nursing Process in Patient Education

The nurse relies on the steps of the nursing process when constructing an individualized teaching plan to meet the patient's teaching and learning needs ([Chart 3-1](#)).

TABLE 3-1 Educating People with Disability

Type of Disability	Educational Strategy
Physical, Emotional, or Cognitive Disability	<p>Adapt information to accommodate the person's cognitive, perceptual, and behavioral disabilities.</p> <p>Give clear written and oral information.</p> <p>Highlight significant information for easy reference.</p> <p>Avoid medical terminology or "jargon."</p>
Hearing Impairment	<p>Use slow, directed, deliberate speech.</p> <p>Use sign language or interpreter services if appropriate.</p> <p>Position yourself so that the person can see your mouth if speech reading.</p> <p>Use telecommunication devices (TTY or TDD) for the person with hearing impairment.</p> <p>Use written materials and visual aids, such as models and diagrams.</p> <p>Use captioned videos, films, and computer-generated materials.</p> <p>Speak on the side of the "good ear" if unilateral deafness is present.</p>
Sensory Disability	<p>Use optical devices such as a magnifying lens.</p> <p>Use proper lighting and proper contrast of colors on materials and equipment.</p> <p>Use or convert information to auditory and tactile formats if appropriate (e.g., Braille or large-print materials).</p> <p>Obtain audiotapes, CDs, digital audio available on smartphones or tablets, and talking books.</p> <p>Explain noises associated with procedures, equipment, and treatments.</p> <p>Arrange materials in clockwise pattern.</p>
Learning Disabilities	If visual perceptual disorder: Explain information verbally; repeat and reinforce frequently. Input disability Use audiotapes, CDs, and digital audio. Encourage learner to verbalize information received. If auditory perceptual disorder: Speak slowly with as few words as possible; repeat and reinforce frequently. Use direct eye contact (as appropriate for the person's culture) to help focus on the task. Use demonstration and return demonstration, such as modeling, role-playing, and hands-on experiences. Use visual tools; written materials; and computers, tablets, and smartphones.
Output disability	Use all senses as appropriate.

	<p>Use written, audiotape, and computerized or other electronic information.</p> <p>Review information and give time verbally to interact and ask questions.</p> <p>Use hand gestures and motions.</p>
Developmental disability	<p>Base information and teaching on developmental stage, not chronologic age.</p> <p>Use nonverbal cues, gestures, signing, and symbols as needed.</p> <p>Use simple explanations and concrete examples with repetition.</p> <p>Encourage active participation.</p> <p>Demonstrate information, and have person perform return demonstrations.</p>

Assessment

Assessment in the teaching–learning process is directed toward the systematic collection of data about the patient’s and family’s learning needs and readiness to learn. The nurse identifies all internal and external variables that affect the patient’s readiness to learn. Many learning assessment guides are available. Some guides are directed toward the collection of general health information (e.g., healthy eating), whereas others are specific to medication regimens or disease processes (e.g., stroke risk assessments). Such guides facilitate assessment but must be adapted to the responses, problems, and needs of each person. The nurse organizes, analyzes, synthesizes, and summarizes the assessment data collected and determines the patient’s need for teaching.

Nursing Diagnosis

The process of formulating nursing diagnoses makes educational goals and evaluations of progress more specific and meaningful. Teaching is an integral intervention implied by all nursing diagnoses, and for some diagnoses, education is the primary intervention. Examples of nursing diagnoses that help in planning for educational needs are impaired health maintenance and decisional conflict. A nursing diagnosis that relates specifically to a patient’s and family’s learning needs serves as a guide in the development of the teaching plan.

Planning

Once the nursing diagnoses have been identified, the planning component of the teaching–learning process is established in accordance with the steps of the nursing process:

1. Assigning priorities to the diagnoses
2. Specifying the immediate, intermediate, and long-term goals of learning
3. Identifying specific teaching strategies appropriate for attaining goals
4. Specifying the expected outcomes
5. Documenting the diagnoses, goals, teaching strategies, and expected outcomes of the teaching plan

The assignment of priorities to the diagnoses should be a collaborative effort by the nurse and the patient or family members. Consideration must be given to the urgency of the patient's learning needs; the most critical needs should receive the highest priority.

Chart 3-1

Summary of the Nursing Process for Individualized Patient Education

Assessment

1. Assess the person's readiness for health education.
 - a. What are the person's health beliefs and behaviors?
 - b. What physical and psychosocial adaptations does the person need to make?
 - c. Is the learner ready to learn?
 - d. Is the person able to learn these behaviors?
 - e. What additional information about the person is needed?
 - f. Are there any variables (e.g., hearing or visual impairment, cognitive issues, literacy issues) that will affect the choice of teaching strategy or approach?
 - g. What are the person's expectations?
 - h. What does the person want to learn?
2. Organize, analyze, synthesize, and summarize the collected data.

Nursing Diagnosis

1. Formulate the nursing diagnoses that relate to the person's learning needs.
2. Identify the learning needs, their characteristics, and their etiology.

Planning

1. Assign priority to the nursing diagnoses that relate to the person's learning needs.
2. Specify the immediate, intermediate, and long-term learning goals established by teacher and learner together.
3. Identify teaching strategies appropriate for goal attainment.
4. Establish expected outcomes.
5. Develop the written teaching plan.
 - a. Include diagnoses, goals, teaching strategies, and expected outcomes.
 - b. Put the information to be taught in logical sequence.
 - c. Write down the key points.
 - d. Select appropriate teaching aids.
 - e. Keep the plan current and flexible to meet the person's changing learning needs.
6. Involve the learner, family or significant others, nursing team members, and other health care team members in all aspects of planning.

Implementation

1. Put the teaching plan into action.
2. Use language that the person can understand.
3. Use appropriate teaching aids and provide Internet resources if appropriate.
4. Use the same equipment that the person will use after discharge.
5. Encourage the person to participate actively in learning.
6. Record the learner's responses to the teaching actions.
7. Provide feedback.

Evaluation

1. Collect objective data.
 - a. Observe the person.
 - b. Ask questions to determine whether the person understands.
 - c. Use rating scales, checklists, anecdotal notes, and written tests when appropriate.
2. Compare the person's behavioral responses with the expected outcomes. Determine the extent to which the goals were achieved.
3. Include the person, family or significant others, nursing team members, and other health care team members in the evaluation.
4. Identify alterations that need to be made in the teaching plan.
5. Make referrals to appropriate sources or agencies for reinforcement of learning after discharge.
6. Continue all steps of the teaching process: assessment, diagnosis, planning, implementation, and evaluation.



Concept Mastery Alert

The nurse needs to keep in mind that before the teaching strategy can be determined, the goals of learning must be developed.

After the diagnostic priorities have been mutually established, it is important to identify the immediate and long-term goals and the teaching strategies appropriate for attaining the goals. Teaching is most effective when the objectives of both the patient and the nurse are in agreement (Bastable, 2017). Learning begins with the establishment of goals that are appropriate to the situation and realistic in terms of the patient's ability and desire to achieve them. Involving the patient and family in

establishing goals and in planning teaching strategies promotes their cooperation in the implementation of the teaching plan.

Outcomes of teaching strategies can be stated in terms of expected behaviors of patients, families, or both. Outcomes should be realistic and measurable, and the critical time periods for attaining them should be identified. The desired outcomes and the critical time periods serve as a basis for evaluating the effectiveness of the teaching strategies.

During the planning phase, the nurse must consider the sequence in which the subject matter is presented. Critical information (e.g., survival skills for a patient with diabetes) and material that the person or family identifies to be of particular importance must receive high priority. An outline is often helpful for arranging the subject matter and for ensuring that all necessary information is included. In addition, appropriate teaching aids to be used in implementing teaching strategies are prepared or selected at this time. Patient Education charts throughout this textbook guide teaching about self-care.

The entire planning phase concludes with the formulation of the teaching plan. This teaching plan communicates the following information to all members of the nursing team:

- The nursing diagnoses that specifically relate to the patient's learning needs and the priorities of these diagnoses
- The goals of the teaching strategies
- The teaching strategies that are appropriate for goal attainment
- The expected outcomes, which identify the desired behavioral responses of the learner
- The critical time period within which each outcome is expected to be met
- The patient's behavioral responses (which are documented on the teaching plan)

The same rules that apply to writing and revising the plan of nursing care apply to the teaching plan.

Implementation

In the implementation phase of the teaching-learning process, the patient, family, and other members of the nursing and health care team carry out the activities outlined in the teaching plan. The nurse coordinates these activities.

Flexibility during the implementation phase of the teaching–learning process and ongoing assessment of patient responses to the teaching strategies support modification of the teaching plan as necessary. Creativity in promoting and sustaining the patient’s motivation to learn is essential. New learning needs that may arise after discharge from the hospital or after home care visits have ended should also be taken into account.

The implementation phase ends when the teaching strategies have been completed and when the patient’s responses to the actions have been recorded. This serves as the basis for evaluating how well the defined goals and expected outcomes have been achieved.

Evaluation

Evaluation of the teaching–learning process determines how effectively the patient has responded to teaching and to what extent the goals have been achieved. An evaluation must be made to determine what was effective and what needs to be changed or reinforced. It cannot be assumed that patients have learned just because teaching has occurred; learning does not automatically follow teaching. An important part of the evaluation phase addresses the question, “What could be done to improve teaching and enhance learning?” Answers to this question direct the changes to be made in the teaching plan.

Various measurement techniques can be used to identify changes in patient behavior as evidence that learning has taken place. These techniques include directly observing the behavior; using rating scales, checklists, or anecdotal notes to document the behavior; and indirectly measuring results using oral questioning and written tests. All direct measurements should be supplemented with indirect measurements whenever possible. Using more than one measuring technique enhances the reliability of the resulting data and decreases the potential for error from a measurement strategy.

In many situations, measurement of actual behavior is the most accurate and appropriate evaluation technique. Nurses often perform comparative analyses using patient admission data as the baseline: Selected data points observed when nursing care is given and self-care is initiated are compared with the patient’s baseline data. In other cases, indirect measurement may be used. Some examples of indirect measurement are patient satisfaction surveys, attitude surveys, and instruments that evaluate specific health status variables.

Measurement is only the beginning of evaluation, which must be followed by data interpretation and judgments about learning and teaching. These aspects of evaluation should be conducted periodically throughout the teaching–learning program, at its conclusion, and at varying periods after the teaching has ended.

Evaluation of learning after teaching that occurs in any setting (e.g., clinics, offices, nursing centers, hospitals) is essential, because the analysis of teaching outcomes must extend into aftercare. With shortened lengths of hospital stay and with short-stay and same-day surgical procedures, follow-up evaluation is especially important. Coordination of efforts and sharing of information between hospital- and community-based nursing personnel facilitate postdischarge teaching and home care evaluation.

Evaluation is not the final step in the teaching–learning process but is the beginning of a new patient assessment. The information gathered during evaluation should be used to redirect teaching actions, with the goal of improving the patient’s responses and outcomes.

Health Promotion

Health teaching and health promotion are linked by a common goal—to encourage people to achieve as high a level of wellness as possible so that they can live maximally healthy lives and avoid preventable illnesses. The call for health promotion has become a cornerstone in health policy because of the need to control costs and reduce unnecessary sickness and death.

Health goals for the nation are established in the publication *Healthy People 2030*. The priorities from this initiative were identified as health promotion, health protection, and the use of preventive services. *Healthy People 2030* defines the current national health promotion and disease prevention initiative for the nation. Measurable goals for key health topics for the nation are shown in [Chart 3-2](#). The overall goals are to (1) increase the quality and years of healthy life for people and (2) eliminate health disparities among various segments of the population (Haskins, 2017; U.S. Department of Health and Human Services, 2017).

Definition

Health promotion may be defined as those activities that assist people in developing resources that maintain or enhance well-being and improve their quality of life. These activities involve people's efforts to remain healthy in the absence of symptoms, may not require the assistance of a health care team member, and occur within or outside of the health system (Haber, 2019; O'Donnell, 2017).

Chart 3-2

Select Topics from the Proposed Objectives for *Healthy People 2030*

- Access to Health Services
- Adolescent Health
- Arthritis, Osteoporosis, and Chronic Back Conditions
- Blood Disorders and Blood Safety
- Cancer
- Chronic Kidney Disease
- Dementias, Including Alzheimer's Disease
- Diabetes
- Disability and Health
- Educational and Community-Based Programs

Adapted from Haskins, J. (2017). Healthy People 2030 to create objectives for health of nation: Process underway for next 10-year plan. *The Nation's Health*, 47(6), 1–14; U.S. Department of Health and Human Services. (2017). *Healthy People 2030*. Retrieved on 7/15/2019 at: www.healthypeople.gov/2020/About-Healthy-People/Development-Healthy-People-2030/framework

The purpose of health promotion is to focus on the person's potential for wellness and to encourage appropriate alterations in personal habits, lifestyle, and environment in ways that reduce risks and enhance health and well-being. As discussed in [Chapter 1](#), health is viewed as a dynamic, ever-changing condition that enables people to function at an optimal potential at any given time, whereas wellness, a reflection of health, involves a conscious and deliberate attempt to maximize one's health. Health promotion is an active process—that is, it is not something that can be prescribed or dictated. It is up to each person to decide whether to make changes to promote a higher level of wellness. Only the individual can make these choices.

Health Promotion Models

Several health promotion models identify health-protecting behaviors and seek to explain what makes people engage in preventive behaviors. A health-protecting behavior is defined as any behavior performed by people, regardless of their actual or perceived health condition, for the purpose of promoting or maintaining their health, whether or not the behavior produces the desired outcome (Murdaugh, Parsons, & Pender, 2019).

The Health Belief Model was designed to foster understanding of why some healthy people choose actions to prevent illness while others do not. Developed by Becker (1974), the model is based on the premise that four variables influence the selection and use of health promotion behaviors. Demographic and disease factors, the first variable, include patient characteristics, such as age, gender, education, employment, severity of illness or disability, and length of illness. Barriers, the second variable, are defined as factors leading to unavailability or difficulty in gaining access to a specific health promotion alternative. Resources, the third variable, encompass such factors as financial and social support. Perceptual factors, the fourth variable, consist of how the person views his or her health status, self-efficacy, and the perceived demands of the illness. Further research has demonstrated that these four variables have a positive correlation with a person's quality of life (Becker, Stuifbergen, Oh, et al., 1993).

Another model, the Resource Model of Preventive Health Behavior, addresses the ways in which people use resources to promote health (Murdaugh et al., 2019). It is based on Social Learning Theory and emphasizes the importance of motivational factors in acquiring and sustaining health promotion behaviors. This model explores how cognitive-perceptual factors affect the person's view of the importance of health. It also examines perceived control of health, self-efficacy, health status, and the benefits and barriers to health-promoting behaviors. Nurse educators can use this model to assess how demographic variables, health behaviors, and social and health resources influence health promotion.

The Canadian health promotion initiative, Achieving Health for All, builds on the work of Lalonde (1977), in which four determinants of health—human biology, environment, lifestyle, and the health care delivery system—were identified. Determinants of health were defined as factors and conditions that have an influence on the health of

individuals and communities. Since the 1970s, a total of 12 health determinants have been identified, and this number will continue to increase as population health research progresses. Determinants of health provide a framework for assessing and evaluating the population's health.

A model crafted to address organizational and individual health behavior change is the Awareness, Motivation, Skills, and Opportunity (AMSO) Model. The four components of this model focus on empowering people, understanding their individual priorities, and assisting them to change in personal ways that promote and maintain their optimal level of health. The dimensions of optimal health are physical, emotional, social, intellectual, and spiritual. This model promotes the process of creating and maintaining a balance among these five dimensions (O'Donnell, 2017). Optimal health is a dynamic condition kept in balance by a combination of efforts to sustain awareness, maintain motivation, build skills, and have opportunities to practice positive health behaviors.

The Transtheoretical Model of Change, also known as the Stages of Change Model, is a framework that focuses on the motivation of a person to make decisions that promote healthy behavior change (DiClemente, 2007). [Table 3-2](#) shows the six stages in the model. Research indicates that people working with health professionals progress through these stages of change (Blake, Stanulewicz, & McGill, 2017; Chen, Palmer, & Lin, 2018; Das, Rouseff, Guzman, et al., 2019; Wen, Li, Wang, et al., 2018). Any of the models can serve as an organizing framework for clinical work and research that support the enhancement of health. Research suggests that the application of health promotion models, concepts, and frameworks increases the nurse's understanding of the health promotion behaviors of families and communities (Støle, Nilsen, & Joranger, 2019).

TABLE 3-2 Stages in the Transtheoretical Model of Change

Stage	Description
1. Precontemplative	The person is not thinking about making a change.
2. Contemplative	The person is only thinking about change in the near future.
3. Decision making	The person constructs a plan to change behavior.
4. Action	The person takes steps to operationalize the plan of action.
5. Maintenance	The person works to prevent relapse and to sustain the gains made from the actions taken.
6. Termination	The person has the ability to resist relapse back to unhealthy behavior(s).

Adapted from DiClemente, C. (2007). The transtheoretical model of intentional behavior change. *Drugs & Alcohol Today*, 7(1), 29–33; Miller, C. A. (2019). *Nursing for wellness in older adults* (8th ed.). Philadelphia, PA: Wolters Kluwer.

Components of Health Promotion

Health promotion as an active process includes the following components: self-responsibility, nutritional awareness, stress reduction and management, and physical fitness.

Self-Responsibility

Taking responsibility for oneself is the key to successful health promotion. The concept of **self-responsibility**, personal accountability for one's actions or behavior, is based on the understanding that individuals control their lives. Each person alone must make the choices that determine the health of his or her lifestyle. As more people recognize that lifestyle and behavior significantly affect health, they may assume responsibility for avoiding high-risk behaviors, such as smoking or use of any electronic nicotine delivery systems (ENDS) (including e-cigarettes, e-pens, e-pipes, e-hookah, and e-cigars), misuse of alcohol as well as prescription drugs and illegal drugs, overeating, driving under the influence, risky sexual practices, and other unhealthy habits. They may also assume responsibility for adopting routines that have been found to have a positive influence on health, such as engaging in regular exercise, wearing seat belts, and eating a healthy diet.

Various techniques have been used to encourage people to accept responsibility for their health, including public service announcements, educational programs, and reward systems. No one technique has been found to be superior to any other. Instead, self-responsibility for health

promotion is individualized and depends on a person's desires and inner motivations. Health promotion programs are important tools for encouraging people to assume responsibility for their health and to develop behaviors that improve health.

Nutritional Awareness

Nutrition, as a component of health promotion, has become the focus of considerable attention and publicity with the growing epidemic of obesity in the United States. A vast array of books and magazine articles address the topics of special diets; natural foods; and the hazards associated with certain substances, such as sugar, salt, cholesterol, trans fats, carbohydrates, artificial colors, and food additives. Research suggests that good nutrition is the single most significant factor in determining health status, longevity, and weight control (U.S. Department of Agriculture and U.S. Department of Health and Human Services, 2015).

Nutritional awareness involves an understanding of the importance of a healthy diet that supplies all essential nutrients. Understanding the relationship between diet and disease is an important facet of a person's self-care. Some clinicians believe that a healthy diet is one that substitutes "natural" foods for processed and refined ones and reduces the intake of sugar, salt, fat, cholesterol, caffeine, alcohol, food additives, and preservatives.

[Chapter 4](#) contains further information about the assessment of a person's nutritional status. It describes the physical signs indicating nutritional status, assessment of food intake (food record, 24-hour recall), the dietary guidelines presented in the MyPlate plan (see [Fig. 4-5](#)), and calculation of body mass index (see [Table 4-1](#)).

Stress Reduction and Management

Stress management (behaviors and techniques used to strengthen a person's resources against stress), and stress reduction are important aspects of health promotion. Studies suggest the negative effects of stress on health and a cause-and-effect relationship between stress and infectious diseases, traumatic injuries (e.g., motor vehicle crashes), and some chronic illnesses. Stress has become inevitable in contemporary societies in which demands for productivity have become excessive. More and more emphasis is placed on encouraging people to manage stress appropriately and to reduce the pressures that are

counterproductive. Research suggests that including techniques such as relaxation training, exercise, yoga, and modification of stressful situations in health promotion programs assist patients in dealing with stress (Davidson, Graham, Montross-Thomas, et al., 2017; Hoogland, Lechner, Gonzalez, et al., 2018; Kim, Lee, Lee, et al., 2019; Morgan, Hourani, & Tueller, 2017; Moscoso, Goese, Van Hyfte, et al., 2019; Yadav, Yadav, Sarvottam, et al., 2017). Further information on stress management, including health risk appraisal and stress reduction methods such as the Benson Relaxation Response, can be found in [Chapter 5](#).

Physical Fitness

Physical fitness (the condition of being physically healthy as a result of proper exercise and nutrition) is an important component of health promotion. Clinicians and researchers (Katsura, Takeda, Hara, et al., 2019; Loprinzi & Wade, 2019; Wisnieski, Dalimente-Merckling, & Robbins, 2019) who have examined the relationship between health and physical fitness have found that a regular exercise program can promote health in the following ways:

- Improve the function of the circulatory system and the lungs
- Decrease cholesterol and low-density lipoprotein levels
- Decrease body weight by increasing calorie expenditure
- Delay degenerative changes such as osteoporosis
- Improve flexibility and overall muscle strength and endurance

An appropriate exercise program can have a positive effect on a person's performance capacity, appearance, and level of stress and fatigue, as well as their general state of physical, mental, and emotional health (Gilbertson, Mandelson, Hilovsky, et al., 2019; Ma, West, Martin Ginis, et al., 2019; Pettigrew, Burton, Farrier, et al., 2019). An exercise program should be designed specifically for a given person, with consideration to age, physical condition, and any known cardiovascular or other risk factors. Exercise can be harmful if it is not started gradually and increased slowly in accordance with a person's response.

A significant amount of research suggests that people, by virtue of what they do or fail to do, influence their own health. Many diseases and disorders (e.g., diabetes, coronary artery disease, lung and colon cancer, chronic obstructive pulmonary diseases, hypertension, cirrhosis, traumatic injury, HIV infection) have been closely related to lifestyle behaviors. To a large extent, a person's health status may be reflective of

their lifestyle. For example, there is research examining how emerging adult patients with inflammatory bowel disease self-manage their chronic condition through the use of social support (Kamp, Luo, Holmstrom, et al., 2019). (See the Nursing Research Profile in [Chart 3-3](#).)

Chart 3-3



NURSING RESEARCH PROFILE

Adherence to a Medication Regimen and Informational Support

Kamp, K. J., Luo, Z., Holmstrom, A., et al. (2019). Self-management through social support among emerging adults with inflammatory bowel disease. *Nursing Research*, 68(4), 285–295.

Purpose

The purpose of this study was to examine the relationship between two conceptualizations of social support, (the first type was received social support and the second type was perceived availability of social support) and the self-management behaviors by emerging adults ages 18 to 29 years with inflammatory bowel disease (IBD).

Design

In this quantitative, cross-sectional study the researchers administered an online survey to 61 emerging adults with IBD who lived in the United States. This convenience sample was recruited from ResearchMatch, Facebook, and through word of mouth. The participants completed a composite survey consisting of a demographic data form, the Inventory of Dimensions of Emerging Adulthood, the Inventory of Socially Supportive Behaviors, the Medical Outcomes: Social Support Survey, the Medication Adherence Report Scale, and the Dietary Screener Questionnaire.

Findings

Of the 61 study participants, 90% were female and 10% were male. The sample was noted to be primarily single and educated. The major findings of the study indicated that emerging adults who had received high informational support reported greater adherence to the prescribed medication regimen as compared to participants who had received low informational support. Within this study the researchers controlled for medications, time since diagnosis, symptom frequency, and feeling in-between adolescence and adulthood. Neither one of the two types of social support were related to modification of participants' diet.

Nursing Implications

Nurses should be aware of the needs of emerging adults living with IBD. Often emerging adults allow others to make decisions about their health management. By providing informational support, the nurse may significantly influence their patients' ability to more actively learn about themselves and how to manage their IBD through the use of group interventions and peer-to-peer mentoring. From this study it was noted

that only the received social support was useful in the participants' self-management behaviors for medication adherence. More research must be directed toward the benefits of received social support for effective self-management of chronic conditions faced by emerging adults.

Unfolding Patient Stories: Vincent Brody • Part 1



Vincent Brody, a 67-year-old male with chronic obstructive pulmonary disease (COPD), is experiencing increased fatigue. He spends most of the day in a recliner chair watching television and smoking 1 to 2 packs/d. His nutritional intake is poor due to shortness of breath. What patient education can the nurse provide to promote self-care behaviors for symptom improvement and a healthier lifestyle? (Vincent Brody's story continues in [Chapter 55](#).)

Care for Vincent and other patients in a realistic virtual environment: *vSim* (thepoint.lww.com/vSimMedicalSurgical). Practice documenting these patients' care in DocuCare (thepoint.lww.com/DocuCareEHR).

Health Promotion Strategies Throughout the Lifespan

Health promotion is a concept and a process that extends throughout the lifespan. The health of a child can be affected either positively or negatively by the health practices of the mother during the prenatal period. Therefore, health promotion starts before birth and extends through childhood, adolescence, adulthood, and old age (Haber, 2019).

Health promotion includes health screening, counseling, immunizations, and preventive medications. The U.S. Preventive Services Task Force (2019) evaluates clinical research to assess the merits of preventive measures. [Table 3-3](#) presents general population guidelines, including adult immunization recommendations (Centers for Disease Control and Prevention [CDC], 2021; U.S. Preventive Services Task Force, 2019).

Adolescents

Health screening has traditionally been an important aspect of adolescent health care. The goal has been to detect health problems at an early age so that they can be treated at that time. Today, health promotion goes beyond the mere screening for illnesses and disability and includes extensive efforts to promote positive health practices at an early age. Because health habits and practices are formed early in life, adolescents should be encouraged to develop positive health attitudes. For this reason, more programs are being offered to adolescents to help them develop good health habits. Although the negative results of practices such as smoking, risky sex, misuse of drugs and alcohol, and poor nutrition are explained in these educational programs, emphasis is also placed on values training, self-esteem, and healthy lifestyle practices. The projects are designed to appeal to a particular age group, with emphasis on learning experiences that are fun, interesting, and relevant.

Young and Middle-Aged Adults

Young and middle-aged adults represent an age group that not only expresses an interest in health and health promotion but also responds enthusiastically to suggestions that show how lifestyle practices can improve health. Adults are frequently motivated to change their lifestyles in ways that are believed to enhance their health and wellness. Many adults who wish to improve their health turn to health promotion programs to help them make the desired changes in their lifestyles. Many have responded to programs that focus on topics such as general wellness, smoking cessation, exercise, physical conditioning, weight control, conflict resolution, and stress management. Because of the nationwide emphasis on health during the reproductive years, young adults actively seek programs that address prenatal health, parenting, family planning, and women's or men's health issues.

TABLE 3-3

Select Health Promotion Screening for Adults

Type of Screening	Suggested Time Frame
Routine health examination	Yearly
Blood chemistry profile	Baseline at age 20 y, then as mutually determined by patient and clinician
Complete blood count	Baseline at age 20 y, then as mutually determined by patient and clinician
Lipid profile	Baseline at age 20 y, then as mutually determined by patient and clinician
Hemoccult screening	Yearly after age 50 y
Electrocardiogram	Baseline at age 40 y, then as mutually determined by patient and clinician
Blood pressure	Yearly at age 45, then as mutually determined by patient and clinician
Tuberculosis skin test	Every 2 y, or as mutually determined by patient and clinician
Chest x-ray or film	For positive PPD results
Mammogram	Every year for women beginning at age 45, or earlier or more often as indicated; women age 55 and older may continue yearly screening or transition to every 2 y
Clinical breast examination	Yearly
Gynecologic examination	Yearly
Papanicolaou (Pap) test	Every 3 y
Bone density screening	Based on identification of primary and secondary risk factors (prior to onset of menopause, if indicated)
Nutritional screening	As mutually determined by patient and clinician
Digital rectal examination	Yearly
Colonoscopy	Every 5–10 y after age 50 y or as mutually determined by patient and clinician
Prostate examination	Yearly
Testicular examination	Monthly

Skin examination	Yearly or as mutually determined by patient and clinician
Vision screening: Glaucoma	Every 2–3 y
Hearing screening	As needed
Health risk appraisal	As needed

Select Adult Immunizations

Hepatitis B (if not received as a child)	Series of 2 doses one month apart
Human papillomavirus (HPV)	3 doses for males up to the age of 21 y, females up to the age of 26 y; men who have sex with men between 22 and 26 y; if lacking documentation of prior immunization
Influenza vaccine	Yearly
Meningococcal	1 or more doses after age 19 y
Td or Tdap vaccine (Tetanus, diphtheria, and pertussis)	Every 10 y
Zoster	After age 50 y
Pneumococcal conjugate vaccine (PCV13)	Given once to adults 65 y and older regardless of health status Given to those ages 19 to 64 y if immunocompromised, with cerebrospinal fluid (CSF) leakage or cochlear implants
Pneumococcal polysaccharide vaccine (PPSV23)	Given once to adults 65 years and older if they have previously received the PCV13, regardless of health status. For those adults 65 years and older who have not received either PCV13 or PPSV23, the PCV13 should be given first and the PPSV23 should be given at least 1 y later.
COVID-19	Given to adults younger than 65 years who have chronic heart, lung or liver disease; diabetes; alcoholism, and smoking. Administer within the scope of the Emergency Use Authorization or Biologics License Application for the particular vaccine.

Note: Any of these screenings may be performed more frequently if deemed necessary by the patient or recommended by the health care provider.

Adapted from Adult Immunization Schedule approved by CDC Advisory Committee on Immunization Practices. (2021). Recommendations. Retrieved on 4/19/2021 at: www.cdc.gov/vaccines/schedules/hcp/imz/adult.html; American Cancer Society (ACS). (2019). Breast Cancer Facts & Figures 2019-2020. Retrieved on 9/9/2019 at: www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/breast-cancer-facts-and-figures/breast-cancer-facts-and-figures-2019-2020.pdf; Centers for Disease Control and Prevention (CDC). (2017).

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www.cdc.gov/pneumococcal/vaccination.html; Ezeanolue, E., Harriman, K., Hunter, P., et al. (2019). General best practice guidelines for Immunization Advisory Committee on Immunization Practices (ACIP). Retrieved on 05/19/2019 at: www.cdc.gov/vaccines/hcp/acip-recs/general-recs/downloads/general-recs.pdf; U.S. Preventive Services Task Force. (2019). Recommendations. Retrieved on 7/10/2019 at: www.uspreventiveservicestaskforce.org/BrowseRec/Index/browse-recommendations

Programs that provide health screening, such as those that screen for cancer, high cholesterol, hypertension, diabetes, abdominal aneurysm, and visual and hearing impairments, are quite popular with young and middle-aged adults. Programs that involve health promotion for people with specific chronic illnesses such as cancer, diabetes, heart disease, and pulmonary disease are also popular. Chronic disease and disability do not preclude health and wellness; rather, positive health attitudes and practices can promote optimal health for people who must live with the limitations imposed by their chronic illnesses and disability.

Health promotion programs can be offered almost anywhere in the community, or in online venues. Common physical sites include local clinics, schools, colleges, recreation centers, places of worship, and even private homes. Health fairs are frequently held in civic centers and shopping malls. The outreach idea for health promotion programs has served to meet the needs of many adults who otherwise would not avail themselves of opportunities to strive toward a healthier lifestyle.

The workplace has become a center for health promotion activity for several reasons. Employers have become increasingly concerned about the rising costs of health care insurance to treat illnesses related to lifestyle behaviors, and they are also concerned about increased absenteeism and lost productivity. Some employers use health promotion specialists to develop and implement these programs, some contract with employee assistance programs, and others purchase packaged programs that have already been developed by health care agencies or private health promotion corporations.

Programs offered at the workplace usually include employee health screening and counseling, physical fitness, nutritional awareness, work safety, and stress management and stress reduction. In addition, efforts are made to promote a safe and healthy work environment. Many large businesses provide exercise facilities for their employees and offer their health promotion programs to retirees.



Gerontologic Considerations

Health promotion is as important for older adults as it is for others. Although 80% of people older than 65 years have one or more chronic illnesses and many are limited in their activity, the older adult population experiences significant gains from health promotion. Older adults are very health conscious, and most view their health positively and are willing to adopt practices that will improve their health and well-being (Touhy & Jett, 2018). Although their chronic illness and disability cannot be eliminated, these adults can benefit from activities and education that help them maintain independence and achieve an optimal level of health (Harbottle, Bartholomaeus, Van Agteren, et al., 2019).



Figure 3-2 • Health promotion for older adults includes physical fitness. Here, a nurse teaches simple exercises at a senior center.

Various health promotion programs have been developed to meet the needs of older Americans. Both public and private organizations

continue to be responsive to health promotion, and more programs that serve this population are emerging. Many of these programs are offered by health care agencies, places of worship, community centers, senior citizen residences, and various other organizations. The activities directed toward health promotion for older adults are the same as those for other age groups: physical fitness and exercise, nutrition, safety, and stress management (Fig. 3-2).

Nursing Implications of Health Promotion

By virtue of their expertise in health and health care and their long-established credibility with consumers, nurses play a vital role in health promotion. In many instances, they initiate health promotion and health screening programs or participate with other health care personnel in developing and providing wellness services in various settings.

As health care professionals, nurses have a responsibility to promote activities that foster well-being, self-actualization, and personal fulfillment. Every interaction with consumers of health care must be viewed as an opportunity to promote positive health attitudes and behaviors. Health Promotion charts and tables throughout this textbook identify opportunities for promoting health.

CRITICAL THINKING EXERCISES

1  A male college student has been to the student health center three times in 2 months for sore throats, mild headaches, coughing and other cold symptoms. He tells you that he does not smoke cigarettes anymore, but he has started vaping on an almost daily basis. However, he does not think that vaping is contributing to his respiratory problems, and he thinks that his symptoms are due to stress. What health promotion factors can guide you in educating the student about his health situation? What is the evidence base to use for providing health promotion information to help this student make appropriate health decisions and engage in positive health behaviors? Identify the criteria used to evaluate the strength of the evidence for this practice.

2  At the cardiology clinic where you work as a nurse navigator, a 45-year-old woman presents with a history of cardiac disease, depression, and recent addiction to alcohol due to her anxiety and self-medicating her depression. You think it prudent to consult other health team members to provide services for her health care needs. What interdisciplinary health team members are the essential providers to facilitate interdisciplinary care? How will the team best address the patient's health care needs? What care modalities must be established to treat the patient's cardiac needs, addiction, rehabilitation process, and psychological health treatment?

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- Healthy People 2030*, www.healthypeople.gov/2020/About-Healthy-People/Development-Healthy-People-2030/framework
- Take Charge of Your Life by Making Healthy Choices, www.helpguide.org
- U.S. Army Public Health Command (USAPHC),
phc.amedd.army.mil/topics/healthyliving/Pages/default.aspx
- U.S. Department of Agriculture (USDA), www.choosemyplate.gov
- U.S. Department of Health and Human Services, National Institutes of Health, www.nih.gov/icd
- U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion, www.health.gov
- World Health Organization, www.who.int

4 Adult Health and Physical, Nutritional, and Cultural Assessment

LEARNING OUTCOMES

On completion of this chapter, the learner will be able to:

- 1.** Describe the components of a holistic and comprehensive health history and assessment.
- 2.** Describe the techniques of inspection, palpation, percussion, and auscultation to perform a basic physical assessment.
- 3.** Discuss the techniques of measurement of body mass index, biochemical assessment, clinical examination, and assessment of food intake to assess a person's nutritional status.
- 4.** Describe the techniques of conducting a cultural assessment.

NURSING CONCEPTS

- Culture
- Diversity
- Health, Wellness, and Illness
- Nutrition

GLOSSARY

auscultation: listening to sounds produced within different body structures created by the movement of air or fluid

body mass index (BMI): a calculation done to estimate the amount of body fat of a person

culture: the knowledge, belief, art, morals, laws, customs, and any other capabilities and habits acquired by humans as members of society

cultural assessment: a systematic appraisal or examination of individuals, families, groups, and communities in terms of their cultural beliefs, values, and practices

culturally competent care: effective, individualized care that demonstrates respect for the dignity, personal rights, preferences, beliefs, and practices of the person receiving care while acknowledging the biases of the caregiver and preventing these biases from interfering with the care provided

electronic health record (EHR): computerization of health records; also referred to as electronic medical record (EMR)

ethnicity: affiliation relating to large groups of people classed according to common racial, national, tribal, religious, linguistic, or cultural background

faith: trust in God, belief in a higher power or something that a person cannot see

health history: the collection of subjective data, most often a series of questions that provides an overview of the patient's current health status

inspection: visual assessment of different aspects of the patient (e.g., visual assessment of the patient's body systems and body movements)

palpation: examination of different organs of the body using the sense of touch

percussion: the use of sound to examine different organs of the body

physical examination: collection of objective data about the patient's health status

self-concept: a person's view of themself/themselves

spirituality: connectedness with self, others, a life force, or God that allows people to find meaning in life

substance use disorder: a maladaptive pattern of substance use that causes physical and emotional harm with the potential for disruption of daily life

The ability to assess patients in a holistic manner is a skill integral to nursing, regardless of the practice setting. Eliciting a complete health history, using appropriate physical assessment skills, while respecting spiritual and cultural considerations, is critical to identifying physical and psychological problems

and concerns experienced by the patient. As the first step in the nursing process, a holistic patient assessment is necessary to obtain data that enable the nurse to make accurate nursing diagnoses, identify and implement appropriate interventions, and assess their effectiveness. This chapter covers health assessment, including the complete health history and basic physical assessment techniques. Because a patient's nutritional status and culture are important factors in overall health and well-being, specific components of nutritional and cultural assessments are addressed.

The Role of the Nurse Conducting a Health Assessment

The role of the nurse in today's health care system is rooted in a health care model that emphasizes wellness, health promotion, and disease prevention. The professional nurse uses foundational knowledge of scientific evidence and best clinical judgment when assessing patients (Weber & Kelley, 2018). Various formats for obtaining the **health history** (the collection of subjective data about the patient's health status) and performing the **physical examination** (the collection of objective data about the patient's health status) have been developed. Regardless of the format, the information obtained by the nurse complements the data obtained by other members of the health care team and focuses on nursing's unique concerns for the patient. The nurse completes a health assessment by obtaining the patient's health history and performing a physical assessment, which can be carried out in a variety of settings. These settings may include an acute care facility, a clinic or outpatient office, a long-term care facility, a school, or the patient's home. The nursing process is a systematic process used by the nurse for assessing, planning, implementing, and evaluating care for the patient (see [Chapter 1](#)). Data are collected and documented in the patient's health record. This record may be on paper or in the **electronic health record (EHR)**, also called the electronic medical record (EMR), enabling clear communication among care team members and the collection of data for continuous improvement in patient care (Ackley, Ladwig, Flynn Makic, et al., 2019).

Effective Communication

People who seek health care for a specific problem are often anxious. Their anxiety may be increased by fear about potential diagnoses, possible disruption of lifestyle, and other concerns. With this in mind, the nurse attempts to establish rapport, put the patient at ease, encourage honest communication, make eye contact, and listen carefully to the patient's responses to questions about health issues ([Fig. 4-1](#)).



Figure 4-1 • A comfortable, relaxed atmosphere and an attentive interviewer are essential for a successful clinical interview.

When obtaining a health history or performing a physical examination, nurses must be aware of their own nonverbal communication, as well as that of the patient. The nurse should take into consideration the patient's educational background, language proficiency, and cultural background (see following discussion on Cultural Concepts and Cultural Competence). Questions and instructions to the patient should be phrased so that they are easily understandable. Technical terms and medical jargon should be avoided. In addition, the nurse must consider any disability or impairments (hearing, vision, cognitive, and physical limitations). At the end of the assessment, the nurse summarizes and clarifies the information obtained and asks the patient whether they have any questions; this gives the nurse the opportunity to correct misinformation and add facts that may have been omitted.

Cultural Concepts

The concept of culture and its relationship to the health care beliefs and practices of patients and their family or significant others provide the foundation for transcultural nursing. This awareness of culture in the delivery of nursing care has been described in different terms and phrases, including respect for cultural diversity or cultural humility; cultural awareness or sensitivity; comprehensive care; cultural consciousness or culturally congruent nursing care (Alexander-Ruff & Kinion, 2019; Henderson, Horne, Hills, et al., 2018).

Culture is commonly defined as the knowledge, belief, art, morals, laws, customs, and any other capabilities and habits acquired by humans as members of society. Such groups may distinguish themselves by socioeconomic class, race, ethnicity, religion, gender, sexual orientation, nationality, physical disability, or some other specific characteristic (Fioravanti, Puskar, Knapp, et al., 2018). During the past century, many other definitions of culture have been

offered that integrate these themes as well as the themes of ethnic variations of a population. Culture also implies that something is learned or developed, a process that occurs over time. Leininger (2002), founder of the specialty known as transcultural nursing, noted that culture involves learned and transmitted knowledge about values, beliefs, rules of behavior, and lifestyle practices that guide designated groups in their thinking and actions in patterned ways. Culture guides each person's thinking, doing, and being, and becomes patterned expressions of who that person is and becomes.

Ethnicity is defined as an affiliation relating to large groups of people classed according to common racial, national, tribal, religious, linguistic, or cultural background.

Ethnic culture has four basic characteristics:

- Learned from birth through language and socialization
- Shared by members of the same cultural group, and it includes an internal sense and external perception of distinctiveness
- Influenced by specific conditions related to environmental and technical factors and to the availability of resources
- Dynamic and ever changing

With the exception of the first characteristic, culture related to age, physical appearance, and lifestyle, as well as other less frequently acknowledged aspects, also shares these characteristics.

Cultural Competence

By the middle of the 21st century, the non-Hispanic Caucasian population is projected to proportionally decrease so that it will no longer comprise the *majority* population, and other ethnic and racial populations (i.e., *minority* populations as compared to non-Hispanic Caucasians) will collectively comprise the majority of all Americans. This projected phenomenon is called the *majority-minority crossover* (Colby & Ortman, 2015).

According to the 2017 National Nursing Workforce Survey, more than 80% of all nurses are Caucasian (Smiley, Lauer, Bienemy, et al., 2018). Progress toward increasing the percentage of culturally diverse nurses has been significantly slower than the increasing percentage of ethnic minorities in the United States. Educational institutions must prepare nurses to deliver culturally competent care and must work to increase the number of ethnic minority providers in the nursing workforce. **Culturally competent care** is defined as effective, individualized care that demonstrates respect for the dignity, personal rights, preferences, beliefs, and practices of the person receiving care while acknowledging the biases of the caregiver and preventing these biases from interfering with the care provided. Nurse educators are exploring creative ways to promote cultural competence and humanistic care in nursing students, including offering multicultural health studies in their curricula. Simulation

methods and role-playing could be effective methods to practice person-centered culturally competent care (Fioravanti et al., 2018).

Cultural diversity remains an important issue in health care today. Nurses are expected to provide culturally competent care for patients. To do so, nurses must work effectively with the increasing number of patients, nurses, and health care team members whose ancestry reflects the multicultural complexion of contemporary society.

Ethical Use of Health Assessment Data

Whenever information is elicited from a person through a health history or physical examination, the person has the right to know why the information is sought and how it will be used. Information is only shared with appropriate health care team members (Weber & Kelly, 2018). It is also important that the person knows that the decision to participate is voluntary. A private setting for the history interview and physical examination should promote trust and encourage open, honest communication. After the history and examination are completed, the nurse selectively records the data pertinent to the patient's health status. This record of the patient's history and physical examination findings is then securely maintained and made available only to those health professionals directly involved in the care of the patient. The Health Insurance Portability and Accountability Act (HIPAA), passed in 1996, established national standards to protect individuals' medical records and other personal health information and applies to health plans, health care clearinghouses, and those health care providers that conduct certain health care transactions electronically. The act requires appropriate safeguards to protect the privacy of personal health information and sets limits and conditions on the uses and disclosures that may be made of such information without patient authorization. HIPAA outlines patients' rights over their health information, including rights to examine and obtain a copy of their health records and to request corrections (U.S. Department of Health & Human Services [HHS], 2019a).

The Role of Technology

The use of technology to augment the information-gathering process, particularly through the use of EHRs, has become an increasingly important aspect of obtaining a health history and physical examination. An EHR offers convenient access to health data for the patient and for providers who can use the information more effectively to improve the quality and efficiency of patient care. The information in EHRs also can be shared with other organizations involved in care of the patients if the systems interface (HHS, 2019b). Nurses must be sensitive to the needs of older adults and others who may not be comfortable with newer technology. Nurses may need to allow extra time, provide detailed instructions, explanations, or assistance. It is important to

establish and maintain eye contact with the patient during the health history and to not focus solely on the computer screen for data entry.

Assessment in the Home or Community

Assessment of patients in community settings, including the home, consists of collecting information specific to existing health problems, including data on the patient's physiologic and emotional status, the community and home environment, the adequacy of support systems or care given by family and other care providers, and the availability of needed resources. In addition, it is important to evaluate the ability of the person and the family to cope with and address their respective needs. The physical assessment in the community and the home consists of similar techniques to those used in the hospital, outpatient clinic, or office setting. Privacy is provided, and the patient is made as comfortable as possible. See [Chapter 2](#) for more information on community-based nursing practice.

Health History

The health history is a series of questions used to provide an overview of the patient's current health status. Many nurses are responsible for obtaining a detailed history of the patient's current health problems, past health history and family history, and a review of the patient's functional status. This results in a total health profile that focuses on lifestyle and health, as well as on illness.

While obtaining the health history, attention is focused on the impact of psychosocial and cultural background and ethnicity on a patient's health, illnesses, and health promotion behaviors. The interpersonal and physical environments, as well as the patient's lifestyle and activities of daily living, are explored in depth.

The format of the health history traditionally combines the medical history and the nursing assessment. Both the review of systems and the patient profile are expanded to include individual and family relationships, lifestyle patterns, health practices and nutritional assessment, and coping strategies. These components of the health history are the basis of nursing assessment and can be easily adapted to address the needs of any patient population in any setting, institution, or agency (Hogan-Quigley, Palm, & Bickley, 2017; Weber & Kelley, 2018).

The health history format discussed in this chapter is only one approach that is useful in obtaining and organizing information about a patient's health status. Some experts consider this traditional format to be inappropriate for nurses, because it does not focus exclusively on the assessment of human responses to actual or potential health problems. Several attempts have been made to develop an assessment format and database with this focus in mind. One example is a

nursing database developed by NANDA International and its 13 domains: health promotion, nutrition, elimination and exchange, activity/rest, perception/cognition, self-perception, role relationships, sexuality, coping/stress tolerance, life principles, safety/protection, comfort, and growth/development (Ackley et al., 2019) (see [Chapter 1, Chart 1-6](#) for further details). Although there is support in nursing for using this approach, no consensus for its use has been reached.

The National Information Center on Health Services Research and Health Care Technology (NICHSR) and other groups from the public and private sectors have focused on assessing not only biologic health but also other dimensions of health. These dimensions include physical, functional, emotional, mental, and social health. Efforts to assess health status have focused on the manner in which disease or disability affects a patient's functional status—that is, the ability of patients to function normally and perform their usual physical, mental, and social activities. An emphasis on functional assessment is viewed as more holistic than the traditional medical history. Instruments to assess health status in these ways may be used by nurses along with their own clinical assessment skills to determine the impact of illness, disease, disability, and health problems on functional status (U.S. National Library of Medicine, 2019).

Regardless of the assessment format used, the focus of nurses during data collection is different from that of primary providers and other health care team members. Combining the information obtained by the primary provider and the nurse into one health history prevents duplication of information and minimizes efforts on the part of the patient to provide this information repeatedly. This also encourages collaboration among members of the health care team who share in the collection and interpretation of the data.

The Informant

The informant, or the person providing the health history, may not always be the patient, as in the case of a patient with a developmental or cognitive disability or those who are disoriented, confused, unconscious, or comatose. The interviewer should assess the reliability of the informant and the usefulness of the information provided. For example, a patient who is disoriented is often unable to provide reliable information; people who use alcohol and illicit drugs often deny using these substances. The interviewer must make a clinical judgment about the reliability of the information (based on the context of the entire interview) and include this assessment in the record. [Chart 4-1](#) provides special considerations for obtaining a health history from an older adult.

Chart 4-1

Health Assessment in the Older Adult

- Obtain the health history from older adult patients in a calm, unrushed manner.
- Consider possible vision or hearing impairments. Ensure that lighting is adequate but not glaring, and keep distracting noises to a minimum.
- Assume a position that enables the older adult patient to read lips and facial expressions. Sometimes sitting at a 90-degree angle to the patient is helpful because some visual impairments, such as macular degeneration, can limit the patient's vision to only peripheral vision. It is best to ask the patient where the interviewer should sit in relation to the patient to optimize the patient's view of the interviewer.
- Determine if the patient uses a hearing aid and ask the patient to use it during the interview. Check if the patient usually wears glasses and ensure that they are worn as well.
- Be aware that older adults often assume that new physical problems are a result of age rather than a treatable illness. Some of these problems may limit their activities of daily living and lifestyle patterns.
- Ask questions related to changes in the level of functioning. The signs and symptoms of illness in older adults are often more subtle than those in younger adults and may go unreported. A question such as "What interferes most in your daily activities?" may be useful in focusing the clinical evaluation.
- Obtain a complete history of medications used, because many older adult patients take many different kinds of prescription and over-the-counter (OTC) medications.
- Consider including a member of the family in the interview process. Although older adults may experience a decline in mental function, it should not be assumed that they are unable to provide an adequate history. Including a spouse, adult child, sibling, or caretaker may validate information and provide missing details. However, this should be done after obtaining the patient's permission (further details about assessment of the older adult are provided in [Chapter 8](#)).

Adapted from Weber, J. R., & Kelley, J. H. (2018). *Health assessment in nursing* (6th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Components of the Health History

When a patient is seen for the first time by a member of the health care team, the first requirement is that baseline information be obtained (except in emergency situations). The sequence and format of obtaining data about a patient may vary; however, the content, regardless of format, usually addresses

the same general topics. A traditional health history includes the following: biographical data, chief complaint, present health concern (or history of present illness), past health history, family history, review of systems, and patient profile.

Biographical Data

Biographical information puts the patient's health history into context. This information includes the person's name, address, age, gender, marital status, occupation, and ethnic origins. Some interviewers prefer to ask more personal questions at this part of the interview, whereas others wait until more trust and confidence have been established or until a patient's immediate or urgent needs are first addressed. A patient who is in severe pain or has another urgent problem is unlikely to have a great deal of patience for an interviewer who is more concerned about marital or occupational status than with quickly addressing the problem at hand.

Chief Complaint

The chief complaint is the issue that caused the patient to seek the care of the health care provider. Questions such as "Why have you come to the health center today?" or "Why were you admitted to the hospital?" usually elicit the chief complaint. However, a statement such as "My doctor sent me" should be followed up with questions that identify and clarify the chief complaint (Weber & Kelley, 2018). In the home setting, the initial question might be, "What is bothering you most today?" When a problem is identified, the person's exact words are usually recorded in quotation marks. Sometimes patients have no specific complaints. The nurse should report their goals instead. For example, patients might report that "I have come for my regular checkup" or "I've been admitted for a thorough evaluation of my heart" (Hogan-Quigley et al., 2017).

Present Health Concern or Illness

The history of the present health concern or illness is the single most important factor in helping the health care team arrive at a diagnosis or determine the patient's current needs. The physical examination is also helpful and often validates the information obtained from the history. A careful history and physical examination assist in the correct selection of appropriate diagnostic tests. Although diagnostic test results can be helpful, they often support rather than establish the diagnosis.

If the present illness is only one episode in a series of episodes, the nurse records the entire sequence of events. For example, a history from a patient whose chief complaint is an episode of chest pain should describe the entire course of their disease to put the current episode into context. The history of the present illness or problem includes information such as the date and type of onset (sudden or gradual) in which the problem occurred, the setting in which

the problem occurred (at home, at work, after an argument, after exercise), manifestations of the problem, and the course of the illness or problem. This should include self-treatment (including complementary and alternative therapies), medical interventions, progress and effects of treatment, and the patient's perceptions of the cause or meaning of the problem.

Specific symptoms such as headaches, fever, or changes in bowel habits are described in detail. The interviewer should also ask whether the symptom is persistent or intermittent, what factors aggravate or alleviate it, and whether any associated manifestations exist. If the patient complains of pain, the location, quality, severity, and duration of the pain are determined (see [Chapter 9](#) for a more detailed discussion of pain).

Associated manifestations are symptoms that occur simultaneously with the chief complaint. The presence or absence of such symptoms may help determine the origin or extent of the problem, as well as the diagnosis. These symptoms are referred to as significant positive or negative findings and are obtained from a review of systems directly related to the chief complaint. For example, if a patient reports a vague symptom such as fatigue or weight loss, all body systems are reviewed. On the contrary, if a patient's chief complaint is something specific, such as chest pain, then the cardiopulmonary and gastrointestinal systems will be the focus of the history of the present illness. In either situation, both positive and negative findings are recorded to further define the issue.

Past Health History

A detailed summary of a patient's past health is an important part of the health history. After determining the patient's general health status, the interviewer should inquire about immunization status and compare it with the General Best Practice Guidelines for Immunization Advisory Committee on Immunization Practices (ACIP) (Ezeanolue, Harriman, Hunter, et al., 2019) (see [Chapter 3, Table 3-3](#) for an adult immunization schedule) and then record the dates of immunization (if known). The interviewer should also inquire about any known allergies to medications or other substances, along with the nature of the allergy and associated adverse reactions. Other relevant material includes information, if known, about the patient's last physical examination, chest x-ray, electrocardiogram, eye examination, hearing test, dental checkup, Papanicolaou (Pap) smear and mammogram (if female), digital rectal examination of the prostate gland (if male), bone density testing, colon cancer screening, and any other pertinent tests.

The interviewer discusses previous illnesses and records negative as well as positive responses to a list of specific diseases. The dates of illnesses, or the age of the patient at the time, as well as the names of the primary providers and hospitals, the diagnoses, and the treatments, are noted. The interviewer elicits a history of the following areas:

- Childhood illnesses—rubeola, rubella, polio, whooping cough, mumps,
 - measles, chickenpox, scarlet fever, rheumatic fever, strep throat
- Adult illnesses
- Psychiatric illnesses
- Injuries—burns, fractures, head injuries, traumatic injuries
- Hospitalizations
- Surgical and diagnostic procedures

If a particular hospitalization or major medical intervention is related to the present illness, the account of it is not repeated here; rather, the report refers to the appropriate part of the record, such as (see present health concern or illness) on the patient's health record.

Family History

To identify diseases that may be genetic, communicable, or possibly environmental in origin, the interviewer asks about the age and health status, or the age and cause of death, of first-order relatives (parents, siblings, spouse, children) and second-order relatives (grandparents, cousins). The nurse records the age and health, or age and cause of death, of each relative. In addition, each of the following conditions should be reviewed with the patient to determine whether they are present or absent among family members: hypertension, coronary artery disease, elevated cholesterol levels, stroke, diabetes, thyroid or renal disease, arthritis, tuberculosis, asthma or lung disease, headache, seizure disorder, mental illness, substance use disorder, cancer and the site or type, genetic diseases, and allergies; the nurse should also determine if there is a family history of suicide (Hogan-Quigley et al., 2017). One of the easiest methods of recording such data is by using the family tree, genogram, or pedigree ([Fig. 4-2](#)). The results of genetic testing or screening, if known, are recorded. [Chart 4-2](#) provides genetic considerations related to health assessment (see [Chapter 6](#) for a detailed discussion of genetics).

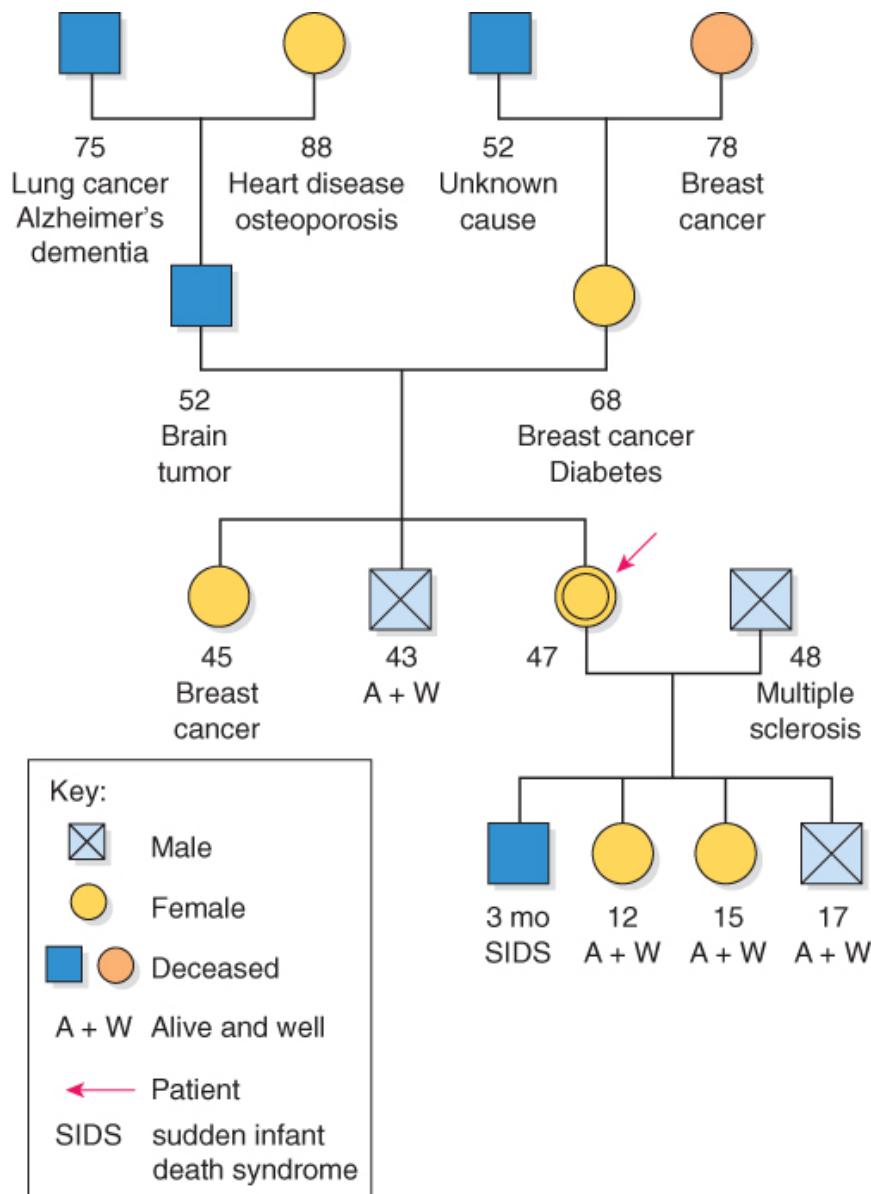


Figure 4-2 • Diagram (called a *genogram*) used to record history of family members, including their age and cause of death or, if living, their current health status.

Review of Systems

The review of systems includes an overview of general health as well as symptoms related to each body system. Questions are asked about each of the major body systems for information about past and present symptoms. Negative and positive answers should be recorded. If a patient responds positively to questions about a particular system, the information is analyzed carefully. If any illnesses were previously mentioned or recorded, it is not necessary to repeat them in this part of the history.

A review of systems can be organized in a formal checklist, which becomes part of the health history. One advantage of a checklist is that it can be easily audited and is less subject to error than a system that relies heavily on the interviewer's memory.

Patient Profile

In the patient profile, more biographical information is gathered. A complete composite, or profile, of the patient is critical to the analysis of the chief complaint and of the patient's ability to deal with the problem. A complete patient profile is summarized in [Chart 4-3](#).

At this point in the interview, the information elicited is highly personal and subjective. People are encouraged to express feelings honestly and to discuss significant health events. It is best to begin with general, open-ended questions and to move to direct questioning when specific facts are needed. Interviews that progress from information that is less personal (birthplace, occupation, education) to information that is more personal (sexuality, body image, coping abilities) often reduce anxiety.

A general patient profile consists of the following content areas: past life events related to health; current medications; complementary, alternative and integrative health therapies; education and occupation; financial resources; environment (physical, spiritual, interpersonal); lifestyle patterns; presence of a physical or mental disability; self-concept; sexuality; risk for abuse or intimate partner violence (IPV); and stress and coping response.

Past Life Events Related to Health

The patient profile begins with a brief life history. Questions about place of birth and past places of residence help focus attention on the earlier years of life. Personal experiences during childhood or adolescence that have special significance may be elicited by asking a question such as, "Were there any events that occurred when you were a child or adolescent that would be helpful for me to know about?" The interviewer's intent is to encourage the patient to make a quick review of their earlier life, highlighting information of particular significance. Although many patients may not recall anything significant, others may share information such as a personal achievement, a failure, a developmental crisis, or an instance of physical, emotional, or sexual abuse. The life history should include a brief medication history as appropriate for the patient.

Current Medications

A review of the patient's current medications is necessary to complete a comprehensive health history. Particular attention is given to allergies or adverse reactions to medications. The interviewer should inquire about the use of over-the-counter (OTC) medications and herbal supplements and

complementary therapies (see next section); patients often include only prescription medications when they list their current medications.

When gathering information on use of current medications, the nurse must also consider the physiologic impact of ethnicity and culture on patients' response to medications. Data have been collected for many years regarding differences in the effect that some medications have on people of diverse ethnic or cultural origins. Genetic predispositions to different rates of metabolism cause some patients to be prone to adverse reactions to the standard dose of a medication, whereas other patients are likely to experience a greatly reduced benefit from the standard dose of the medication (Giger, 2016). For example, an antihypertensive agent may work well at reducing blood pressure to acceptable levels for a Caucasian man within a 4-week time span, but may take much longer to work or not work at all for an African American man with hypertension. In the future, genomic research may capitalize on the work of transdisciplinary teams that are building the skills needed to design and assess multilevel interventions aimed at improving the health of minorities and reducing health disparities (Agurs-Collins, Persky, Paskett, et al., 2019). Nurses must be aware that ethnicity and related factors such as values and beliefs regarding the use of herbal supplements, dietary intake, and genetic factors can affect the effectiveness of treatment and adherence to the prescribed medication regimen (Giger, 2016).

Chart 4-2



GENETICS IN NURSING PRACTICE

Genetic Aspects of Health Assessment

Nursing Assessments

Family History Assessment

- Obtain information about maternal and paternal sides of family for three generations.
- Obtain history of known diseases or disorders for three generations for:
 - Clustering of diseases or disorders.
 - Early onset of disease or illness (e.g., blood clots in an active, otherwise apparently healthy 30 year old, or colon cancer in a 40 year old).
 - Similar disorder or disease in two or more close relatives.
 - History of multiple miscarriages, birth defects, or developmental delays.
 - Close biologic relationship between parents.
- Assess for individual and family perceptions and beliefs around genetics topics through a cultural, social, and spiritual assessment.
- Acknowledge ethnic risk for particular genetic disorders.
- Determine whether the patient or a direct family member has had an unexpected response to medications or anesthesia.
- Recognize and evaluate for patterns of inheritance.
- Ascertain family relationships (family structure, roles, communication patterns, support system).

Patient Assessment

- Assess physical findings that may suggest a genetic condition (e.g., unusually tall stature—Marfan syndrome, low set ears, and epicanthal folds—Down syndrome).
- Is there a presence of two or more dysmorphic features?
- Is there a presence of disability (physical or intellectual) or a history of developmental delay?
- Assess for conditions that occur in a less-often affected gender (e.g., stuttering in females, breast cancer in males, inguinal hernia in females).
- Presence of disease without known risk factors (e.g., hyperlipidemia).
- Acknowledge genetic-related risk related to ethnic background.
- Identify religious health, spiritual health, beliefs, and practices.

Management Issues Specific to Genetics

- Assess patient's understanding of genetic information and factors related to their health risks.
- Refer for risk assessment when a hereditary disease or disorder is suspected.
- Determine if genetic testing has been performed and if other family members are affected.

- Educate patient and family about the *Genetic Information Nondiscrimination Act (GINA)*, passed in 2008.
- Offer appropriate genetic information and resources.
- Refer to a genetic counselor.
- Ensure that consent obtained for genetic testing is voluntary and informed.
- Provide support to patients and families with known genetic test results for hereditary disease or disorders, and refer to support groups as indicated.
- Participate in the management and coordination of risk-reduction measures for those with known gene mutations.

Genetics Resources

Genetic Information Nondiscrimination Act. Retrieved on 6/17/2019 at:
www.ginahelp.org

For additional genetic resources, see [Chapter 6, Chart 6-7: Components of Genetics Counseling](#).

Complementary, Alternative, and Integrative Health Therapies

Interventions for alterations in health and wellness vary among cultures. Interventions most commonly used in the United States have been labeled as *conventional medicine*, which is also variously referred to as allopathy, Western medicine, regular medicine, mainstream medicine, and biomedicine (National Center for Complementary and Integrative Health [NCCIH], 2019). Therapy used to supplement conventional medicine is referred to as *complementary therapy*, whereas therapy used to replace conventional medicine is referred to as *alternative therapy* (NCCIH, 2019). Interest in interventions that are not an integral part of conventional medicine prompted the National Institutes of Health to create the Office of Alternative Medicine and then to establish the National Center for Complementary and Alternative Medicine, which is now called the National Center for Complementary and Integrative Health (NCCIH, 2019). Integrative health care is viewed as a comprehensive, interdisciplinary approach to preventing and treating illness and promoting health that brings together complementary, alternative, and conventional therapies. The use of an integrative approach to health and wellness has grown within mainstream health care settings in the United States (NCCIH, 2019). More than 30% of adults use health care approaches that are not typically part of conventional medical care or that may have origins outside of usual Western practice. Most people who use nonmainstream approaches also use conventional health care (NCCIH, 2019).

Integrative health therapies are classified by product or practice type into two subgroups—natural products or mind and body practices (NCCIH, 2019):

- *Natural products* include herbs (also known as botanicals), vitamins and minerals, and probiotics. These are widely marketed to consumers

- and often sold and used as dietary supplements.
- *Mind and body practices* include large and diverse procedures and techniques given or taught by trained practitioners or teachers and include practices such as yoga, meditation, chiropractic and osteopathic manipulation, massage therapy, acupuncture, relaxation techniques, and T'ai chi.

Patients may choose to seek a complementary or alternative approach to conventional medical or surgical therapies. Nurses must assess all patients for the use of complementary therapies, be alert to the danger of natural product–drug interactions or conflicting treatments, and be prepared to provide information to patients about treatments that may be harmful or helpful, based upon best evidence from research findings. However, nurses must be accepting of patients' beliefs and right to autonomy—that is, to control their own care. As patient advocates, nurses facilitate the integration of conventional medical, complementary, and alternative therapies.

Chart 4-3



ASSESSMENT

Patient Profile

Past Life Events Related to Health

Place of birth
Places lived
Significant childhood/adolescent events

Current Medications

Prescription, over-the-counter, home remedies, complementary and alternative therapies

Education and Occupation

Jobs held in past
Current position/job
Length of time at position
Educational preparation
Work satisfaction and career goals

Financial Resources

Income
Insurance coverage
Concerns

Environment

Physical—living arrangements (type of housing, neighborhood, presence of hazards)
Spiritual—extent to which religion or spirituality is a part of a person's life; religious or spiritual beliefs related to perception of health and illness; religious or spiritual practices
Interpersonal—ethnicity (language spoken, customs and values held, folk practices used to maintain health or cure illness); support systems (family relationships and friendships)

Lifestyle Patterns

Sleep (time person retires, hours per night, comfort measures, awakens rested)
Nutrition (24-h diet recall, idiosyncrasies, restrictions)
Health promotion (exercise and recreation: type, duration, frequency; health screenings)
Caffeine (type: coffee, tea, cola, chocolate), amount
Alcohol (type, amount, pattern over past year)
Smoking (type: cigarette, pipe, cigar, marijuana, or electronic nicotine delivery systems (ENDS) including e-cigarettes, e-pens, e-pipes, e-hookah, and e-cigars; amount per day; number of years; desire to quit)
Drugs (type, amount, route of administration)

Physical or Mental Disability

Presence of a disability (physical or mental)
Effect of disability on function and health access
Accommodations needed to support functioning

Self-Concept

View of self in present
View of self in future
Body image (level of satisfaction, concerns)

Sexuality

Perception of self as a heterosexual, lesbian, gay, bisexual or transgender
Quality of sexual relationships
Concerns related to sexuality or sexual functioning

Risk for Intimate Partner Violence (IPV)

Physical injury in past
Afraid of partner, caregiver, or family member
Refusal of caregiver to provide necessary equipment or assistance

Stress and Coping Response

Major concerns or problems at present
Daily “hassles”
Past experiences with similar problems
Past coping patterns and outcomes
Present coping strategies and anticipated outcomes
Person’s expectations of family/friends and health care team in problem resolution

Education and Occupation

Inquiring about a patient’s current occupation can reveal much about their economic status and educational preparation. A statement such as “Tell me about your job” often elicits information about role, job tasks, and satisfaction with the position. Direct questions about past employment and career goals may be asked if the person does not provide this information.

It is important to learn about a patient’s educational background. Asking what kind of educational requirements were necessary for a patient to attain their present job is a more sensitive approach than asking whether they graduated from high school.

Financial Resources

Information about the patient’s general financial status may be obtained by asking questions such as “Do you have any financial concerns at this time?” Inquiries about the person’s insurance coverage and plans for health care payment are also appropriate.

Environment

The concept of environment includes a person's physical environment and its potential hazards. It also includes a person's spiritual awareness, ethnicity, and support systems.

Physical Environment

Information is elicited about the type of housing (e.g., apartment, duplex, single family) in which the person lives, its location, the level of safety and comfort within the home and neighborhood, and the presence of environmental hazards (e.g., social isolation, potential fire risks, inadequate sanitation). If the patient is homeless, details about available resources are important to ascertain.

Spiritual Environment

Spirituality is defined as connectedness with self, others, a life force, or God that allows people to experience self-transcendence and find meaning in life. Spirituality helps many people discover a purpose in life, understand the ever-changing qualities of life, and develop their relationship with God or a higher power. Spirituality in nursing practice includes concerns with the personal spiritual and religious needs of the patient and nurse, as well as the spiritual dimension of the nurse–patient interaction (O'Brien, 2017).

Spiritual behavior can be expressed through devotion, sacrifice, self-discipline, and spending time in activities that focus on the inner self or the soul. Although religion and nature are two vehicles that people use to connect themselves with God or a higher power, bonds to religious institutions, beliefs, or dogma are not required to experience the spiritual sense of self. **Faith**, considered the foundation of spirituality, is trust in God and belief in a higher power or something that a person cannot see. The spiritual part of a person views life as a mystery that unfolds over one's lifetime, encompassing questions about meaning, hope, relatedness to a higher power, acceptance or forgiveness, and transcendence.

A person's spiritual environment refers to the degree to which they think about or contemplate existence, accept challenges in life, and seek and find answers to personal questions. Spirituality may be expressed through identification with a particular religion. Spiritual values and beliefs often direct a person's behavior and approach to health problems and can influence responses to sickness. A strong sense of spirituality or religious faith can have a positive impact on health. Spirituality is also a component of hope, and, especially during chronic, serious, or terminal illness, patients and their families often find comfort and emotional strength in their religious traditions or spiritual beliefs. At other times, illness and loss can cause a loss of faith or meaning in life and a spiritual crisis, which can place considerable stress on a person's internal resources and beliefs. It is important that the spiritual beliefs of people and families be acknowledged, valued, and respected for the comfort and guidance they provide. Inquiring about spirituality can identify possible support

systems as well as beliefs and customs that need to be considered in planning care. Information is gathered about the extent to which religion is a part of the person's life as well as religious beliefs and practices related to health and illness.

A spiritual assessment may involve asking the following questions:

- Is religion or spirituality important to you?
- If no, what is the most important thing in your life?
- If yes, in what way? For instance:
- Are there any religious or spiritual practices that are important to you?
- Do you belong to a faith community or have a place of worship?
- Do you have any religious or spiritual concerns because of your present health problem?

The nurse should assess spiritual strength further by inquiring about the patient's sense of spiritual well-being, hope, and peacefulness. It is also necessary to assess whether spiritual beliefs and values have changed in response to illness or loss. The nurse assesses current and past participation in religious or spiritual practices and notes the patient's responses to questions regarding spiritual needs to help determine the patient's need for spiritual care. Another simple assessment technique is to inquire about the patient's and family's desire for spiritual support (O'Brien, 2017).

Interpersonal Environment

A patient's ethnicity and support system are considered when obtaining a health history. Attitudes and beliefs about health, illness, health care, hospitalization, the use of medications, and the use of complementary and alternative therapies, which are derived from personal experiences, vary according to ethnicity. A person from another culture may have different views of personal health practices from those of the health care practitioner (Hogan-Quigley et al., 2017; Weber & Kelley, 2018) (see later discussion on Cultural Assessment).

The beliefs, customs, and practices that have been shared from generation to generation are known as ethnic patterns. The influence of these patterns on health-related behaviors and patient's perceptions of health and illness, as well as on how a patient reacts to health problems and interacts with health care providers, cannot be underestimated. Ethnic patterns can be expressed through language, dress, dietary choices, and role behaviors. The following questions may assist in obtaining relevant information:

- Where did your parents or ancestors come from? When?
- What language do you speak at home?
- Are there certain customs or values that are important to you?
- Do you have any specific practices to keep in good health or for treating illness?

Support systems are another important aspect of a patient's interpersonal environment. The evaluation of a patient's family structure (members, ages, and

roles), patterns of communication, and the quality of the patient's relationships is an integral part of assessing support systems. Although the traditional family is recognized as a mother, a father, and children, many different types of living arrangements exist within our society. "Family" may mean two or more people bound by emotional ties or commitments. Live-in companions, roommates, and close friends can also play a significant role in a person's support system. Keeping this in mind, nurses should use neutral terms and be sensitive when evaluating family structure. For example, the interview can begin with an open-ended question, such as "Tell me about your family and social support system." Neutral terms should also be used when asking follow-up questions about partners/significant others and parents/guardians (for further discussion, see [Chapter 54, Table 54-1](#)).

Lifestyle Patterns

The lifestyle section of the patient profile provides information about health-related behaviors. These behaviors include patterns of sleep, nutrition, and health promotion, as well as personal habits such as smoking and the use of illicit drugs, alcohol, and caffeine. Adequate sleep and nutrition are important to maintain optimal health; therefore, it is important to inquire about usual sleep habits and bedtime routines, as well as perform a nutritional assessment. Although most people readily describe their exercise patterns or recreational activities, many are unwilling to report their smoking, alcohol use, and illicit drug use, and many deny or underestimate the degree to which they use such substances. The Centers for Disease Control and Prevention (CDC) reports that abuse of prescription drugs has replaced abuse of illicit drugs as a leading cause of drug-induced deaths (CDC, 2019c). Questions such as "What kind of alcohol do you enjoy drinking?" may elicit more accurate information than "Do you drink?" Determining the specific type of alcohol (e.g., wine, liquor, beer) the patient drinks and the last time they had a drink is an important aspect of the assessment. Every patient should be asked about alcohol use, substance use disorder, and misuse of prescription drugs (Hogan-Quigley et al., 2017).

The lifestyle of some people includes the use of mood-altering substances. People with **substance use disorder** (SUD) use illegally obtained drugs, prescribed or OTC medications, and alcohol alone or in combination with other drugs in ineffective attempts to cope with the pressures, strains, and burdens of life. Over time, physiologic, emotional, cognitive, and behavioral problems develop as a result of SUD.

If alcohol abuse is suspected, additional information may be obtained by using common alcohol screening questionnaires such as the CAGE (Cutting down, Annoyance by criticism, Guilty feeling, and Eye-openers) (Ewing, 1984), AUDIT (Alcohol Use Disorders Identification Test), or the shorter AUDIT-C questionnaire (Drug and Alcohol Clinical Advisory Service [DACAS], 2019).

Similar questions can be used to elicit information about smoking and caffeine consumption. Questions about illicit drug use follow naturally after

questions about smoking, caffeine consumption, and alcohol use. A nonjudgmental approach makes it easier for a person to respond truthfully and factually. If street names or unfamiliar terms are used to describe drugs, the person is asked to define the terms used.

Investigation of the patient's lifestyle patterns should also include questions about complementary, alternative, and integrative health therapies, which may include energy and breath work, botanical and manual healing, and mind–body therapies (Fontaine, 2018).

Marijuana is used for the management of symptoms, especially pain and anorexia, in several chronic conditions. Since the marijuana plant contains chemicals, called cannabinoids, that may help treat a range of illnesses or symptoms, many people have argued that it should be legal for medical purposes. This has led to the legalization of marijuana for medical use in many states. The U.S. Food and Drug Administration (FDA) has not recognized or approved the marijuana plant as medicine; however, the FDA has approved medications that contain cannabinoids in pill form. Currently, the two main cannabinoids from the marijuana plant that are of medical interest are delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD). The FDA-approved drugs dronabinol and nabilone both contain THC. They are indicated specifically to treat nausea caused by chemotherapy and to increase appetite in patients with extreme weight loss caused by acquired immune deficiency syndrome (AIDS). THC also may decrease pain, inflammation, and muscle control problems. Unlike THC, drugs that contain CBD are not intoxicating and do not make people “high.” CBD is useful in reducing pain, inflammation, controlling epileptic seizures, and possibly even treating mental illness and addiction (National Institute on Drug Abuse, 2019).

The assessment of a patient's lifestyle patterns also includes questions about continuing health promotion and health-screening practices. The health history assessment should include the type, frequency, and duration of exercise and recreational activities. Inquiry should also include the types of health screenings the patient has completed. If the person has not been involved in these practices in the past, they should be educated about their importance and referred to the appropriate health care providers. Nurses should recognize the importance of encouraging culturally competent care and health promotion activities (Giger, 2016).

Disability

The general patient profile needs to contain information about any hearing, vision, or other type of physical disability. In addition, developmental, intellectual, sensory, or cognitive disabilities need to be addressed. The presence of an obvious physical limitation (e.g., using crutches to walk or using a wheelchair to get around) necessitates further investigation. The initial cause or onset of the disability, as well as the impact on functional ability, should be established. [Chart 4-4](#) presents specific issues that the nurse should consider

when obtaining health histories and conducting physical assessments of patients with disability.



Veterans Considerations

When conducting a health assessment, a key part of the nurse's role is to ask all adult patients if they have served in the U.S. military, and, if so, their branch of service, length of service, and assigned duty stations (i.e., geographic locations and type of assignments). Patients who are veterans should be specifically asked about their experiences with violence and war, regardless of their ages, genders, lengths of service, and assignments. Asking about violent experiences works best when it is viewed as a normal and natural part of the nursing assessment. The nurse's approach to gathering this information should be similar to that used when asking patients about sleep or activity difficulties or dietary or sexual concerns. It is important to try to establish a connection with the patient first. Taking time to listen in a nonjudgmental, nondirective way and noting that confidentiality of responses will be ensured helps create a safe, supportive atmosphere. Traumatic experiences from witnessing violence are common for combat veterans and veterans who have experienced other forms of violence, placing them at risk for posttraumatic stress disorder (PTSD), alcohol abuse (Possemato, Maisto, Wade, et al., 2015), pain (Flynn, Cook, Kallen, et al., 2017), and increased suicide risk compared with nonveterans (Kang, Bullman, Smolenski, et al., 2015). Pain is a leading cause of disability among active duty service members and veterans (Flynn et al., 2017) (see [Chapter 9](#) for further discussion).

Veterans may be eligible for Veterans Administration (VA) benefits, including access to VA financial aid services and health care through the Veterans Health Administration (VHA), the largest integrated health care system in the United States. The VHA provides care to veterans at more than 1200 health care facilities, including 170 medical centers and 1000 outpatient sites that provide health care services of varying complexity. In addition, benefits-eligible veterans who reside in rural areas may opt to receive some VHA services through mobile vans and telehealth services. Less than half of the 20 million benefits-eligible U.S. veterans are enrolled in VA benefits services (Chokshi & Sommers, 2015).

Self-Concept

Self-concept, a person's view of themself/themselves, is an image that develops over many years. To assess self-concept, the interviewer might ask how a person views life, using a question such as "How do you feel about your life in general?" A person's self-concept can be threatened very easily by changes in physical function, appearance, or other threats to health. The impact of certain medical conditions or surgical interventions, such as a colostomy or a mastectomy, can threaten body image. In addition, patients with implantable

devices may have body image concerns, particularly those with implantable cardioverter defibrillators (ICDs) and ventricular assist devices (VADs) (Alonso, Mollard, Zimmerman, et al., 2019; Frydensberg, Skovbakke, Pedersen, et al., 2018). The question, “Do you have any particular concerns about your body?” may elicit useful information about self-image.

Chart 4-4



ASSESSMENT

Assessing the Health of People with Disability

Overview

People with disability are entitled to the same level of health assessment and physical examination as people without disability. Physical and mental disability should be explained in the health history. Patients with mental disability are often marginalized from mainstream health care services because of the complexities of their disability. It is appropriate to ask the patient, or caregiver when necessary, what assistance they need rather than assuming that help is needed for all activities or that, if assistance is needed, the patient will ask for it.

Health History

Communication between the nurse and the patient is essential. To ensure that the patient is able to respond to assessment questions and provide needed information, interpreters, assistive listening devices, or other alternative formats (e.g., Braille, large-print forms) may be required.

When interpreters are needed, interpretation services should be arranged. Health care facilities have a responsibility to provide these services without charge to the patient. Family members (especially children) should *not* be used as interpreters, because doing so violates the patient's right to privacy and confidentiality.

The nurse should speak directly to the patient and not to family members or others who have accompanied the patient. If patients have impaired hearing, they should be encouraged to use their hearing aids or hearing assistance technology during the assessment. The patient should be able to see the nurse's face clearly during the health history so that speech reading and nonverbal clues can be used to aid communication.

The health history should address general health issues that are important to all patients, including sexual history and risk for abuse, including intimate partner violence. It should also address the impact of the patient's disability on health issues and access to care, as well as the effect of the patient's current health problem on their disability. An assessment of whether the patient's quality of life meets their expectations should be included in the health history.

The nurse should verify what the patient has said; if the patient has difficulty communicating verbally, the nurse should ask for clarification rather than assume that it is too difficult for the patient to do so. Most people would rather be asked to explain again than run the risk of being misunderstood.

Physical Examination

Inaccessible facilities remain a major barrier to health care for people with disability. Barriers include lack of ramps and grab bars, inaccessible restrooms, small examination rooms, and examination tables that cannot be lowered to allow the patient to move himself or herself onto, or be transferred easily and safely to, the examination table. The patient may need help getting undressed for the physical examination (and dressed again), moving on and

off the examination table, and maintaining positions usually required during physical examination maneuvers. It is important to ask the patient what assistance is needed.

If the patient has impaired sensory function (e.g., lack of sensation, hearing or vision loss), it is important to inform the patient that you will be touching them. Furthermore, it is important to explain all procedures and maneuvers.

Gynecologic examinations should *not* be deferred because a patient has a disability or is assumed to be sexually inactive. Explanations of the examination are important for all women, and even more so for women with disability, because they may have had previous negative experiences. Slow, gentle moving and positioning of the patient for the gynecologic examination and warming the speculum before attempting insertion often minimize spasticity in women with neurologically related disability.

Health Screenings and Testing

Many people with disability report that they have not been weighed for years or even decades because they are unable to stand for this measurement. Alternative methods (e.g., use of wheelchair scales) are needed to monitor weight and body mass index. This is particularly important because of the increased incidence of obesity and its effects on health status and transfer of people with disabilities.

Patients with disability may require special assistance if urine specimens are to be obtained as part of the visit. They are often able to suggest strategies to obtain urine specimens based on previous experience.

If it is necessary for the nurse to wear a mask during a procedure or if the patient is unable to see the face of the nurse during a procedure, it is important to explain the procedure and the expected role of the patient ahead of time. If the patient is unable to hear or communicate with the nurse or other health care provider verbally during an examination or diagnostic test, a method of communication (e.g., signaling the patient by tapping the arm, signaling the nurse by using a bell) should be established beforehand.

People with disability experience difficulties related to obtaining care, challenges accessing health care facilities, perceptions that health professionals are insensitive to their needs, and concerns about the quality of care they receive. Therefore, it is important to ask about health screening and recommendations for screening. In addition, people with disability should be asked about their participation in health promotion activities, because inaccessible environments and other barriers may limit their participation in exercise, health programs, and other health promotion efforts such as health screenings.

Adapted from Amieva, H., Ouvrard, C., Meillon, C., et al. (2018). Death, depression, disability, and dementia associated with self-reported hearing problems: A 25-year study. *Journals of Gerontology Series A: Biological Sciences & Medical Sciences*, 73(10), 1383–1389; Axmon, A., Björkman, M., & Ahlström, G. (2019). Hospital readmissions among older people with intellectual disability in comparison with the general population. *Journal of Intellectual Disability Research*, 63(6), 593–602; Mitra, M., Akobirshoev, I., Moring, N. S., et al. (2017). Access to and satisfaction with prenatal care

among pregnant women with physical disabilities: Findings from a national survey. *Journal of Women's Health*, 26(12), 1356–1363; Zetterlund, C., Lundqvist, L., Richter, H. O., et al. (2019). Visual, musculoskeletal and balance symptoms in individuals with visual impairment. *Clinical & Experimental Optometry*, 102(1), 63–69.

Sexuality

The sexual history is an extremely personal area of assessment. Interviewers are frequently uncomfortable with such questions and ignore this area of the patient profile or conduct a very cursory interview about this subject. It is the nurse's professional and clinical responsibility to discuss issues of sexuality with patients.

Sexual function may be affected negatively by disease (or treatment), surgery, or aging. In order for the patient to maintain sexual function and optimize quality of life, sexual issues must be addressed. In addition, the interviewer should project a positive attitude related to sexual orientation or toward those who may be lesbian, gay, bisexual, transgender, or queer (LGBTQ). In addition, if a patient's sexual orientation and gender identity is not yet known, use of neutral language will help put the patient at ease and enhance the therapeutic relationship (see [Chapter 54](#), [Table 54-1](#), for examples of gender neutral language and assessment questions).

Sexual assessment can be approached at the end of the interview or at the time interpersonal or lifestyle factors are assessed; otherwise, it may be easier to discuss sexuality as a part of the genitourinary history within the review of systems. In cisgender female patients, a discussion of sexuality could follow questions about menstruation. In cisgender male patients, a similar discussion could follow questions about the urinary system.

Obtaining the sexual history provides an opportunity to discuss sexual matters openly and gives the person permission to express sexual concerns to an informed professional. The assessment begins with an orienting sentence such as "Next, I would like to ask about your sexual health and practices." This type of opening may lead to a discussion of concerns related to sexual expression or the quality of a relationship, or to questions about contraception, risky sexual behaviors, and safer sex practices. Examples of other questions include "Do you have one or more sexual partners?" and "Are you satisfied with your sexual relationships?"

Determining whether a person is sexually active should precede any attempts to explore issues related to sexuality and sexual function. Care should be taken to initiate conversations about sexuality with older adult patients and patients with disability and not to treat them as asexual people. Questions should be worded in such a way that the person feels free to discuss sexuality regardless of marital status or sexual orientation. Direct questions are usually less threatening when prefaced with such statements as "Some people feel that..." or "Many people worry about...." This suggests the normalcy of such feelings or behavior

and encourages the person to share information that might otherwise be omitted because of fear of seeming “different.”

If a person answers abruptly or does not wish to carry the discussion any further, then the interviewer should move to the next topic. However, introducing the subject of sexuality indicates to the person that a discussion of sexual concerns is acceptable and can be approached again in the future if so desired (further discussion of the sexual history is presented in [Chapters 50, 53, and 54](#)).



Gerontologic Considerations

Effective health care for older adults requires assessment of sexual health (Weber & Kelley, 2018). Older adults may be stereotyped by misconceptions that they are sick and disabled, have dementia, have lower intelligence and are resistant to change, are not able to have sexual intercourse, or are not interested in sex (Eliopoulos, 2018); however, sexual activity continues in later life, and sexual satisfaction depends on age-related changes (Skałacka & Gerymski, 2019). Literature supports that people not only remain sexually active for a long time into their old age, but also that various forms of sexual activity is associated with their global life satisfaction (Lee, Vanhoutte, Nazroo, et al., 2016; Skałacka & Gerymski, 2019). Many older adults prefer to engage in more subtle forms of sexual activity (e.g., kissing, cuddling) rather than having intercourse. The frequency of intercourse may diminish because of body changes and health issues that may result from the aging process and/or sexual dysfunction in one or both partners (Skałacka & Gerymski, 2019).

Risk for Intimate Partner Violence

Physical, sexual, and psychological violence affects people of both genders and those who identify as gender fluid or nonbinary, as well as people of all ages and from all socioeconomic and ethnic groups. IPV, also called domestic violence, is common in the United States. One in four women in the United States experiences IPV (Smith, Chen, Basile, et al., 2017). IPV includes physical, sexual, or emotional abuse, as well as sexual coercion and stalking by a current or former intimate partner (HHS, 2019c). Patients rarely discuss this topic unless specifically asked about it. Therefore, it is important to ask direct questions, such as:

- Is anyone physically hurting you or forcing you to engage in sexual activities?
- Has anyone ever hurt you physically or threatened to do so?
- Are you ever afraid of anyone close to you (your partner, caregiver, or other family members)?

Patients who are older or have disability are at increased risk for IPV and should be asked about it as a routine part of assessment (Truong, Burnes, Alaggia, et al., 2019). However, when older patients are questioned directly,

they rarely admit to abuse. Health care professionals should assess for risk factors, such as high levels of stress or alcoholism in caregivers, or evidence of violence, emotional outbursts, or financial, emotional, or physical dependency in patients.

Two additional questions have been found to be effective in uncovering specific types of IPV that may occur only in people with disability:

- Does anyone prevent you from using a wheelchair, cane, respirator, or other assistive device?
- Does anyone you depend on refuse to help you with an important personal need, such as taking your medicine, getting to the bathroom, getting in or out of bed, bathing, dressing, or getting food or drink?

If a person's response indicates that IPV is a risk, further assessment is warranted, and efforts are made to ensure the patient's safety and provide access to appropriate community and professional resources and support systems (further discussion of IPV is presented in [Chapters 50](#) and [67](#)).

Stress and Coping Responses

Each person handles stress differently. How well people adapt to stress depends on their ability to cope. During a health history, past coping patterns and perceptions of current stresses and anticipated outcomes are explored to identify the person's overall ability to handle stress. It is especially important to identify the expectations that a person may have related to family, friends, and caregivers in terms of providing financial, emotional, or physical support (further discussion of stress and coping is presented in [Chapter 5](#)).

Physical Assessment

Physical assessment, or the physical examination (collection of objective data about the patient's health status), is an integral part of nursing assessment. The basic techniques and tools used in performing a physical examination are described in general in this chapter. The examinations of specific systems, including special maneuvers, are described in the respective system assessment chapters throughout the book.

Examination Considerations

The physical examination is usually performed after the health history is obtained. It is carried out in a well-lighted, warm area. The patient is asked to (or helped to) undress and is draped appropriately so that only the area to be examined is exposed. The patient's physical and psychological comfort are considered at all times. It is necessary to describe procedures to the patient and explain what sensations to expect before each part of the examination. The

examiner washes his or her hands before and immediately after the examination. Fingernails are kept short to avoid injuring the patient. If there is a possibility of coming into contact with blood or other body secretions during the physical examination, gloves should be worn.

An organized and systematic examination is the key to obtaining appropriate data in the shortest time. Such an approach encourages cooperation and trust on the part of the patient. The patient's health history provides the examiner with a health profile that guides all aspects of the physical examination.

A "complete" physical examination is not routine. Many of the body systems are selectively assessed on the basis of the presenting problem. For example, if a healthy 20-year-old college student requires an examination to study abroad and reports no history of neurologic abnormality, the neurologic assessment is brief. Conversely, a history of transient numbness and diplopia (double vision) usually necessitates a complete neurologic investigation. Similarly, a patient with chest pain receives a much more intensive examination of the chest and the heart than one with an earache. In general, the health history guides the examiner in obtaining additional data for a complete picture of the patient's health.

The process of learning to perform a physical examination requires repetition and reinforcement in a simulated or clinical setting. Only after basic physical assessment techniques are mastered can the examiner tailor the routine examination to include thorough assessments of particular systems, including special maneuvers (Hogan-Quigley et al., 2017; Weber & Kelley, 2018).

Components of the Physical Examination

The components of a physical examination include general observations and then a more focused assessment of the pertinent body systems. The tools of the physical examination are the human senses of vision, hearing, touch, and smell. These may be augmented by special tools (e.g., stethoscope, ophthalmoscope, reflex hammer) that are extensions of the human senses; they are simple tools that anyone can learn to use well. Expertise comes with practice, and sophistication comes with the interpretation of what is seen and heard.

Initial Observations

General inspection begins with the first contact with the patient. Introducing oneself and shaking hands provide opportunities for making initial observations: Is the person old or young? How old? How young? Does the person appear to be their stated age? Is the person thin or obese? Does the person appear anxious or depressed? Is the person's body structure normal or abnormal—in what way and how different from normal? It is essential to pay attention to the details in observation. Vague, general statements are not a substitute for specific descriptions based on careful observation. Consider the following examples:

- “The patient appears sick.” In what way do they appear sick? Is the skin clammy, pale, jaundiced, or cyanotic? Is the patient grimacing in pain or having difficulty breathing? Do they have edema? What specific physical features or behavioral manifestations indicate that the patient is “sick?”
- “The patient appears chronically ill.” In what way do they appear chronically ill? Does the patient appear to have lost weight? Patients who lose weight secondary to muscle-wasting diseases (e.g., AIDS, malignancy) have a different appearance than those who are merely thin, and weight loss may be accompanied by loss of muscle mass or atrophy. Does the skin have the appearance of chronic illness (i.e., is it pale, or does it give the appearance of dehydration or loss of subcutaneous tissue)?

These important specific observations are documented in the patient’s chart or health record. Among general observations that should be noted in the initial examination of the patient are posture, body movements, nutritional status, speech pattern, and vital signs.

Posture

The posture that a patient assumes often provides valuable information. Patients who have dyspnea (breathing difficulties) secondary to cardiac disease prefer to sit and may report feeling short of breath when lying flat for even a brief time. Patients with abdominal pain owing to peritonitis prefer to lie perfectly still; even slight jarring of the bed or examination table causes agonizing pain. In contrast, patients with abdominal pain owing to renal or biliary colic are often restless and may pace the room.

Body Movements

There are two kinds of abnormalities of body movement: generalized disruption of voluntary or involuntary movement and asymmetry of movement. The first category includes various tremors; some tremors may occur at rest (Parkinson’s disease), whereas others occur only on voluntary movement (cerebellar ataxia). Other tremors may exist during both rest and activity (alcohol withdrawal syndrome, thyrotoxicosis). Some voluntary or involuntary movements are fine and others are quite coarse. Extreme examples include the convulsive movements of generalized seizures and the choreiform (involuntary and irregular) movements of patients with rheumatic fever or Huntington disease.

Asymmetry of movement, in which only one side of the body is affected, may occur with disorders of the central nervous system (CNS), primarily in those patients who have had a stroke. Patients may have drooping of one side of the face, weakness or paralysis of the extremities on one side of the body, or a foot-dragging gait.



Nutritional Status

Nutritional status is important to note. Obesity may be generalized as a result of excessive intake of calories, or it may be specifically localized to the trunk in patients who have an endocrine disorder (Cushing's disease) or who have been taking corticosteroids for long periods. Loss of weight may be generalized as a result of inadequate caloric intake, or it may be seen in loss of muscle mass with disorders that affect protein synthesis. Nutritional assessment is discussed in more detail later in this chapter.

Speech Pattern

Speech may be slurred because of CNS disease or because of damage to cranial nerves. Recurrent damage to the laryngeal nerve results in hoarseness, as do disorders that produce edema or swelling of the vocal cords. Speech may be halting, slurred, or interrupted in flow in patients with some CNS disorders (e.g., multiple sclerosis, stroke).

Vital Signs and Pain Assessment



The recording of vital signs is a part of every physical examination (Hogan-Quigley et al., 2017). Blood pressure, pulse rate, respiratory rate, and body temperature measurements are obtained and recorded. Acute changes and trends over time are documented, and unexpected changes and values that deviate significantly from a patient's normal values are brought to the attention of the patient's primary provider. Pain is also assessed and documented, if indicated (see [Chapter 9](#) for further discussion).

Focused Assessment

Following the general inspection, a more focused assessment is conducted. Although the sequence of physical examination depends on the circumstances and the patient's reason for seeking health care, the complete examination usually proceeds as follows:

- Skin
- Head and neck
- Thorax and lungs
- Breasts
- Cardiovascular system
- Abdomen
- Rectum
- Genitalia
- Neurologic system
- Musculoskeletal system

In clinical practice, all relevant body systems are tested throughout the physical examination, not necessarily in the sequence described (Weber & Kelley, 2018). For example, when the face is examined, it is appropriate to check for facial asymmetry and, thus, for the integrity of the fifth and seventh cranial nerves; the examiner does not need to repeat this as part of a neurologic examination. When systems are combined in this manner, the patient does not need to change positions repeatedly, which can be exhausting and time-consuming.

The traditional sequence in the focused portion of the examination is inspection, palpation, percussion, and then auscultation, except in the case of an abdominal examination (in which auscultation precedes palpation and percussion).

Inspection

The first fundamental technique is **inspection**, or observation of each relevant body system in more detail as indicated from the health history or the general inspection. Characteristics such as skin color, presence and size of lesions, edema, erythema, symmetry, and pulsations are noted. Specific body movements that are noted on inspection include spasticity, muscle spasms, and an abnormal gait (Norris, 2019).

Palpation

Palpation, which utilizes the sense of touch, is a vital part of the physical examination. Many structures of the body, although not visible, may be assessed through the techniques of light and deep palpation (Fig. 4-3). Examples include the superficial blood vessels, lymph nodes, thyroid gland, organs of the abdomen and the pelvis, and rectum. When the abdomen is examined, auscultation is performed before palpation and percussion to avoid altering bowel sounds (Hogan-Quigley et al., 2017; Weber & Kelley, 2018).



Figure 4-3 • A. Light palpation. B. Deep palpation.

Some sounds generated within the body, if within specified frequency ranges, may also be detected through touch. For example, turbulent flow in the heart or within blood vessels (thrills) may be detected. Thrills cause a sensation to the hand much like the purring of a cat. Voice sounds are transmitted along the bronchi to the periphery of the lung. These may be perceived by touch and may be altered by disorders affecting the lungs. The phenomenon is called *tactile fremitus* and is useful in assessing diseases of the chest. The significance of these findings is discussed in [Chapters 17](#) and [21](#).

Percussion

The technique of **percussion** translates the application of physical force into sound. It is a skill requiring practice that yields much information about disease processes in the chest and the abdomen (Hogan-Quigley et al., 2017; Weber & Kelley, 2018). The principle is to set the chest wall or abdominal wall into vibration by striking it with a firm object. The sound produced reflects the density of the underlying structure. Certain densities produce sounds as percussion notes. These sounds, listed in a sequence that proceeds from the least to the densest, are tympany, hyperresonance, resonance, dullness, and flatness. Tympany is the drumlike sound produced by percussing the air-filled stomach. Hyperresonance is audible when one percusses over inflated lung tissue in a person with emphysema. Resonance is the sound elicited over air-filled lungs. Percussion of the liver produces a dull sound, whereas percussion of the thigh produces a flat sound.

Percussion allows the examiner to assess such normal anatomic details as the borders of the heart and the movement of the diaphragm during inspiration. It is also possible to determine the level of a pleural effusion (fluid in the pleural cavity) and the location of a consolidated area caused by pneumonia or atelectasis (collapse of alveoli). The use of percussion is described further with disorders of the thorax and the abdomen (see [Chapters 17 and 38](#)).



Concept Mastery Alert

Whereas auscultation involves listening to sounds produced within the body by the movement of air, percussion involves applying physical force to the body in order to discern what sounds are made, thereby assessing internal organs. Hyperresonance is audible when one percusses over inflated lung tissue in a person with emphysema.

Auscultation

Auscultation is the skill of listening to sounds produced within the body created by the movement of air or fluid ([Fig. 4-4](#)). A stethoscope is typically used to enhance this technique. Examples include breath sounds, the spoken voice, bowel sounds, heart sounds, and cardiac murmurs. Physiologic sounds may be normal (e.g., first and second heart sounds) or pathologic (e.g., heart murmurs in diastole, crackles in the lung). Some normal sounds may be distorted by abnormalities of structures through which the sound must travel (e.g., changes in the character of breath sounds as they travel through the consolidated lung of a patient with lobar pneumonia).



Figure 4-4 • Auscultation of the heart in forward sitting position.

Sound produced within the body, if of sufficient amplitude, may be detected with the stethoscope, which functions as an extension of the human ear and channels sound. The nurse must avoid touching the tubing or rubbing other surfaces (hair, clothing) during auscultation to minimize extraneous noises. Sounds detected by auscultation are classified according to their intensity (loud or soft), pitch (high or low), duration (length), and quality (musical, raspy, crackling) (Hogan-Quigley et al., 2017; Weber & Kelley, 2018).

Nutritional Assessment

Nutrition is important to maintain health and to prevent disease and premature death. When illness or injury occurs, optimal nutrition is essential for recovery, healing, and for resisting infection and other complications. An in-depth nutritional assessment is often integrated into the health history and physical examination. Assessment of a patient's nutritional status provides information about obesity, undernutrition, and malnutrition.

Certain signs that suggest possible nutritional deficiency, such as muscle wasting, poor skin integrity, loss of subcutaneous tissue, and obesity, are easy to note because they are evident and objective. Other physical signs may be subtle, or the patient may report subjective symptoms, which must be carefully assessed. It is important to note that some signs and symptoms that appear to

indicate nutritional deficiency may actually reflect other systemic conditions (e.g., endocrine disorders, infectious disease). Others may result from impaired digestion, absorption, excretion, or storage of nutrients in the body (Norris, 2019; Weber & Kelley, 2018). Disorders caused by nutritional deficiency, overeating, or eating unhealthy foods are among the leading causes of illness and death in the United States today. Examples of health problems associated with poor nutrition include obesity, osteoporosis, cirrhosis, diverticulitis, and eating disorders.



Obesity is a major concern for children, adolescents, and adults in the United States and globally. The World Health Organization (WHO) defines obesity as abnormal or excessive fat accumulation that may impair health. Obesity and being overweight are leading risk factors for global deaths; most of the world's population lives in countries where overweight and obesity kill more people than underweight. In addition, coronary artery disease, diabetes, musculoskeletal disorders, and certain cancers can be attributable to obesity (WHO, 2019) (see [Chapter 42](#) for a detailed discussion of obesity).

Lifespan Considerations

When the nurse conducts a nutritional assessment, two age groups merit special consideration: adolescents and older adults. Key considerations for each group are highlighted below.

Adolescents

Adolescence is a time of critical growth and when lifelong eating and exercise habits are established. Nutritional assessment is particularly important during this time period. In general, adolescents gain 40% of their adult weight and 15% of their adult height during this developmental stage of life (Lassi, Moin, & Bhutta, 2017). It is vital to assess for obesity in adolescents to prevent complications from obesity as they grow and develop, as well as when they enter adulthood.

Adolescent girls should consume approximately 1400 to 2400 calories daily; whereas, adolescent boys require between 1600 to 3200 calories each day to support their greater growth needs in terms of both overall size and muscle mass. Athletes of either gender may need to consume up to 5000 calories daily to support their metabolic demands. In adolescents of both genders, sufficient micronutrients such as calcium, B-complex vitamins, iron, and folate are necessary to support increased metabolic activity during this time of growth. Adolescent girls are at particular nutritional risk, because they are thought to be exposed to expectations to diet and maintain a thin body. As a consequence, many adolescent girls are purposely deficient in their intake of dairy products, because they are caloric-rich. However, dairy products provide an important

source of calcium that is necessary in order to build bone mass. Adolescents of both genders are at risk for behavioral eating disorders, such as anorexia, bulimia, and binge-eating disorders, although girls are at greater risk (Lassi et al., 2017).



Older Adults

Older adults are also at risk for altered nutrition. Nutritional assessment in the older adult should include inquiry about the patient's current dietary practices as well as a nutritional screening to assess for adequate nutrition. The Mini Nutritional Assessment is a commonly used, well-validated tool developed specifically for this purpose (Chart 4-5). Many older adults adhere to specific diets, such as those low in saturated fat or sodium, for improving or maintaining health. Proper nutrition for an older adult meets daily requirements, maintains ideal body weight, and addresses specific health concerns such as cardiovascular or renal disease (Eliopoulos, 2018).

Older adults are particularly at high risk for poor nutrition due to factors that may include social isolation, frailty, cognitive impairment, polypharmacy (i.e., use of multiple prescription and OTC medications), reduced functional status, and financial instability (Astrup & O'Connor, 2018). Disorders affecting any part of the gastrointestinal tract can alter nutritional requirements and health status in people of any age; however, such disorders are likely to occur more quickly and more frequently in older adults. Acute and chronic diseases may affect the metabolism and utilization of nutrients, which already are altered by the aging process. Even well older adults may be nutritionally at risk because of decreased odor perception, poor dental health, limited ability to shop and cook, financial hardship, and the fact that they often eat alone (Eliopoulos, 2018).

Polypharmacy also may place older adults at risk nutritionally. The number of adverse reactions increases proportionately with the number of medications taken. Age-related physiologic and pathophysiologic changes may alter the metabolism and elimination of many medications (Eliopoulos, 2018). Medications can influence food intake by producing side effects such as nausea, vomiting, decreased appetite, and changes in cognition. They may also interfere with the distribution, utilization, and storage of nutrients.

Components of Nutritional Assessment

The sequence of the assessment may vary; however, evaluation of a patient's nutritional status includes the use of one or more of the following methods: measurement of body mass index (BMI) and waist circumference, biochemical assessment, clinical examination findings, and dietary data. Measurement of BMI and waist circumference is recommended to determine whether a patient has obesity (CDC, 2019a).



Body Mass Index, Ideal Weight, and Waist Circumference

Body mass index (BMI) is a ratio based on body weight and height (Table 4-1). The obtained value is compared to established standards; however, trends or changes in values over time are considered more useful than isolated or one-time measurements. BMI is highly correlated with body fat, although increased lean body mass or a large body frame can also increase the BMI. People who have a BMI lower than 18.5 (or who are 80% or less of their desirable body weight for height) are at increased risk for problems associated with poor nutritional status. In addition, a low BMI is associated with a higher mortality rate among hospitalized patients and community-dwelling older adults. Those who have a BMI between 25 and 29.9 are considered overweight. Obesity is defined as a BMI of greater than 30 (WHO, 2019). Although there are no current standard recommendations for BMI based on race or ethnicity, there is literature to support that BMI and body fat percentages can vary between genders and among people of different ages and from different ethnic groups (McConnell-Nzunga, Naylor, Macdonald, et al., 2018). In analyzing BMI, the nurse must be aware that there may be weight variance that could be dependent upon age, gender, and ethnicity.

TABLE 4-1 How Is BMI Calculated?^a

Measurement Units	Formula and Calculation
Kilograms and meters (or centimeters)	Formula: weight (kg)/[height (m)] ² With the metric system, the formula for BMI is weight in kilograms divided by height in meters squared. Because height is commonly measured in centimeters, divide height in centimeters by 100 to obtain height in meters. Example: Weight = 68 kg, Height = 165 cm (1.65 m) Calculation: $68/(1.65)^2 = 24.98$
Pounds and inches	Formula: weight (lb)/[height (in)] ² × 703 Calculate BMI by dividing weight in pounds (lb) by height in inches (in) squared and multiplying by a conversion factor of 703. Example: Weight = 150 lb, Height = 65 in Calculation: $[150/(65)^2] \times 703 = 24.96$

^aBMI is calculated the same way for both adults and children. The calculation is based on formulas within this table.

BMI, body mass index.

Adapted from the Centers for Disease Control and Prevention (CDC). (2019b). About body mass index (BMI). Retrieved on 6/9/2019 at:
www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html

Chart 4-5



Mini Nutritional Assessment

The Mini Nutritional Assessment (MNA) is a six-item tool designed to identify adults aged 65 y and older who are either malnourished or at risk for becoming malnourished. It is available in several languages and there are several methods of delivery, including self-assessment as well as an electronic health record (EHR) version. It provides a more sensitive measure than body mass index (BMI) in identifying older adults in long-term care facilities at risk for malnutrition (Nestlé Nutrition Institute, 2011).

Mini Nutritional Assessment MNA®

Nestlé
Nutrition Institute

Last name:

First name:

Sex:

Age:

Weight, kg:

Height, cm:

Date:

Complete the screen by filling in the boxes with the appropriate numbers. Total the numbers for the final screening score.

Screening

- A Has food intake declined over the past 3 months due to loss of appetite, digestive problems, chewing or swallowing difficulties?**

0 = severe decrease in food intake
1 = moderate decrease in food intake
2 = no decrease in food intake

- B Weight loss during the last 3 months**

0 = weight loss greater than 3 kg (6.6 lbs)
1 = does not know
2 = weight loss between 1 and 3 kg (2.2 and 6.6 lbs)
3 = no weight loss

- C Mobility**

0 = bed or chair bound
1 = able to get out of bed / chair but does not go out
2 = goes out

- D Has suffered psychological stress or acute disease in the past 3 months?**

0 = yes 2 = no

- E Neuropsychological problems**

0 = severe dementia or depression
1 = mild dementia
2 = no psychological problems

- F1 Body Mass Index (BMI) (weight in kg) / (height in m²)**

0 = BMI less than 19
1 = BMI 19 to less than 21
2 = BMI 21 to less than 23
3 = BMI 23 or greater

IF BMI IS NOT AVAILABLE, REPLACE QUESTION F1 WITH QUESTION F2.
DO NOT ANSWER QUESTION F2 IF QUESTION F1 IS ALREADY COMPLETED.

- F2 Calf circumference (CC) in cm**

0 = CC less than 31
3 = CC 31 or greater

Screening score (max. 14 points)

12 - 14 points: Normal nutritional status

8 - 11 points: At risk of malnutrition

0 - 7 points: Malnourished

References

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For more information: www.mna-elderly.com

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It is important to assess for usual body weight and height and to compare these values with ideal weight (see Chapter 42, Fig. 42-3). Current weight does

not provide information about recent changes in weight; therefore, patients are asked about their usual body weight and any recent weight loss or gain. Loss of height may be attributable to osteoporosis—an important problem related to nutrition, especially in postmenopausal women (Hogan-Quigley et al., 2017; Weber & Kelley, 2018).

In addition to the calculation of BMI, waist circumference measurement is a useful assessment tool. To measure waist circumference, a tape measure is placed in a horizontal plane around the abdomen at the level of the iliac crest. A waist circumference greater than 40 inches for men or 35 inches for women indicates excess abdominal fat. Those with a high waist circumference are at an increased risk for diabetes, dyslipidemias, hypertension, heart attack, and stroke (Hogan-Quigley et al., 2017; Weber & Kelley, 2018).

Biochemical Assessment

Biochemical measurements are applicable to a patient's nutritional assessment as they can test the level of a given nutrient and reflect abnormalities of metabolism in relation to the utilization of nutrients. Tests of serum and urine are done to determine whether the values are within an acceptable range. Some of these tests, while reflecting recent intake of the elements detected, can also identify a long-term deficiency (below-normal levels) even when there are no clinical symptoms of deficiency.

Low serum albumin and prealbumin levels are most often used as measures of protein deficit in adults. Albumin synthesis depends on normal liver function and an adequate supply of amino acids. Because the body stores a large amount of albumin, the serum albumin level may not decrease until malnutrition is severe; therefore, its usefulness in detecting recent protein depletion is limited. Decreased albumin levels may be caused by overhydration, liver or renal disease, or excessive protein loss due to burns, major surgery, infection, or cancer. Serial measurements of prealbumin levels are used to assess the effectiveness of nutritional therapy.

Additional laboratory data, such as levels of transferrin and retinol-binding protein, and complete blood and electrolyte counts, are used in many institutions. Transferrin is a protein that binds and carries iron from the intestine through the serum. Because of its short half-life, transferrin levels decrease more quickly than albumin levels in response to protein depletion. Low levels of transferrin can also lead to a deficiency in iron; low availability of iron in the body limits the synthesis of functioning hemoglobin causing anemia. Although measurement of retinol-binding protein is not available from many laboratories, it may be a useful means of monitoring acute, short-term changes in protein status. The total lymphocyte count may be reduced in people who are acutely malnourished as a result of stress and low-calorie feeding, as well as in those with impaired cellular immunity. Anergy, or the absence of an immune response to injection of small concentrations of recall antigen under the skin, may also

indicate malnutrition because of delayed antibody synthesis and response. Serum electrolyte levels provide information about fluid and electrolyte balance and kidney function.

A 24-hour urine collection can be utilized to calculate the creatinine/height index that assesses metabolically active tissue and indicates the degree of protein depletion. The amount of creatinine is measured and the index is calculated on the basis of the patient's height and gender. The patient's creatinine/height index is then compared to normal ranges based on the expected body weight by height. Values lower than normal may indicate loss of lean body mass and protein malnutrition (Fischbach & Fischbach, 2018).

Clinical Examination

The state of nutrition is often reflected in a person's appearance. Although the most obvious physical sign of good nutrition is a normal body weight with respect to height, body frame, and age, other tissues can serve as indicators of general nutritional status and adequate intake of specific nutrients; these include the hair, skin, teeth, gums, mucous membranes, mouth and tongue, skeletal muscles, abdomen, lower extremities, and thyroid gland ([Table 4-2](#)).

Dietary Data

Commonly used methods of determining individual eating patterns include the food record, the 24-hour food recall, and a dietary interview. Each of these methods helps estimate whether food intake is adequate and appropriate. If these methods are used to obtain the dietary history, instructions must be given to the patient about measuring and recording food intake.

Methods of Collecting Data

The nurse may employ multiple methods to collect a patient's dietary data. Two common methods described here include the food record and the 24-hour recall.

Food Record

The food record, also called the food diary, is used most often in nutritional status studies. A person is instructed to keep a record of food consumed over a period of time, varying from 3 to 7 days, and to accurately estimate and describe the specific foods consumed. Food records are fairly accurate if the person is willing to provide factual information and is able to estimate food quantities.

TABLE 4-2 Physical Indicators of Nutritional Status

Indicator	Signs of Good Nutrition	Signs of Poor Nutrition
General appearance	Alert, responsive	Listless, appears acutely or chronically ill
Hair	Shiny, lustrous; firm, healthy scalp	Dull and dry, brittle, dyspigmentation, alopecia (hair loss)
Face	Skin color uniform; healthy appearance	Skin dark over cheeks and under eyes, skin flaky, face swollen or hollow/sunken cheeks, moon face, pallor
Eyes	Bright, clear, moist	Xerophthalmia (pale conjunctiva, dry mucosa), increased vascularity, xanthelasma (yellow subdermal fat deposits around the lids)
Lips	Good color (pink), smooth	Swollen and puffy, angular stomatitis (cracks at corners), cheilosis (angular lesion at corners of mouth)
Tongue	Deep red in appearance; surface papillae present	Glossitis (smooth appearance, swollen, beefy-red or magenta), sores, atrophic papillae
Teeth	Straight, no crowding, no dental caries, bright	Delayed eruption, dental caries, fluorosis (mottled appearance), malpositioned
Gums	Firm, good color (pink)	Spongy, scrotal (bleeding), marginal redness, recession
Thyroid	No enlargement of the thyroid	Simple goiter (thyroid enlargement)
Skin	Smooth, good color, moist	Rough, dry, flaky, swollen, pale, pigmented; lack of fat under skin
Nails	Firm, pink	Spoon shaped, ridged, brittle
Skeleton	Good posture, no malformation	Stunted growth, poor posture, rachitic rosary (beading of ribs), bowed legs (rickets), narrow chest (pigeon breast), loss of fat, muscle wasting
Muscles	Well developed, firm	Flaccid, poor tone, wasted, underdeveloped
Extremities	No tenderness	Weak and tender, loss of fat, muscle wasting, edematous
Abdomen	Flat	Swollen
Nervous system	Normal reflexes	Decreased or absent ankle and knee reflexes, confusion, neuropathy, tetany
Weight	Normal for height, age, and body build	Overweight or underweight

Adapted from Fenske, C., Watkins, K., Saunders, T., et al. (2020). *Health & physical assessment in nursing* (4th ed.). Hoboken, NJ: Pearson Education, Inc.

24-Hour Recall

As the name implies, the 24-hour recall method is a recall of food intake over a 24-hour period. A person is asked to recall all foods eaten during the previous day and to estimate the quantities of each food consumed. Because information does not always represent usual intake, at the end of the interview the patient is asked whether the previous day's food intake was typical. To obtain supplementary information about the typical diet, it is also necessary to ask how frequently the person eats foods from the major food groups.

Dietary Interview

The success of the interviewer in obtaining information for dietary assessment depends on effective communication, which requires that good rapport be established to promote respect and trust. The interview is conducted in a nondirective and exploratory way, allowing the respondent to express feelings and thoughts while encouraging them to answer specific questions. The manner in which questions are asked influences the respondent's cooperation. The interviewer must be nonjudgmental and avoid expressing disapproval by verbal comments or facial expression.

Several questions may be necessary to elicit the information needed. When attempting to elicit information about the type and quantity of food eaten at a particular time, open-ended questions should be utilized. In addition, assumptions should not be made about the size of servings; instead, questions are phrased to clearly determine the quantities. For example, to help determine the size of one hamburger, the patient may be asked, "How many servings were prepared with the pound of meat you bought?" Another approach to determining quantities is to use food models of known sizes in estimating portions of meat, cake, or pie, or to record quantities in common measurements, such as cups or spoonfuls (or the size of containers when discussing intake of bottled beverages).

In recording a particular combination dish, such as a casserole, it is useful to ask about the ingredients, recording the largest quantities first. When recording quantities of ingredients, the interviewer notes whether the food item was raw or cooked and the number of servings provided by the recipe. When a patient lists the foods for the recall questionnaire, it may help read back the list of foods and ask whether anything was forgotten, such as condiments, fruit, cake, candy, between-meal snacks, or alcoholic beverages.

Cultural, Ethnic, and Religious Considerations

Individuals' culture, ethnicity, or personal beliefs determine to a large extent which foods are eaten and how they are prepared and served. Cultural and religious practices can determine whether certain foods are prohibited ([Chart 4-](#)

6) and whether certain foods and spices are eaten on holidays or at specific family gatherings. Because of the value of food pattern choices to many individuals, the nurse must be sensitive to these choices when obtaining a dietary history. Equally important, the nurse must not stereotype individuals and assume that because they are from a certain culture or religious group, they adhere to specific dietary customs. Specific eating patterns, such as vegan or vegetarian, should be explored so that appropriate dietary recommendations can be offered (U.S. Department of Agriculture [USDA] & HHS, 2019). Deficiencies in certain diets may cause disorders such as anemia (see [Chapter 29](#) for further discussion).

Chart 4-6

Prohibited Foods and Beverages of Select Religious Groups

Hinduism

All meats
Animal shortenings/fats

Islam

Pork
Alcoholic products and beverages (including extracts, such as vanilla and lemon)
Animal shortenings
Gelatin made from pork, marshmallow, and other confections made with gelatin
Note: *Halal* is lawful food that may be consumed according to tenets of the Koran, whereas *Haram* is food that is unlawful to consume.

Judaism

Pork
Predatory fowl
Shellfish and scavenger fish (e.g., shrimp, crab, lobster, escargot, catfish). Fish with fins and scales are permissible.
Mixing milk and meat dishes at same meal
Blood by ingestion (e.g., blood sausage, raw meat).
Note: Packaged foods will contain labels identifying kosher ("properly preserved" or "fitting") and pareve (made without meat or milk) items.

Church of Jesus Christ of Latter-Day Saints (formerly known as Mormonism)

Alcohol
Beverages containing caffeine stimulants (coffee, tea, colas, and selected carbonated soft drinks)

Seventh-Day Adventism

Alcohol
Beverages containing caffeine stimulants (coffee, tea, colas, and selected carbonated soft drinks)
Pork
Certain seafood, including shellfish
Fermented beverages
Note: Optional vegetarianism is encouraged.

Adapted from Giger, J. (2016). *Transcultural nursing: Assessment and intervention* (7th ed.). St. Louis, MO: Elsevier; Holland, K. (2018). *Cultural awareness in nursing and healthcare: An introductory text* (3rd ed.). New York: Taylor & Francis.

The cultural context of food varies widely but usually includes one or more of the following: relief of hunger; promotion of health and healing; prevention

of disease or illness; expression of caring for another; promotion of interpersonal closeness among individual people, families, groups, communities, or nations; and promotion of kinship and family alliances. Food is also associated with strengthening of social ties; observance of life events (e.g., birthdays, marriages, funerals); expression of gratitude or appreciation; recognition of achievement or accomplishment; validation of social, cultural, or religious ceremonial functions; facilitation of business negotiations; and expression of affluence, wealth, or social status.

Culture influences which foods are served and when they are served, the number and frequency of meals, who eats with whom, and who receives the choicest portions. Culture also may influence how foods are prepared and served, how they are eaten (with chopsticks, hands, or fork, knife, and spoon), and where people shop (e.g., ethnic grocery stores, specialty food markets). Culture also determines the impact of excess weight and obesity on self-esteem and social standing. In some cultures, physical bulk is viewed as a sign of affluence and health (e.g., a chubby baby is a healthy baby).

Religious practices may include fasting (e.g., Catholics, Buddhists, Jews, Muslims) and abstaining from selected foods at particular times (e.g., Catholics abstain from meat on Ash Wednesday and on Fridays during Lent). Practices may also include the ritualistic use of food and beverages (e.g., Passover dinner, consumption of bread and wine during religious ceremonies; see [Chart 4-6](#)).

Most groups feast, often in the company of family and friends, on selected holidays. For example, many Christians eat large dinners on Christmas and Easter and consume other traditional high-calorie, high-fat foods, such as seasonal cookies, pastries, and candies. These culturally based dietary practices are especially significant in the care of patients with diabetes, hypertension, gastrointestinal disorders, obesity, and other conditions in which diet plays a key role in the treatment and health maintenance regimen.

Evaluating Dietary Information

After obtaining basic dietary information, the nurse evaluates the patient's dietary intake and communicates the information to the dietitian and the rest of the health care team for more detailed assessment and clinical nutrition intervention. If the goal is to determine whether the patient generally eats a healthful diet, their food intake may be compared with the dietary guidelines outlined in the USDA's Center for Nutrition Policy & Promotion's MyPlate ([Fig. 4-5](#)). Foods are divided into five major groups (fruits, vegetables, grains, protein foods, and dairy), plus oils. Recommendations are provided related to variety in the diet, proportion of food from each food group, and moderation in eating fats, oils, and sweets. A patient's food intake is compared with recommendations based on various food groups for different age groups and activity levels (Weber & Kelley, 2018).

If nurses or dietitians are interested in knowing about the intake of specific nutrients, such as vitamin A, iron, or calcium, the patient's food intake is

analyzed by consulting a list of foods and their composition and nutrient content. The diet is analyzed in terms of grams and milligrams of specific nutrients. The total nutritive value is then compared with the recommended dietary allowances specific for the patient's age category, gender, and special circumstances such as pregnancy or lactation.

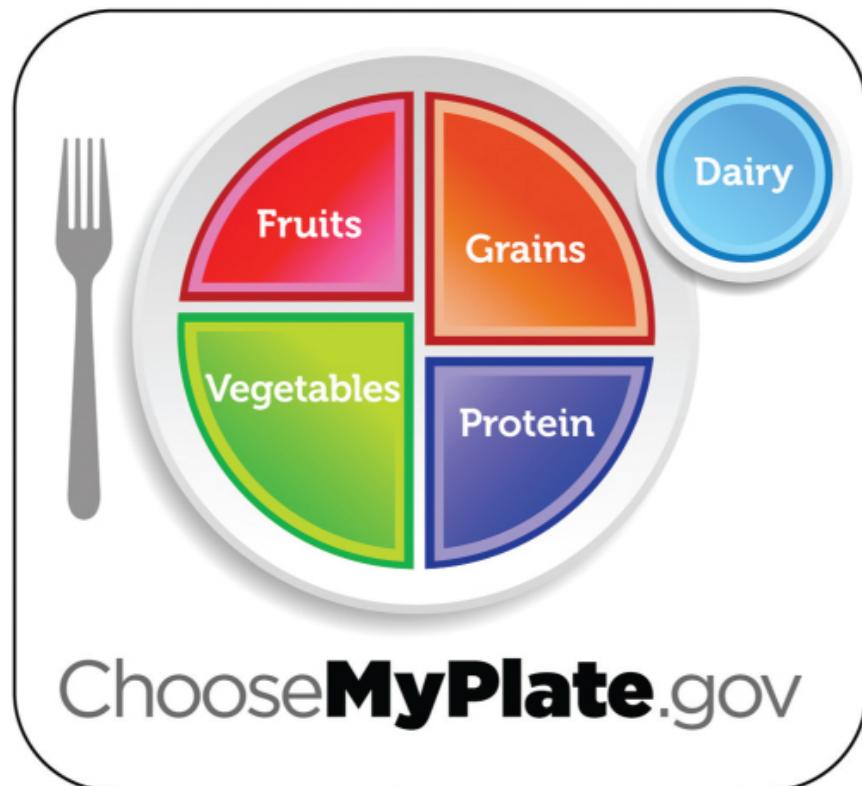


Figure 4-5 • MyPlate, a simple reminder for healthy eating. From the U.S. Department of Agriculture's Center for Nutrition Policy & Promotion. Retrieved on 7/24/2019 at: www.choosemyplate.gov

Fat intake and cholesterol levels are additional aspects of the nutritional assessment. Trans fats are produced when hydrogen atoms are added to monounsaturated or polyunsaturated fats to produce a semisolid product, such as margarine. Partially hydrogenated oils (PHOs), the primary source of industrially produced trans fats, are found in many popular processed foods, such as baked goods and frozen foods. This is a concern because increased amounts of trans fats have been associated with increased risk for heart disease and stroke. In 2015, the FDA released its final determination that PHOs were not *Generally Recognized as Safe (GRAS)*.

At that time, the FDA announced that manufacturers must stop adding PHOs to processed food, providing a 3-year compliance period so that food manufacturers could gradually phase out the use of PHOs. However, to allow

for an orderly transition in the marketplace, FDA extended the compliance date for these foods (FDA, 2019).

Factors Influencing Nutritional Status in Various Situations

Patients who are hospitalized may have an inadequate dietary intake because of the illness or disorder that necessitated the hospital stay. Patients who are at home may feel too sick or fatigued to shop and prepare food, or they may be unable to eat because of other physical problems or limitations. Limited or fixed incomes or the high costs of medications may result in insufficient money to buy nutritious foods. Culturally influenced food patterns can also affect nutritional status. Because complex treatments (e.g., mechanical ventilation, intravenous infusions, chemotherapy) once used only in the hospital setting are now being provided in the home and outpatient settings, nutritional assessment of patients in these settings is an important aspect of home and community-based care. Many of the factors that contribute to poor nutritional status are identified in [Table 4-3](#).

Analysis of Nutritional Status

Physical measurements (BMI, waist circumference) and biochemical and dietary data are used in combination to determine a patient's nutritional status. Often, these data provide more information about the patient's nutritional status than the clinical examination, which may not detect subclinical deficiencies unless they become so advanced that overt signs develop. A low intake of nutrients over a long period may lead to low biochemical levels and, without nutritional intervention, may result in characteristic and observable signs and symptoms. A plan of action for nutritional intervention is based on the results of the dietary assessment and the patient's clinical examination. To be effective, the plan should include a healthy diet, maintenance (or control) of weight, and compensation for increased nutritional needs.

Cultural Assessment

Cultural assessment refers to a systematic appraisal or examination of individuals, families, groups, and communities in terms of their cultural beliefs, values, and practices. Nurses need to ensure that patients of all cultures understand what the nurse is trying to accomplish by gathering cultural data during the assessment process in order to avoid misunderstanding (Holland, 2018). In an effort to establish a database for determining a patient's cultural background, nurses have developed cultural assessment tools or modified existing assessment tools (Leininger, 2002) to ensure that transcultural

considerations are included in the plan of care. Giger and Davidhizar's Transcultural Assessment Model can be used to help nurses perform cultural assessments. Questions derived from this model may be used to direct nursing assessment of a person's ethnic, cultural, or religious beliefs and its relationship to their personal and health care traditions ([Chart 4-7](#)) (Giger, 2016). In addition, nurses should gather data on patients' cultural perceptions and family ancestry throughout the assessment process. Nurses should recognize that advancing knowledge about culturally congruent care is important for promoting care that is consistent with the cultural needs of each patient's heritage (Jakub, Turk, Fapohunda, et al., 2018) (see [Chart 4-8](#) for a Nursing Research Profile).

Culturally Mediated Considerations

Nurses should be aware that patients act and behave in various ways, in part because of the influence of culture on behaviors and attitudes. However, although certain attributes and attitudes are frequently associated with particular cultural groups, it is important to remember that not all people from the same cultural background share the same behaviors and views. Although nurses who fail to consider patients' cultural preferences and beliefs are considered insensitive and possibly indifferent, nurses who assume that all members of any one culture act and behave in the same way run the risk of stereotyping people. As stated previously, the best way to avoid stereotyping is to view each patient as a person and to assess the patient's cultural preferences. A thorough cultural assessment using a culture assessment tool or questionnaire can be beneficial.

TABLE 4-3 Factors Associated with Potential Nutritional Deficits

Factor	Possible Consequences
Dental and oral problems (missing teeth, ill-fitting dentures, impaired swallowing or chewing)	Inadequate intake of high-fiber foods
Nothing by mouth (NPO) for diagnostic testing	Inadequate caloric and protein intake; dehydration
Prolonged use of glucose and saline intravenous fluids	Inadequate caloric and protein intake
Nausea and vomiting	Inadequate caloric and protein intake; loss of fluid, electrolytes, and minerals
Diarrhea	Loss of fluid, electrolytes, and minerals; malabsorption of nutrients
Stress of illness, surgery, and/or hospitalization	Increased protein and caloric requirement; increased catabolism
Wound drainage	Loss of protein, fluid, electrolytes, and minerals
Pain	Loss of appetite; inability to shop, cook, eat
Fever	Increased caloric and fluid requirement; increased catabolism
Gastrointestinal intubation	Loss of protein, fluid, and minerals
Tube feedings	Inadequate amounts; variation of nutrients in each formula
Gastrointestinal disease	Inadequate intake and malabsorption of nutrients
Alcoholism	Inadequate intake of nutrients; increased consumption of calories without other nutrients; vitamin deficiencies
Depression	Loss of appetite; inability to shop, cook, eat
Eating disorders (anorexia, bulimia)	Inadequate caloric and protein intake; loss of fluid, electrolytes, and minerals
Medications	Inadequate intake due to medication side effects, such as dry mouth, loss of appetite, decreased taste perception, difficulty swallowing, nausea and vomiting, malabsorption of nutrients
Restricted ambulation or disability	Limited ability to shop, cook, or help self to food, liquids, other nutrients

Chart 4-7 ASSESSMENT

Assessing for Patients' Cultural Beliefs

Communication

- Do you like communicating with friends, family, and acquaintances?
- When asked a question, do you usually respond?
- If you have something important to discuss with your family, how would you approach them?

Space

- When you talk with family members, how close do you stand?
- When you talk with acquaintances, how close do you stand?
- If a stranger touches you, how do you react or feel?
- If a loved one touches you, how do you react or feel?
- Are you comfortable with the distance between us now?

Social Organization

- What are some activities that you enjoy?
- What are your hobbies, or what do you do when you have free time?
- Do you believe in a Supreme Being?
- How do you worship that Supreme Being?
- What is your role in your family/unit system?

Time

- Do you wear a timepiece daily?
- If a nurse tells you that you will receive a medication "in about a half hour," how much time will you allow before calling the nurse?

Environmental Control

- Is it acceptable for you to have visitors drop in unexpectedly?
- Do you use home remedies? Which home remedies worked? Will you use them in the future?
- What is your definition of "good health"?
- What is your definition of illness or "poor health"?

Biologic Variations

- What diseases or illnesses are common in your family?
- Who usually helps you to cope during a difficult time?
- What foods do you and your family like to eat? What foods are family favorites or are considered traditional?

Nursing Process Utilization

- Note whether the patient has become culturally assimilated or observes own cultural practices.
- Incorporate data into the plan of nursing care.

Adapted from Giger, J. (2016). *Transcultural nursing: Assessment and intervention* (6th ed.). St. Louis, MO: Elsevier.

Chart 4-8



NURSING RESEARCH PROFILE

Cultural Beliefs, Perceptions, and Practices of Adult Children of African Immigrants

Jakub, K. E., Turk, M. T., Fapohunda, A., et al. (2018). Cultural beliefs, perceptions, and practices of young adult offspring of African immigrants regarding healthy eating and activity. *Journal of Transcultural Nursing*, 29(6), 548–554.

Purpose

The purpose of this study was to understand and explore the beliefs, perceptions, and practices of young adult offspring of African immigrants regarding healthy eating and activities in the context of their environment and culture. The researchers also examined what influences the beliefs, perceptions, and practices of the study population.

Design

Using a focused ethnography design, five small group interviews consisting of two to six participants were conducted yielding a total of 20 college-age students who were offspring of African immigrants. Focused group semistructured interviews were digitally recorded during the data collection. Data collection was completed upon determination of data saturation. Leininger's four phases of qualitative data analysis were used to analyze the data.

Findings

The 20 participants, between the ages of 18 and 23, reported parental ancestry from eight different countries of the African continent: 11 from Nigeria, 3 from Ghana, and 1 participant each from Ethiopia, Cameroon, Egypt, Sudan, Liberia, and Eritrea. Seventeen categories, six patterns, and four themes emerged from the data. The four themes included (1) family, community, and religious ties to traditional African foods; (2) traditional African cuisine as healthy and American foods as nonhealthy; (3) eating patterns vary according to availability and resources; and (4) exercise patterns have familial, peer-driven, and generational influences significant to this college-age group. Participants also reported balancing acculturation into a university setting. Food choices were influenced by living arrangements, availability, financial resources, and time constraints.

Nursing Implications

Nurses should assess cultural perceptions and family ancestry that may affect a patient's perceptions of health and activity levels. Advancing knowledge about culturally congruent care is important and may promote healthy behaviors that include better eating habits and activity for college-age offspring of immigrants. Efforts should be made to identify the country of origin of patients and develop educational or health promoting programs to manage wellness specific to each patient's heritage.

Information Disclosure

Many aspects of care may be influenced by the diverse cultural perspectives held by health care providers, patients, families, or significant others. One example is the issue of communication and full disclosure. In general, nurses may argue that patients have the right to full disclosure concerning their disease and prognosis and may believe that advocacy means working to provide that disclosure. However, family members in some cultural backgrounds may believe that it is their responsibility to protect and spare the patient (their loved one) knowledge about a terminal illness. In some cultures, the head of the family group, older adult, or husband is expected to receive all information and make decisions. Patients may in fact not want to know about their condition and may expect their family members to “take the burden” of that knowledge and related decision making. Nurses should not decide that a family or patient is simply wrong or that a patient must know all of the details of their illness regardless of the patient’s preference. Similar concerns may be noted when patients refuse pain medication or treatment because of cultural beliefs regarding pain or beliefs in divine intervention or faith healing.

Determining the most appropriate and ethical approach to patient care requires an exploration of the cultural aspects of these situations. Self-examination and recognition of one’s own cultural bias and worldview play a major part in helping the nurse resolve cultural and ethical conflicts. Nurses must promote open dialogue and work with patients, families, primary providers, and other health care providers to reach the culturally appropriate solution for the individual patient.

Space and Distance

Personal space is the area that surrounds a person’s body and includes the space and the objects within the space (Giger, 2016). People tend to regard the space in their immediate vicinity as an extension of themselves. The amount of space that they need between themselves and others to feel comfortable is a culturally determined phenomenon.

Because nurses and patients usually are not consciously aware of their personal space requirements, they frequently have difficulty understanding different behaviors. For example, one patient may perceive the nurse sitting close to them as an expression of warmth and care; another patient may perceive the nurse’s act as a threatening invasion of personal space. Research reveals that people from the United States, Canada, and Great Britain require the most personal space between themselves and others, whereas those from Latin America, Japan, and the Middle East need the least amount of space and feel comfortable standing close to others (Giger, 2016).

If the patient appears to position himself or herself too close or too far away, the nurse should consider cultural preferences for space and distance. Ideally, the patient should be permitted to assume a position that is comfortable to them

in terms of personal space and distance. The nurse should be aware that the wheelchair of a person with a disability is considered an extension of the person; therefore, the nurse should ask the person's permission before moving or touching the wheelchair. Because a significant amount of communication during nursing care requires close physical contact, the nurse should be aware that having personal space promotes self-identity by allowing opportunities for patient self-expression (Giger, 2016).

Eye Contact

Eye contact is also a culturally determined behavior. Although most nurses have been taught to maintain eye contact when speaking with patients, some people from certain cultural backgrounds may interpret this behavior differently. For example, some Asians, Native Americans, Indo-Chinese, Arabs, and Appalachians may consider direct eye contact impolite or aggressive, and they may avert their own eyes when talking with nurses and others whom they perceive to be in positions of authority. Some Native Americans stare at the floor during conversations—a cultural behavior conveying respect and indicating that the listener is paying close attention to the speaker. Some Hispanic patients maintain downcast eyes as a sign of culturally appropriate deferential behavior toward others on the basis of age, gender, social position, economic status, and position of authority (Giger, 2016). Eye contact is an important tool in a transcultural assessment and is used for both observation and to initiate interaction (Giger, 2016). The nurse who is aware that eye contact may be culturally determined can better understand the patient's behavior and provide an atmosphere in which the patient can feel comfortable.

Time

Attitudes about time vary widely among cultures and can be a barrier to effective communication between nurses and patients. Views about punctuality and the use of time are culturally determined, as is the concept of waiting. Symbols of time, such as watches, sunrises, and sunsets, represent methods for measuring the duration and passage of time (Giger, 2016).

For most health care providers, time and promptness are extremely important. For example, nurses frequently expect patients to arrive at an exact time for an appointment, although patients may be kept waiting by health care providers who are running late. Health care providers are likely to function according to an appointment system in which there are short intervals. However, for patients from some cultures, time is a relative phenomenon, with little attention paid to the exact hour or minute. Time may also be determined according to traditional times for meals, sleep, and other activities or events. For people from some cultures, the present is of the greatest importance, and time is viewed in broad ranges rather than in terms of a fixed hour. Being flexible in regard to schedules is the best way to accommodate these differences.

Value differences also may influence a person's sense of priority when it comes to time. For example, responding to a family matter may be more important to a patient than meeting a scheduled health care appointment. Allowing for these different views is essential in maintaining an effective nurse–patient relationship. Scolding or acting annoyed at patients for being late undermines their confidence and may result in further missed appointments or indifference to health care suggestions.

Touch

Touch is the most personal of all sensations, is central to the human communication process, and is often used as a method of communication (Giger, 2016). The meaning that people associate with touching is culturally determined to a great degree. In some cultures (e.g., Hispanic, Arab), male health care providers may be prohibited from touching or examining certain parts of the female body. Similarly, it may be inappropriate for females to care for males. Among many Asians, it is impolite to touch a person's head because the spirit is believed to reside there. Therefore, assessment of the head or evaluation of a head injury requires permission of the patient or a family member, if the patient is not able to give permission.

The patient's culturally defined sense of modesty must also be considered when providing nursing care. For example, some Jewish and Muslim women believe that modesty requires covering their head, arms, and legs with clothing. It is important for the nurse to recognize cultural variances and to understand that touch can be perceived as intrusive to some patients.

Observance of Holidays

People from all cultures observe certain civil and religious holidays. Nurses should familiarize themselves with major observances for members of the cultural groups they serve. Information about these observances is available from various sources, including religious organizations, hospital chaplains, and patients themselves. Routine health appointments, diagnostic tests, surgery, and other major procedures should be scheduled to avoid observances that patients identify as significant. If not contraindicated, efforts should also be made to accommodate patients and families or significant others who wish to perform cultural and religious rituals in the health care setting.

CRITICAL THINKING EXERCISES

1 pq You are conducting an admission assessment on a 66-year-old Vietnamese woman who was recently discharged from the hospital with a diagnosis of congestive heart failure. The patient's blood pressure is elevated, and the patient has a productive cough. The patient speaks very little English, but the patient's son is able to interpret. What types of assessments are necessary to complete a comprehensive admission assessment? What are the priorities in this patient's care? What interventions should you incorporate into the plan of care for this patient?

2 ebp A 28-year-old woman is admitted to the hospital with diverticulitis. She is visibly undernourished with poor skin turgor and loss of subcutaneous tissue. After calculating her ideal body weight, you note that her weight is well below average for her height. What standardized assessment tools would you use to determine her health risk? Identify her health risks, given her decreased weight, based on the most recent evidence. Evaluate the strength of the evidence for these risks.

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*Asterisk indicates nursing research.

**Double asterisk indicates classic reference.

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Alcoholics Anonymous, www.aa.org

Al-Anon Family Groups, www.al-anon.org

American Heart Association, heart.org

Center on Addiction and the Family, www.phoenixhouse.org

Co-Anon Family Groups, www.co-anon.org

Cocaine Anonymous, www.ca.org

Council on Nursing and Anthropology (CONAA), www.conaa.org

Dual Recovery Anonymous World Network Central Office, www.draonline.org

Genetic Alliance, www.geneticalliance.org

Healthcare Information and Management Systems Society, Inc. (HIMSS),
www.himss.org

LanguageLine Solutions, www.languageline.com

Narcotics Anonymous World Services, www.na.org

National Cancer Institute, Cancer Information Service, www.cancer.gov

National Center for Complementary and Integrative Health, nccih.nih.gov

National Center for Cultural Competence (NCCC), Georgetown University Center
for Child and Human Development, nccc.georgetown.edu

National Institute on Drug Abuse, www.drugabuse.gov

Office of Minority Health (OMH), minorityhealth.hhs.gov

Substance Abuse and Mental Health Services Administration (SAMHSA),
www.samhsa.gov

Transcultural Nursing Society, www.tcns.org

5 Stress and Inflammatory Responses

LEARNING OUTCOMES

On completion of this chapter, the learner will be able to:

1. Describe the significance of the principles of internal constancy, homeostasis, stress, and adaptation in promoting and maintaining steady state in the body.
2. Describe the General Adaptation Syndrome and the sympathetic–adrenal–medullary and hypothalamic–pituitary responses to stress.
3. Identify ways in which maladaptive responses to stress can increase the risk of illness and cause disease.
4. Compare the adaptive processes of atrophy, hypertrophy, hyperplasia, metaplasia, and dysplasia within the body’s inflammatory and reparative processes.
5. Assess the health patterns of individuals and families, identifying strategies that are useful in reducing stress.

NURSING CONCEPTS

Anxiety
Cellular Regulation
Communication
Family
Immunity
Inflammation
Stress and Coping

GLOSSARY

adaptation: a change or alteration designed to assist in adjusting to a new situation or environment

adrenocorticotrophic hormone (ACTH): a hormone produced by the anterior lobe of the pituitary gland that stimulates the secretion of cortisol and other hormones by the adrenal cortex

antidiuretic hormone (ADH): a hormone secreted by the posterior lobe of the pituitary gland that constricts blood vessels, elevates blood pressure, and reduces the excretion of urine

catecholamines: any of the group of amines (such as epinephrine, norepinephrine, or dopamine) that serve as neurotransmitters

coping: the cognitive and behavioral strategies used to manage the stressors that tax a person's resources

corticosteroids: the group of steroid hormones, such as cortisol, that are produced by the adrenal cortex; they are involved in carbohydrate, protein, and fat metabolism and have anti-inflammatory properties

disease: an abnormal variation in the structure or function of any part of the body

dysplasia: bizarre cell growth resulting in cells that differ in size, shape, or arrangement from other cells of the same tissue type

family: a group whose members are related by reciprocal caring, mutual responsibilities, and loyalties

fight-or-flight response: the alarm stage in the General Adaptation Syndrome described by Selye

gluconeogenesis: the formation of glucose by the liver from noncarbohydrate sources, such as amino acids and the glycerol portion of fats

guided imagery: the mindful use of a word, phrase, or visual image to achieve relaxation or direct attention away from uncomfortable sensations or situations

homeostasis: a steady state within the body; the stability of the internal environment

hyperplasia: an increase in the number of new cells in an organ or tissue

hypoxia: inadequate supply of oxygen to the cell

inflammation: a localized reaction of tissue to injury, irritation, or infection that is manifested by five cardinal signs of redness, warmth, swelling, pain, and loss of function

metaplasia: a cell transformation in which one type of mature cell is converted into another type of cell

negative feedback: mechanisms that monitor the internal environment and restore homeostasis when conditions shift out of the normal range

positive feedback: mechanisms that perpetuate a chain of events

steady state: a stable condition that does not change over time, or when change in one direction is balanced by change in an opposite direction

stress: a disruptive condition that occurs in response to adverse influences from the internal or external environments

stressor: an internal or external event or situation that creates the potential for physiologic, emotional, cognitive, or behavioral changes

When the body is threatened or suffers an injury, its response may involve functional and structural changes; these changes may be adaptive (having a positive effect) or maladaptive (having a negative effect). The defense mechanisms that the body uses determine the difference between adaptation and maladaptation—health and disease. This chapter addresses individual homeostasis, stress, adaptation, health problems associated with maladaptation, and ways that nurses intervene with patients and families to reduce stress and its health-related effects.

Fundamental Concepts

Each body system performs specific functions to sustain optimal life for an organism. Compensatory mechanisms for adjusting internal conditions promote the steady state of the organism, ensure its survival, and restore balance in the body. Pathophysiologic processes result when cellular injury occurs at such a rapid rate that the body's compensatory mechanisms cannot make the adaptive changes necessary to remain healthy.

Physiologic mechanisms must be understood in the context of the body as a whole. Each person has both an internal and external environment, between which information and matter are continuously exchanged. Within the internal environment, each organ, tissue, and cell is also a system or subsystem of the whole, each with its own internal and external environment, each exchanging information and matter (Fig. 5-1). The goal of the interaction of the body's subsystems is to produce a dynamic balance or **steady state** (even in the presence of change) so that all subsystems are in harmony with each other. Four concepts—constancy, homeostasis, stress, and adaptation—are key to the understanding of steady state.

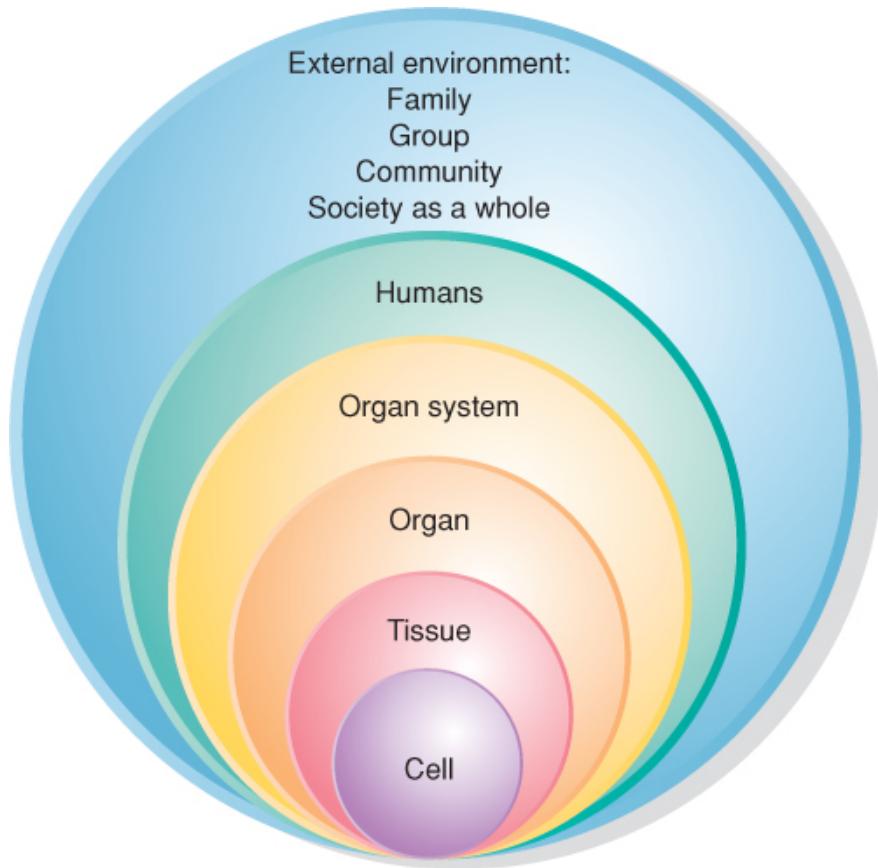


Figure 5-1 • Constellation of systems. Each system is a subsystem of the larger system (suprasystem) of which it is a part. The cells represent the smallest system and are a subsystem of all other systems.

Constancy and Homeostasis

Claude Bernard, a 19th-century French physiologist, first developed the biologic principle that for life there must be a constancy or “fixity of the internal milieu” despite changes in the external environment. The internal milieu is the fluid that bathed the cells, and the constancy the balanced internal state maintained by physiologic and biochemical processes. His principle implies a static process.

Bernard’s principle of “constancy” underpins the concept of **homeostasis**, which refers to a steady state within the body. When a change or stress occurs that causes a body function to deviate from its stable range, processes are initiated to restore and maintain dynamic balance. An example of this restorative effort is the development of hyperpnea (rapid breathing) after intense exercise in an attempt to compensate for an oxygen deficit and excess lactic acid accumulated in the muscle tissue. When these adjustment processes or compensatory mechanisms are not adequate, steady state is threatened,

function becomes disordered, and dysfunctional responses occur. For example, in heart failure, the body reacts by retaining sodium and water and increasing venous pressure, which worsens the condition. Dysfunctional responses can lead to **disease** (an abnormal variation in the structure or function of any part of the body), which is a threat to steady state.

Stress and Adaptation

Stress is a disruptive condition produced by a change in the environment that is perceived as challenging, threatening, or damaging to a person's dynamic balance or equilibrium. The person may feel unable to meet the demands of the new situation. The change or stimulus that evokes this state is the stressor. A person appraises and copes with changing situations. The desired goal is **adaptation** or adjustment to the change so that the person is again in equilibrium and has the energy and ability to meet new demands. This is the process of coping with the stress, a compensatory process that uses cognitive and behavioral strategies.

Because both stress and adaptation may exist at different levels of a system, it is possible to study these reactions at the cellular, tissue, and organ levels. Biologists are concerned mainly with subcellular components or with subsystems of the total body. Behavioral scientists, including many nurse researchers, study stress and adaptation in individuals, families, groups, and societies; they focus on how a group's organizational features are modified to meet the requirements of the social and physical environment in which the group exists. In any system, the desired goals of adaptation are survival, growth, and reproduction.

Overview of Stress

Each person operates at a certain level of adaptation and regularly encounters a certain amount of change. Such change is expected; it contributes to growth and enhances life. A stressor can upset this equilibrium. A **stressor** may be defined as an internal or external event or situation that creates the potential for physiologic, emotional, cognitive, or behavioral changes.

Types of Stressors

Stressors exist in many forms and categories. They may be described as physical, physiologic, or psychosocial. Physical stressors include cold, heat, and chemical agents; physiologic stressors include pain and fatigue. An example of a psychosocial stressor is fear (e.g., fear of failing an examination, losing a job, waiting for a diagnostic test result). Stressors can also occur as

normal life transitions that require some adjustment, such as going from childhood into puberty, getting married, or giving birth.

Stressors have also been classified as day-to-day frustrations or hassles, major complex occurrences involving large groups, and stressors that occur less frequently and involve fewer people. Day-to-day stressors include common occurrences as getting caught in a traffic jam, experiencing computer downtime, and having an argument with a spouse or roommate. These experiences vary in effect. For example, encountering a rainstorm while you are vacationing at the beach will most likely evoke a more negative response than it might at another time. These daily hassles have been shown to have a greater health impact than major life events because of the cumulative effect they have over time. They can lead to high blood pressure, palpitations, or other physiologic problems (Sarid, Slonim-Nevo, Sergienko, et al., 2018; Terrill & Molton, 2019).

Major stressors influence larger groups of individuals, families, and sometimes even entire nations. These include events of history, such as terrorism and war, experienced either directly in the war zone or indirectly through live news coverage. The demographic, economic, and technologic changes occurring in society also serve as stressors. The tension produced by any stressor is sometimes a result not only of the change itself, but also of the speed with which the change occurs.

Stressors concerning relatively infrequent situations that directly affect people have been studied extensively. This category includes the influence of life events such as death, birth, military service, marriage, divorce, and retirement. It also includes the psychosocial crises that occur in the life cycle stages of the human experience. More enduring chronic stressors may include having a permanent disability or coping with the need to provide long-term care for a child who has a developmental disability or for an older parent who is frail.

Duration may also be used to categorize stressors, as in the following:

- An acute, time-limited stressor, such as studying for final examinations
- A stressor sequence—a series of stressful events that result from an initial event such as job loss or divorce
- A chronic intermittent stressor, such as daily hassles
- A chronic enduring stressor that persists over time, such as chronic illness, a disability, or poverty

Stress as a Stimulus for Disease

Relating life events to illness (the theoretical approach that defines stress as a stimulus) has been a major focus of psychosocial studies. Research suggests

that people under constant stress have a high incidence of disease (Kalinowski, Taylor, & Spruill, 2019; Kibler, Ma, Tursich, et al., 2018).

Holmes and Rahe (1967) developed life events scales that assign numerical values, called *life-change units*, to typical life events. Because the items in the scales reflect events that require a change in a person's life pattern, and stress is viewed as an accumulation of changes in one's life that require psychological adaptation, one can theoretically predict the likelihood of illness by checking off the number of recent events and deriving a total score. The Recent Life Changes Questionnaire (RLCQ) (Tausig, 1982) contains 118 items such as death, birth, marriage, divorce, promotions, serious arguments, and vacations. The items include both desirable and undesirable events. Both the life events scale and the RLCQ have formed the basis for the development of two additional scales: the Positive–Negative Relationship Quality Scale (PNRQS) (Fincham & Rogge, 2010), which measures stress related to relationship quality, and the Stress Overload Scale (SOS) (Amirkhan, 2012; Amirkhan, Urizar, & Clark, 2015), which measures excessive stress. A tool developed by Vohra and colleagues (2019) called the Stressometer® (SOM) was designed to measure stress and mental health. This instrument is composed of subscales related to a person's individual nature, personal circumstances, clinical symptoms, home life and work life. The underlying premise of the PNRQS, SOS, and SOM instruments is that sources of stress, such as stressful life events and a person's personal vulnerabilities, can influence and even undermine engaging in adaptive processes.

Sources of stress for people have been well researched (Anniko, Boersma, & Tillfors, 2019; Pitt, Oprescu, Tapia, et al., 2018). People typically experience distress related to alterations in their physical and emotional health status, changes in their level of daily functioning, and decreased social support or the loss of significant others (Albdour, Hong, Lewin, et al., 2019; Benham & Charak, 2019; Reblin, Stanley, Galligan, et al., 2019; Sikes & Hall, 2017). Fears of immobilization, isolation, loneliness, sensory changes, financial problems, and death or disability increase a person's anxiety level. Loss of one's role or perceived purpose in life can cause intense discomfort. Any of these identified variables, plus a myriad of other conditions or demands, are likely to cause ineffective coping, and a lack of effective coping skills is often a source of additional distress for the person. When a person endures prolonged or unrelenting suffering, the outcome is frequently the development of a stress-related illness. Nurses have the skills to assist people to alter their distressing circumstances and manage their responses to stress, as discussed later in the chapter.

Psychological Responses to Stress

After recognizing a stressor, a person consciously or unconsciously reacts to manage the situation. This is termed the *mediating process*. A theory developed by Lazarus (1991) emphasizes cognitive appraisal and coping as important mediators of stress. Appraisal and coping are influenced by antecedent variables, including the internal and external resources of the individual person.

Appraisal of the Stressful Event

Cognitive appraisal (Lazarus, 1991; Lazarus & Folkman, 1984) is a process by which an event is evaluated with respect to what is at stake (primary appraisal) and what might and can be done (secondary appraisal). What a person sees as being at stake is influenced by their personal goals, commitments, or motivations. Important factors include how important or relevant the event is to the person, whether the event conflicts with what the person wants or desires, and whether the situation threatens the person's own sense of strength and ego identity.

Primary appraisal results in the situation being identified as either nonstressful or stressful. Secondary appraisal is an evaluation of what might and can be done about the situation. Reappraisal—a change of opinion based on new information—may occur. The appraisal process is not necessarily sequential; primary and secondary appraisal and reappraisal may occur simultaneously.

The appraisal process contributes to the development of an emotion. Negative emotions such as fear and anger accompany harm/loss appraisals, and positive emotions accompany challenge. In addition to the subjective component or feeling that accompanies a particular emotion, each emotion also includes a tendency to act in a certain way. For example, unprepared students may view an unexpected quiz as threatening. They might feel fear, anger, and resentment and might express these emotions through hostile behavior or comments.

Lazarus (1991) expanded his initial ideas about stress, appraisal, and coping into a more complex model relating emotion to adaptation. He called this model a “cognitive–motivational–relational theory,” with the term *relational* “standing for a focus on negotiation with a physical and social world” (p. 13). A theory of emotion was proposed as the bridge to connect psychology, physiology, and sociology: “More than any other arena of psychological thought, emotion is an integrative, organismic concept that subsumes psychological stress and coping within itself and unites motivation, cognition, and adaptation in a complex configuration” (p. 40).

Coping with the Stressful Event

Coping consists of the cognitive and behavioral efforts made to manage the specific external or internal demands that tax a person's resources and may be emotion focused or problem focused. Emotion-focused coping seeks to make the person feel better by lessening the emotional distress. Problem-focused coping aims to make direct changes in the environment so that the situation can be managed more effectively. Both types of coping usually occur in a stressful situation. Even if the situation is viewed as challenging or beneficial, coping efforts may be required to develop and sustain the challenge—that is, to maintain the positive benefits of the challenge and to ward off any threats. In harmful or threatening situations, successful coping reduces or eliminates the source of stress and relieves the emotion generated.

Appraisal and coping are affected by internal characteristics such as health, energy, personal belief systems, commitments, or life goals, self-esteem, control, mastery, knowledge, problem-solving skills, and social skills. The characteristics that have been studied in nursing research are health-promoting lifestyles and resilience (Callaghan, Fellin, & Alexander, 2019; Marques, Perolta, Santos, et al., 2019; Shen, 2019; Sima, Yu, Marwitz, et al., 2019). Resilience is considered both a personal trait and a process. Researchers have defined resilience as the ability of a person to function well in stressful situations such as traumatic events and other types of adverse situations (Kim, Lin, Kim, et al., 2019). A resilient person maintains flexibility even in difficult circumstances and controls strong emotional reactions using appropriate communication and problem-solving skills. Factors that play a role in building a person's resilience are having strong, supportive relationships with family members and other individuals and being exposed to positive role models. A resilient person knows when to act, when to step back and rely on others, and when to stop to re-energize and nurture the self. Researchers have found positive support for resilience as a significant variable that positively influences rehabilitation and overall improvement after a challenging or traumatic experience (Kok, Reed, Wickham, et al., 2019; Liu, Zhou, Zhang, et al., 2019; McNeil, Bartram, Cregan, et al., 2019; Vaughan, Koczwara, Kemp, et al., 2019).

A health-promoting lifestyle buffers the effect of stressors. From a nursing practice standpoint, this outcome—buffering the effect of stressors—supports nursing's goal of promoting health. In many circumstances, promoting a healthy lifestyle is more achievable than altering the stressors.

Physiologic Response to Stress

The physiologic response to a stressor, whether it is physical, psychological, or psychosocial, is a protective and adaptive mechanism to maintain the body's homeostatic balance. When a stress response occurs, it activates a series of

neurologic and hormonal processes within the brain and body systems. The duration and intensity of the stress can cause both short- and long-term effects.

Selye's Theory of Adaptation

Selye (1976) developed a theory of adaptation to biologic stress that profoundly influenced the scientific study of stress.

General Adaptation Syndrome

Selye's theory, called the *General Adaptation Syndrome* (GAS), has three phases: alarm, resistance, and exhaustion. During the alarm phase, the sympathetic **fight-or-flight response** is activated with release of **catecholamines** (i.e., epinephrine, norepinephrine, and dopamine), that serve as neurotransmitters and the onset of the **adrenocorticotropic hormone (ACTH)**—adrenal cortical response. ACTH is produced by the anterior lobe of the pituitary gland and stimulates the secretion of cortisol as well as other hormones by the adrenal cortex. The alarm reaction is defensive and anti-inflammatory but self-limited. Because living in a continuous state of alarm would result in death, people move into the second stage—resistance. During the resistance stage, adaptation to the noxious stressor occurs, and cortisol activity is still increased. If exposure to the stressor is prolonged, the third stage—exhaustion—occurs. During the exhaustion stage, endocrine activity increases, and this has negative effects on the body systems (i.e., the circulatory, digestive, and immune systems) that can lead to death. The first two stages of this syndrome are repeated, in different degrees, throughout life as the person encounters stressors.

Selye compared the GAS with the life process. During childhood, too few encounters with stress occur to promote the development of adaptive functioning, and children are vulnerable. During adulthood, numerous stressful events occur, and people develop resistance or adaptation. During the later years, the accumulation of life's stressors and wear and tear on the organism again decrease people's ability to adapt, resistance falls, and eventually death occurs.

Local Adaptation Syndrome

According to Selye, a *Local Adaptation Syndrome* also occurs. This syndrome includes the inflammatory response and repair processes that occur at the local site of tissue injury. This syndrome occurs in small, topical injuries, such as contact dermatitis. If the local injury is severe enough, the GAS is activated as well.

Selye emphasized that stress is the nonspecific response common to all stressors, regardless of whether they are physiologic, psychological, or psychosocial. The many conditioning factors in each person's environment account for why different demands are experienced by different people as

stressors. Conditioning factors also account for differences in the tolerance of different people for stress: Some people may develop diseases of adaptation, such as hypertension and migraine headaches, whereas others are unaffected.

Interpretation of Stressful Stimuli by the Brain

Physiologic responses to stress are mediated by the brain through a complex network of chemical and electrical messages. The neural and hormonal actions that maintain homeostatic balance are integrated by the hypothalamus, which is located in the center of the brain, surrounded by the limbic system and the cerebral hemispheres. The hypothalamus is made up of a number of nuclei and integrates autonomic nervous system mechanisms that maintain the chemical constancy of the internal environment of the body. Together with the limbic system, which contains the amygdala, hippocampus, and septal nuclei, along with other structures, the hypothalamus regulates emotions and many visceral behaviors necessary for survival (e.g., eating, drinking, temperature control, reproduction, defense, aggression).

Each of the brain structures responds differently to stimuli. The cerebral hemispheres are concerned with the cognitive functions of thought processes, learning, and memory. The limbic system has connections with both the cerebral hemispheres and the brain stem. In addition, the reticular activating system, a network of cells that forms a two-way communication system, extends from the brain stem into the midbrain and limbic system. This network controls the alert or waking state of the body.

In the stress response, afferent impulses are carried from sensory organs (eye, ear, nose, skin) and internal sensors (baroreceptors, chemoreceptors) to nerve centers in the brain. The response to the perception of stress is integrated in the hypothalamus, which coordinates the adjustments necessary to return to homeostatic balance. The degree and duration of the response vary; initially, there is a sympathetic nervous system discharge, followed by a sympathetic–adrenal–medullary discharge. If the stress persists, the hypothalamic-pituitary system is activated ([Fig. 5-2](#)).

Sympathetic Nervous System Response

The sympathetic nervous system response is rapid and short-lived. Norepinephrine is released at nerve endings that are in direct contact with their respective end organs to cause an increase in function of the vital organs and a state of general body arousal (Norris, 2019). Heart rate increases and peripheral vasoconstriction occurs, raising the blood pressure. Blood is also shunted away from abdominal organs. The purpose of these responses is to provide better perfusion of vital organs (brain, heart, skeletal muscles). Blood glucose is increased, supplying more readily available energy. The pupils dilate, and mental activity increases; a greater sense of awareness exists. Constriction of the blood vessels of the skin limits bleeding in the event of

trauma. The person is likely to experience cold feet, clammy skin and hands, chills, palpitations, and “knots” in the stomach. Typically, the person appears tense, with the muscles of the neck, upper back, and shoulders tightened; respirations may be rapid and shallow, with the diaphragm tense.

Sympathetic–Adrenal–Medullary Response

In addition to directly affecting major end organs, the sympathetic nervous system stimulates the adrenal medulla to release the hormones epinephrine and norepinephrine into the bloodstream. These hormones act similarly to the sympathetic nervous system, sustaining and prolonging its actions. Because these hormones are catecholamines, they stimulate the nervous system and produce metabolic effects that increase the blood glucose level and metabolic rate. The effect of the sympathetic–adrenal–medullary responses is summarized in [Table 5-1](#). This effect is called the *fight-or-flight response* (Norris, 2019).

Hypothalamic-Pituitary Response

The longest-acting phase of the physiologic response, which is more likely to occur in persistent stress, involves the hypothalamic-pituitary pathway. The hypothalamus secretes corticotropin-releasing factor, which stimulates the anterior pituitary to produce ACTH, which in turn stimulates the adrenal cortex to produce **corticosteroids**, primarily cortisol (Norris, 2019). Cortisol stimulates protein catabolism, releasing amino acids; stimulates liver uptake of amino acids and their conversion to glucose (**gluconeogenesis**); and inhibits glucose uptake (anti-insulin action) by many body cells but not those of the brain and the heart (Norris, 2019). These cortisol-induced metabolic effects provide the body with a ready source of energy during a stressful situation. This effect has some important implications. For example, a person with diabetes who is under stress, such as that caused by an infection, needs more insulin than usual. Any patient who is under stress (e.g., illness, surgery, trauma, prolonged psychological stress) catabolizes body protein and needs supplements.

The actions of the catecholamines (epinephrine and norepinephrine) and cortisol are the most important in the general response to stress. Other hormones that play a role are **antidiuretic hormone (ADH)** released from the posterior pituitary and aldosterone released from the adrenal cortex. ADH and aldosterone promote sodium and water retention, which is an adaptive mechanism in the event of hemorrhage or loss of fluids through excessive perspiration. ADH constricts blood vessels, elevates blood pressure, and reduces the excretion of urine. ADH has also been shown to influence learning and may thus facilitate coping in new and threatening situations. Secretion of growth hormone and glucagon stimulates the uptake of amino acids by cells, helping to mobilize energy resources. Endorphins, which are endogenous

opioids, increase during stress and enhance the threshold for tolerance of painful stimuli. They may also affect mood and have been implicated in the so-called high that long-distance runners experience. The secretion of other hormones is also affected; however, their adaptive function is less clear.

Physiology/Pathophysiology

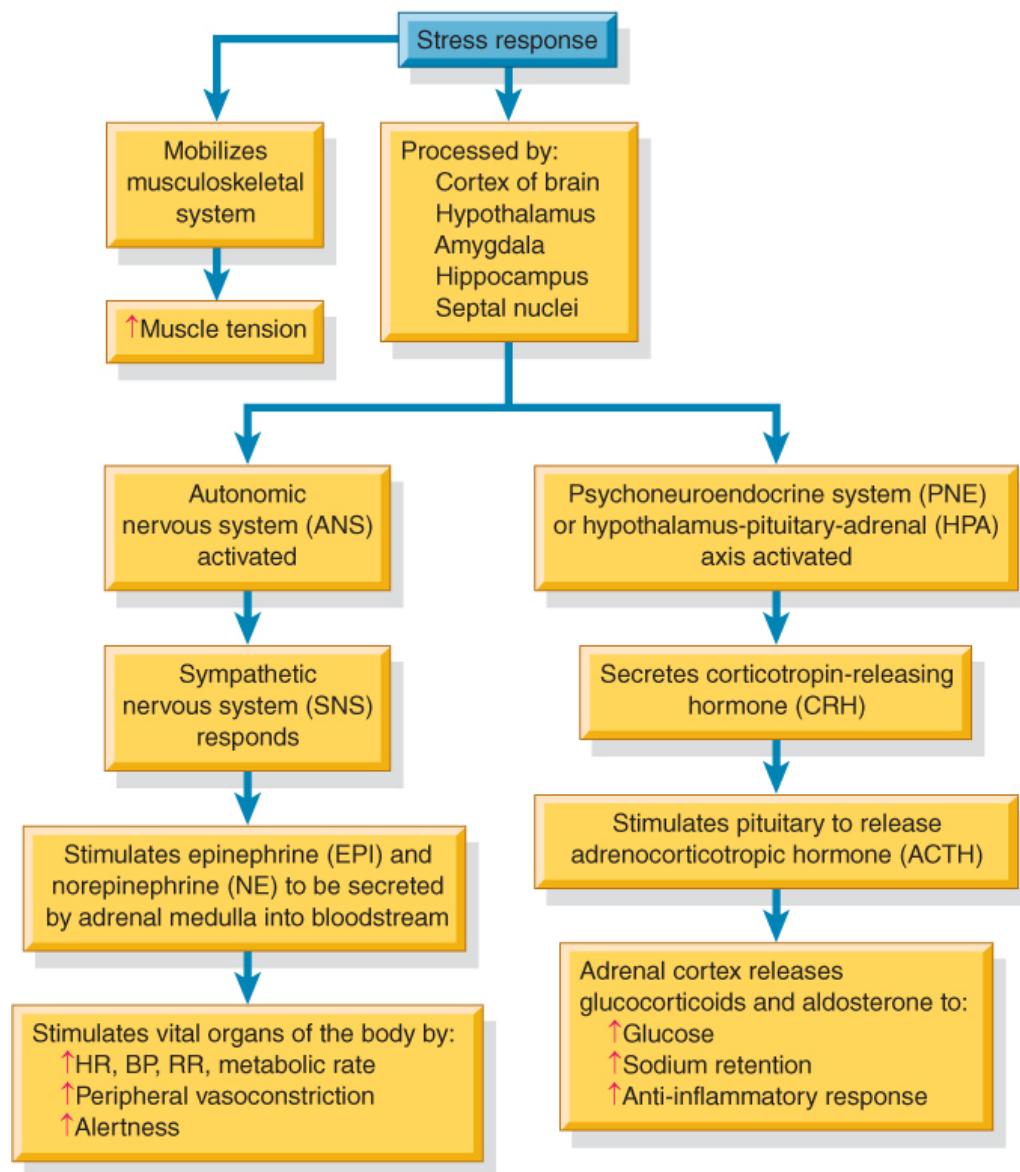


Figure 5-2 • The physiologic response to stress. The body is prepared through brain activation of the autonomic nervous system and psychoneuroendocrine system commonly referred to as the hypothalamus–pituitary–adrenal axis to cope with stress.

TABLE 5-1 Sympathetic–Adrenal–Medullary Reaction to Stress or Fight-or-Flight Response

Effect	Purpose	Mechanism
Increased heart rate and blood pressure	More perfusion to vital organs	Increased cardiac output owing to increased myocardial contractility and heart rate; increased venous return (peripheral vasoconstriction)
Increased blood glucose level	Increased available energy	Increased liver and muscle glycogen breakdown; increased breakdown of adipose tissue triglycerides
Mental acuity	Alert state	Increase in amount of blood shunted to the brain from the abdominal viscera and skin
Dilated pupils	Increased awareness	Contraction of radial muscle of iris
Increased tension of skeletal muscles	Preparedness for activity, decreased fatigue	Excitation of muscles; increase in amount of blood shunted to the muscles from the abdominal viscera and skin
Increased ventilation (may be rapid and shallow)	Provision of oxygen for energy	Stimulation of respiratory center in medulla; bronchodilation
Increased coagulability of blood	Prevention of hemorrhage in event of trauma	Vasoconstriction of surface vessels

Adapted from Norris, T. L. (2019). *Porth's pathophysiology: Concepts of altered health status* (10th ed.). Philadelphia, PA: Wolters Kluwer.

Immunologic Response

The immune system is connected to the neuroendocrine and autonomic systems. Lymphoid tissue is richly supplied by autonomic nerves capable of releasing a number of different neuropeptides that can have a direct effect on leukocyte regulation and the inflammatory response. Neuroendocrine hormones released by the central nervous system and endocrine tissues can inhibit or stimulate leukocyte function. The various stressors a person experiences may result in different alterations in autonomic activity and subtle variations in neurohormone and neuropeptide synthesis. All of these possible autonomic and neuroendocrine responses can interact to initiate, weaken, enhance, or terminate an immune response.

The study of the relationships among the neuroendocrine system, the central and autonomic nervous systems, and the immune system and the effects of these relationships on overall health outcomes are called *psychoneuroimmunology*. Because one's perception of events and one's coping styles determine whether, and to what extent, an event activates the stress

response system, and because the stress response affects immune activity, one's perceptions, ideas, and thoughts can have profound neurochemical and immunologic consequences. Some studies have demonstrated altered immune function in people who are under stress (Atkinson, Rodman, Thuras, et al., 2019; Christensen, Flensburg-Madsen, Garde, et al., 2019; Frishman, 2019; Ubel & Rosenthal, 2019). Other studies have identified certain personality traits, such as decisiveness, assertiveness, compassion, helpfulness, and conscientiousness, as having positive effects on health (Antoni & Dhabhar, 2019; Champagne, 2019; Wilson, Woody, Padin, et al., 2019). As research continues, this field of study will likely uncover to what extent and by what mechanisms people can consciously influence their immunity.

Maladaptive Responses to Stress

The stress response, as indicated earlier, facilitates adaptation to threatening situations and is retained from humans' evolutionary past. The fight-or-flight response, for example, is an anticipatory response that mobilized the bodily resources of our ancestors to deal with predators and other harsh factors in their environment. This same mobilization comes into play in response to emotional stimuli unrelated to danger. For example, a person may get an "adrenaline rush" when competing over a decisive point in a ball game or when excited about attending a party.

When responses to stress are ineffective, they are referred to as *maladaptive*. Maladaptive responses are chronic, recurrent responses or patterns of response that do not promote the goals of adaptation. The goals of adaptation are somatic or physical health (optimal wellness); psychological health or having a sense of well-being (happiness, satisfaction with life, morale); and enhanced social functioning, which includes work, social life, and family (positive relationships). Maladaptive responses that threaten these goals include faulty appraisals and inappropriate coping (Lazarus, 1991).

The frequency, intensity, and duration of stressful situations contribute to the development of emotions and subsequent patterns of neurochemical discharge. By appraising situations adequately and coping appropriately, it is possible to anticipate and defuse some of these situations. For example, frequent stressful encounters (e.g., marital discord) might be avoided with better communication and problem solving, or a pattern of procrastination (e.g., delaying work on tasks) could be corrected to reduce stress when deadlines approach.

Coping processes that include the use of alcohol or drugs to reduce stress increase the risk of illness. Other inappropriate coping patterns may increase the risk of illness less directly. For example, people who demonstrate "type A" behaviors, including impatience, competitiveness, and achievement orientation, have an underlying aggressive approach to life. Type A behaviors

increase the output of catecholamines, the adrenal-medullary hormones, with their attendant effects on the body. Additional forms of inappropriate coping include denial, avoidance, and distancing.

Models of illness frequently include stress and maladaptation as precursors to disease. A general model of illness, based on Selye's theory, suggests that any stressor elicits a state of disturbed physiologic equilibrium. If this state is prolonged or the response is excessive, it increases the susceptibility of the person to illness. This susceptibility, coupled with a predisposition in the person (from genetic traits, health, or age), leads to illness. If the sympathetic-adrenal-medullary response is prolonged or excessive, a state of chronic arousal develops that may lead to high blood pressure, arteriosclerotic changes, and cardiovascular disease. If the production of ACTH is prolonged or excessive, behavior patterns of withdrawal and depression are seen. In addition, the immune response is decreased, and infections and tumors may develop.

Selye (1976) proposed a list of disorders known as diseases of maladaptation: high blood pressure (including hypertension of pregnancy), diseases of the heart and blood vessels, diseases of the kidney, rheumatic diseases and inflammatory diseases of the skin and eyes, infections, allergic and hypersensitivity diseases, nervous and mental diseases, sexual dysfunction, digestive diseases, metabolic diseases, and cancer. Research continues on the complex interconnections between stress, coping (adaptive and maladaptive), and disease (Torkzadeh, Danesh, Mirbagher, et al., 2019; Tormohlen, Tobin, & Latkin, 2019).

Indicators of Stress

Indicators of stress and the stress response include both subjective and objective measures. [Chart 5-1](#) lists signs and symptoms that may be observed directly or reported by a person. They are psychological, physiologic, or behavioral and reflect social behaviors and thought processes. Some of these reactions may be coping behaviors. Over time, each person tends to develop a characteristic pattern of behavior during stress to warn that the system is out of balance.

Chart 5-1 ASSESSMENT

Assessing for Stress

Be alert for the following:

Bruxism (grinding of teeth)
Changes in menstrual cycle
Change in appetite
Concentration difficulties
Diarrhea
Difficulty sleeping
Dry mouth
Emotional lability
Excessive perspiration
Fatigue
Feeling weak or dizzy
Gastrointestinal distress
Headaches
Hyperactivity
Increased substance use or misuse
Increased use of tobacco products or electronic nicotine delivery systems (ENDS) including e-cigarettes, e-pens, e-pipes, e-hookah, and e-cigars
Increased body tension
Intense or increased anxiety
Impulsive behaviors
Loss of interest in life activities
Nausea or vomiting
Nervous habits
Nervous laughter
Overpowering urge to act out
Pain in back, neck, or other parts of the body
Palpitations
Prone to injury
Restlessness
Strong startle response
Tremors
Unintentional weight loss or gain
Urinary frequency

Adapted from Rice, V. H. (Ed.). (2012). *Handbook of stress, coping, and health: Implications for theory, research, and practice* (2nd ed.). Thousand Oaks, CA: Sage; Selye, H. (1976). *The stress of life*, Rev. ed. New York: McGraw-Hill.

Laboratory measurements of indicators of stress have helped in understanding this complex process. Blood and urine analyses can be used to demonstrate changes in hormonal levels and hormonal breakdown products.

Blood levels of catecholamines, corticosteroids, ACTH, and eosinophils are reliable measures of stress. Serum cholesterol and free fatty acid levels can be used to measure stress. Distress can cause an increase in adrenal hormones, including cortisol and aldosterone, which can lead to high serum cholesterol levels. Both physical and psychological distress can trigger an elevated cholesterol level. In addition, the results of immunoglobulin assays are increased when a person is exposed to various stressors, especially infections and immune deficiency conditions.

In addition to using laboratory tests, researchers have developed questionnaires to identify and assess stressors, stress, and coping strategies. The work of Rice (2012) includes a compilation of information gained from research on stress, coping, and health, and includes some of these questionnaires.

Physiology/Pathophysiology

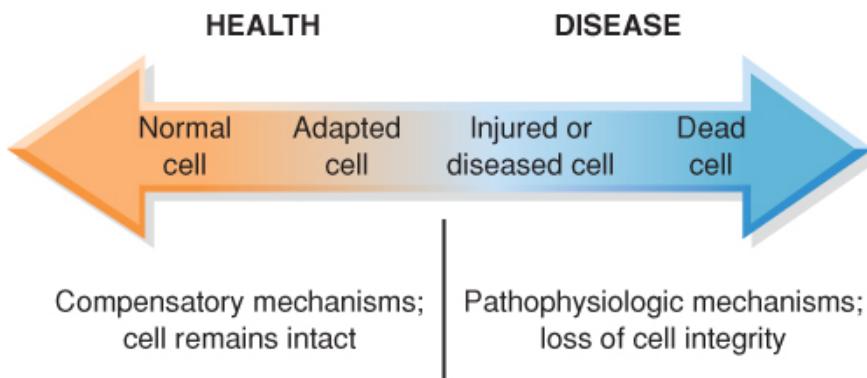


Figure 5-3 • The cell on a continuum of function and structure. Changes in the cell are not as easily discerned as the diagram depicts, and the point at which compensation subsides and pathophysiology begins is not clearly defined.

Stress at the Cellular Level

The cell exists on a continuum of function and structure, ranging from the normal cell, to the adapted cell, to the injured or diseased cell, to the dead cell (Fig. 5-3). Changes from one state to another may occur rapidly and may not be readily detectable, because each state does not have discrete boundaries, and disease represents disruption of normal processes. The earliest changes occur at the molecular or subcellular level and are not perceptible until steady-state functions or structures are altered. With cell injury, some changes may be reversible; in other instances, the injuries are lethal. For example, tanning of the skin is an adaptive, morphologic response to exposure to the rays of the

sun. However, if the exposure is continued, sunburn and injury occur, and some cells may die, as evidenced by desquamation (“peeling”).

Different cells and tissues respond to stimuli with different patterns and rates of response, and some cells are more vulnerable to one type of stimulus or stressor than others. The cell involved, its ability to adapt, and its physiologic state are determinants of the response. For example, cardiac muscle cells respond to **hypoxia** (inadequate cellular oxygenation) more quickly than do smooth muscle cells.

Other determinants of cellular response are the type or nature of the stimulus, its duration, and its severity. For example, neurons that control respiration can develop a tolerance to regular, small amounts of a barbiturate; however, one large dose may result in respiratory depression and death.

Control of the Steady State

The concept of the cell as existing on a continuum of function and structure includes the relationship of the cell to compensatory mechanisms, which occur continuously in the body to maintain the steady state. Compensatory processes are regulated primarily by the autonomic nervous system and the endocrine system, with control achieved through negative feedback.

Negative Feedback

Negative feedback mechanisms throughout the body monitor the internal environment and restore homeostasis when conditions shift out of the normal range. These mechanisms sense deviations from a predetermined set point or range of adaptability and trigger a response to offset the deviation. Functions regulated through such compensatory mechanisms include blood pressure, acid–base balance, blood glucose level, body temperature, and fluid and electrolyte balance.

Most of the human body’s control systems are integrated by the brain with feedback from the nervous and endocrine systems. Control activities involve detecting deviations from the predetermined reference point and stimulating compensatory responses in the muscles and glands of the body. The major organs affected are the heart, lungs, kidneys, liver, gastrointestinal tract, and skin. When stimulated, these organs alter their rate of activity or the amount of secretions they produce. Because of this, these major organs are considered the “*organs of homeostasis or adjustment*” (Norris, 2019).

In addition to the responses influenced by the nervous and endocrine systems, local responses consisting of small feedback loops in a group of cells or tissues occur. The cells detect a change in their immediate environment and initiate an action to counteract its effect. For example, the accumulation of lactic acid in an exercised muscle stimulates dilation of blood vessels in the

area to increase blood flow and improve the delivery of oxygen and removal of waste products.

The net result of negative feedback loops is homeostasis. A steady state is achieved by the continuous, variable action of the organs involved in making the adjustments and by the continuous exchange of chemical substances among cells, interstitial fluid, and blood. For example, an increase in the carbon dioxide (CO_2) concentration of the extracellular fluid leads to increased pulmonary ventilation, which decreases the CO_2 level. On a cellular level, increased CO_2 raises the hydrogen ion concentration of the blood. This is detected by chemosensitive receptors in the brain's medullary respiratory control center. The chemoreceptors then stimulate an increase in the rate of discharge of the neurons that innervate the diaphragm and intercostal muscles, which increases the respiratory rate. Excess CO_2 is exhaled, the hydrogen ion concentration returns to normal, and the chemically sensitive neurons are no longer stimulated (Norris, 2019).

Positive Feedback

Another type of feedback, **positive feedback**, perpetuates the chain of events set in motion by the original disturbance instead of compensating for it. As the system becomes more unbalanced, disorder and disintegration occur. There are some exceptions to this; blood clotting in humans, for example, is an important positive feedback mechanism.

Cellular Adaptation

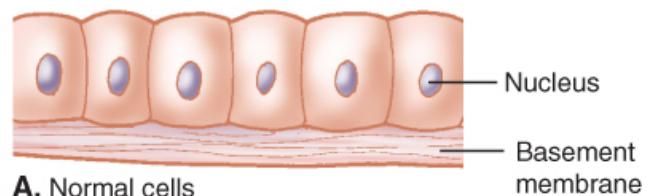
Cells are complex units that dynamically respond to the changing demands and stresses of daily life. They possess a maintenance function and a specialized function. The maintenance function refers to the activities that the cell performs with respect to itself; specialized functions are those that the cell performs in relation to the tissues and organs of which it is a part. Individual cells may cease to function without posing a threat to the organism. However, as the number of dead cells increases, the specialized functions of the tissues are altered and health is threatened.

Cells can adapt to environmental stress through structural and functional changes. Some of these adaptations include cellular atrophy, hypertrophy, hyperplasia, metaplasia, and dysplasia. Such adaptations reflect changes in the normal cell in response to stress (Fig. 5-4A). If the stress is unrelenting, cellular injury and death may occur.

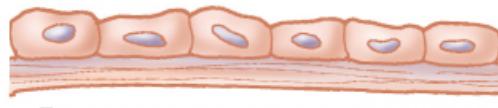
Atrophy can be the consequence of disease, decreased use, decreased blood supply, loss of nerve supply, or inadequate nutrition. Disuse of a body part is often associated with the aging process and immobilization. Cell size and

organ size decrease ([Fig. 5-4B](#)), and the structures principally affected are the skeletal muscles, the secondary sex organs, the heart, and the brain.

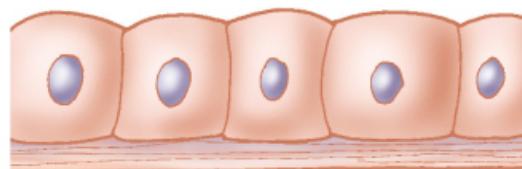
Atrophy and **hypertrophy** lead to changes in the size of cells ([Fig. 5-4C](#)) and hence the size of the organs they form. Compensatory hypertrophy is the result of an enlarged muscle mass and commonly occurs in skeletal and cardiac muscle that experiences a prolonged, increased workload. One example is the bulging muscles of an athlete.



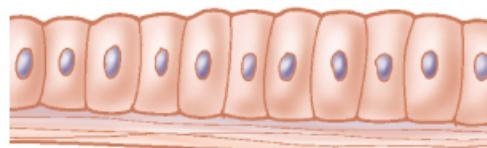
A. Normal cells



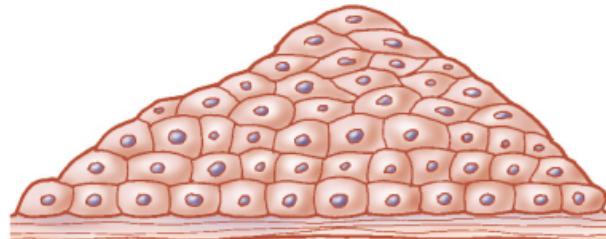
B. Cells that have undergone atrophy



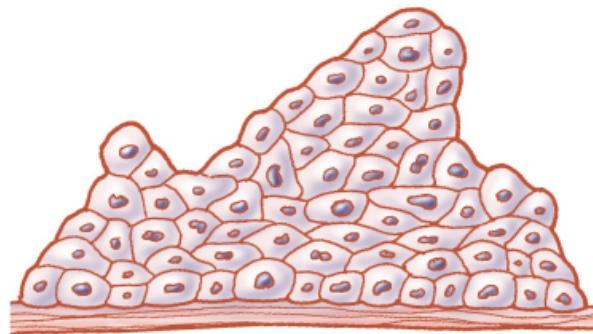
C. Cells that have undergone hypertrophy



D. Hyperplasia at the cellular level



E. Metaplasia at the cellular level



F. Dysplasia at the cellular level.

Figure 5-4 • Adaptation at the cellular level. Adapted with permission from Stewart J, Anatomical Chart Company. *Atlas of*

Hyperplasia is an increase in the number of new cells in an organ or tissue (Fig. 5-4D). As cells multiply and are subjected to increased stimulation, the tissue mass enlarges. This mitotic response (a change occurring with mitosis) is reversible when the stimulus is removed. This distinguishes hyperplasia from neoplasia or malignant growth, which continues after the stimulus is removed. Hyperplasia may be hormonally induced. An example is the increased size of the thyroid gland caused by thyroid-stimulating hormone (secreted from the pituitary gland) when a deficit in thyroid hormone occurs.

Metaplasia is a cell transformation in which one type of mature cell is converted into another type of cell (Fig. 5-4E). This serves a protective function, because less-transformed cells are more resistant to the stress that stimulated the change. For example, the ciliated columnar epithelium lining the bronchi of people who smoke is replaced by squamous epithelium. The squamous cells can survive; loss of the cilia and protective mucus, however, can have damaging consequences.

Dysplasia is bizarre cell growth resulting in cells that differ in size, shape, or arrangement from other cells of the same tissue type (Fig. 5-4F). Dysplastic cells have a tendency to become malignant; dysplasia is seen commonly in epithelial cells in the bronchi of people who smoke or use electronic nicotine delivery systems (ENDS) including e-cigarettes, e-pens, e-pipes, e-hookah, and e-cigars.

Cellular Injury

Injury is defined as a disorder in steady-state regulation. Any stressor that alters the ability of the cell or system to maintain optimal balance of its adjustment processes leads to injury. Structural and functional damage then occurs, which may be reversible (permitting recovery) or irreversible (leading to disability or death). Homeostatic adjustments are concerned with the small changes within the body's systems. With adaptive changes, compensation occurs, and a new steady state may be achieved. With injury, steady-state regulation is lost and changes in functioning ensue.

Causes of disorder and injury in the system (cell, tissue, organ, body) may arise from the external or internal environment (Fig. 5-5) and include hypoxia, nutritional imbalance, physical agents, chemical agents, infectious agents, immune mechanisms, and genetic defects. The most common causes are hypoxia (oxygen deficiency), chemical injury, and infectious agents. In addition, the presence of one injury makes the system more susceptible to another injury. For example, inadequate oxygenation and nutritional deficiencies make the system vulnerable to infectious agents. These agents

damage or destroy the integrity of the cell membrane (necessary for ionic balance) as well as the cell's ability to do the following:

- Transform energy (aerobic respiration, production of adenosine triphosphate)
- Synthesize enzymes and other necessary proteins
- Grow and reproduce (genetic integrity)

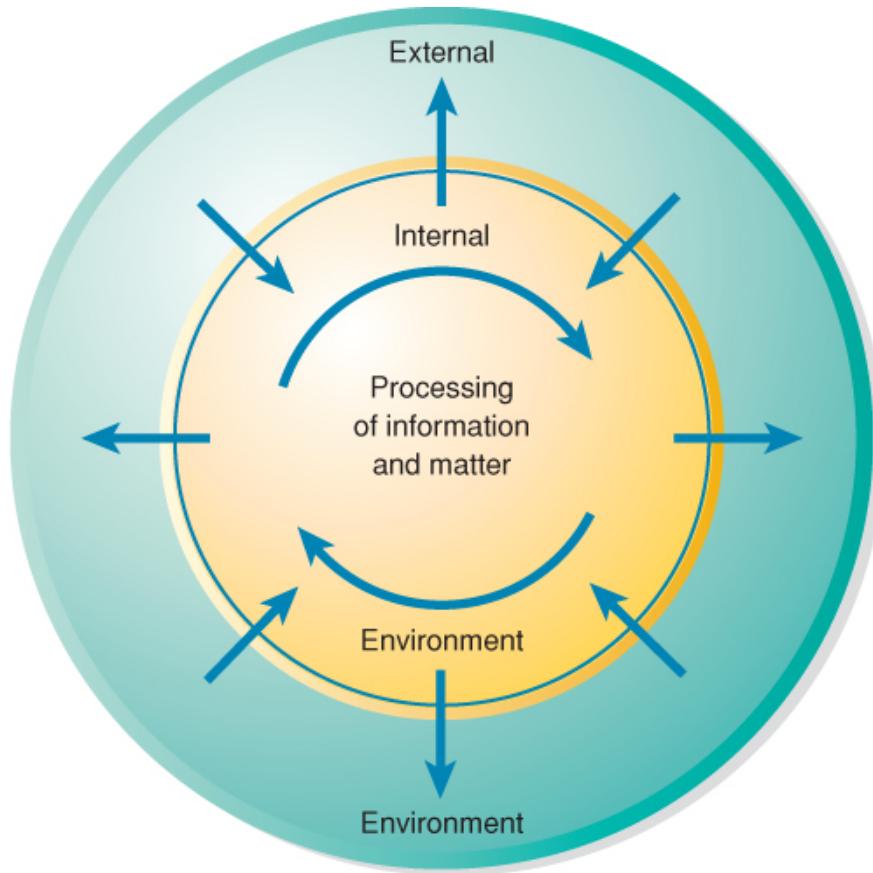


Figure 5-5 • Influences leading to disorder may arise from the internal and external environments of the system. Excesses or deficits of information and matter may occur, or there may be faulty regulation of processing.

Hypoxia

Hypoxia interferes with the cell's ability to transform energy. Hypoxia may be caused by a decrease in blood supply to an area, a decrease in the oxygen-carrying capacity of the blood (decreased hemoglobin), a ventilation-perfusion or respiratory problem that reduces the amount of arterial oxygen available, or a problem in the cell's enzyme system that makes it unable to use oxygen.

The usual cause of hypoxia is ischemia or deficient blood supply. Ischemia is commonly seen in myocardial cell injury in which arterial blood flow is

decreased because of atherosclerotic narrowing of blood vessels. Ischemia also results from intravascular clots (thrombi or emboli) that may form and interfere with blood supply. Thromboemboli are common causes of cerebrovascular disease (strokes). The length of time in which different tissues can survive without oxygen varies. For example, brain cells most often succumb in 3 to 6 minutes. If the condition leading to hypoxia is slow and progressive, collateral circulation may develop, whereby blood is supplied by other blood vessels in the area. However, this mechanism is not highly reliable.

Nutritional Imbalance

Nutritional imbalance refers to a relative or absolute deficiency or excess of one or more essential nutrients. This may be manifested as undernutrition (inadequate consumption of food or calories) or overnutrition (caloric excess). Caloric excess to the point of obesity overloads cells in the body with lipids. By requiring more energy to maintain the extra tissue, obesity places a strain on the body and has been associated with the development of disease, especially pulmonary and cardiovascular disease as well as several types of cancer. (See [Chapter 42](#) for further discussion of obesity.)

Specific deficiencies arise when an essential nutrient is deficient or when a nutrient imbalance exists. Protein deficiencies and avitaminosis (deficiency of vitamins) are typical examples. An energy deficit leading to cell injury can occur if there is insufficient glucose or insufficient oxygen to transform the glucose into energy. A lack of insulin, or the inability to use insulin, may also prevent glucose from entering the cell from the blood. This occurs in diabetes, a metabolic disorder that can lead to nutritional deficiency, as well as a host of short- and long-term life-threatening complications. (See [Chapter 46](#) for further discussion of diabetes.)

Physical Agents

Physical agents, including temperature extremes, radiation, electrical shock, and mechanical trauma, can cause injury to the cells or to the entire body. The duration of exposure and the intensity of the stressor determine the severity of damage.

Temperature

When a person's temperature is elevated, hypermetabolism occurs and the respiratory rate, heart rate, and basal metabolic rate increase. With fever induced by infections, the hypothalamic thermostat may be reset at a higher temperature and then return to normal when the fever abates. The increase in body temperature is achieved through physiologic mechanisms. Body temperatures greater than 41°C (106°F) indicate hyperthermia, because the physiologic function of the thermoregulatory center breaks down and the

temperature soars (Norris, 2019). This physiologic condition occurs in people who have heatstroke. Eventually, the high temperature causes coagulation of cell proteins, and cells die.

The local response to burn injury is similar. Increased metabolic activity occurs, and, as heat increases, proteins coagulate and enzyme systems are destroyed. In extreme situations, charring or carbonization occurs. See [Chapter 57](#) for more information about burn injuries.

Extreme low environmental temperature (cold) causes vasoconstriction. Blood flow becomes sluggish and clots form, leading to ischemic damage in the involved tissues. With still lower temperatures, ice crystals may form and cells may burst.

Radiation and Electrical Shock

Radiation is used for diagnosis and treatment of diseases. Ionizing forms of radiation may cause injury by their destructive action. Radiation decreases the protective inflammatory response of the cell, creating a favorable environment for opportunistic infections. Electrical shock produces burns as a result of the heat generated when electrical current travels through the body. It may also abnormally stimulate nerves, leading, for example, to fibrillation of the heart.

Mechanical Trauma

Mechanical trauma can result in wounds that disrupt the cells and tissues of the body. The severity of the wound, amount of blood loss, and extent of nerve damage are significant factors in determining the extent of injury.

Chemical Agents

Chemical injuries are caused by poisons, such as lye, that have a corrosive action on epithelial tissue, or by heavy metals, such as mercury, arsenic, and lead, each of which has its own specific destructive action. Many other chemicals are toxic in certain amounts, in certain people, and in specific tissues. For example, excessive secretion of hydrochloric acid can damage the stomach lining; large amounts of glucose can cause osmotic shifts, affecting the fluid and electrolyte balance; and too much insulin can cause subnormal levels of glucose in the blood (hypoglycemia) and can lead to coma.

Drugs, including prescribed medications, can also cause chemical poisoning. Some people are less tolerant of medications than others and manifest toxic reactions at the usual or customary dosages. Aging tends to decrease tolerance to medications. Polypharmacy (taking many medications at one time) occurs frequently in older adults, and the unpredictable effects of the resulting medication interactions can cause injury.

Alcohol (ethanol) is also a chemical irritant. In the body, alcohol is broken down into acetaldehyde, which has a direct toxic effect on liver cells that leads to various liver abnormalities, including cirrhosis in susceptible people.

Disordered liver cell function leads to complications in other organs of the body.

Infectious Agents

Biologic agents known to cause disease in humans are viruses, bacteria, rickettsiae, mycoplasmas, fungi, protozoa, and nematodes. The severity of the infectious disease depends on the number of microorganisms entering the body, their virulence, and the host's defenses (e.g., health, age, immune responses; see [Chapter 66](#) for further discussion of infectious diseases).

An infection exists when the infectious agent is living, growing, and multiplying in the tissues and is able to overcome the body's normal defenses. Some bacteria, such as those that cause tetanus and diphtheria, produce exotoxins that circulate and create cell damage. Others, such as gram-negative bacteria, produce endotoxins when they die. Tubercle bacilli induce an immune reaction.

Viruses are among the smallest living organisms known and survive as parasites of the living cells they invade. Viruses infect specific cells. Through a complex mechanism, viruses replicate within cells and then invade other cells, where they continue to replicate. As the body mounts an immune response to eliminate the viruses, cells harboring the viruses can be injured in the process. Typically, an inflammatory response and immune reaction are the body's physiologic responses to viral infection.

Disordered Immune Responses

The immune system is an exceedingly complex system, the purpose of which is to defend the body from invasion by any foreign object or foreign cell type, such as cancerous cells. This is a steady-state mechanism; however, like other adjustment processes, it can become disordered and cellular injury results. The immune response detects foreign bodies by distinguishing non-self substances from self substances and destroying the non-self entities. The entrance of an antigen (foreign substance) into the body evokes the production of antibodies that attack and destroy the antigen (antigen–antibody reaction).

The immune system may function normally, or it may be hypoactive or hyperactive. When it is hypoactive, immune deficiency diseases occur; when it is hyperactive, hypersensitivity disorders occur. A disorder of the immune system can result in damage to the body's own tissues. Such disorders are labeled autoimmune diseases (see Unit 7).

Genetic Disorders

There is intense interest in genetic defects as causes of disease and modifiers of genetic structure. Many of these defects produce mutations that have no recognizable effect, such as lack of a single enzyme; others contribute to more

obvious congenital abnormalities, such as Down syndrome. (For further information on genetics, see [Chapter 6](#).)

Cellular Response to Injury: Inflammation



Cells or tissues of the body may be injured or killed by any of the agents (physical, chemical, infectious) described earlier. When this happens, an inflammatory response (or inflammation) naturally occurs in the healthy tissues adjacent to the site of injury. **Inflammation** is a localized reaction intended to neutralize, control, or eliminate the offending agent to prepare the site for repair. It is a nonspecific response (not dependent on a particular cause) that is meant to serve a protective function. For example, inflammation may be observed at the site of a bee sting, in a sore throat, in a surgical incision, and at the site of a burn. Inflammation also occurs in cell injury events, such as stroke, deep vein thrombosis, and myocardial infarction.

Inflammation is not the same as infection. An infectious agent is only one of several agents that may trigger an inflammatory response. Regardless of the cause, a general sequence of events occurs in the local inflammatory response. This sequence involves changes in the microcirculation, including vasodilation, increased vascular permeability, and leukocytic cellular infiltration ([Fig. 5-6](#)). As these changes take place, five cardinal signs of inflammation are produced: redness, warmth, swelling, pain, and loss of function (Norris, 2019).

The transient vasoconstriction that occurs immediately after injury is followed by vasodilation and an increased rate of blood flow through the microcirculation to the area of tissue damage. Local warmth and redness result. Next, the structure of the microvascular system changes to accommodate the movement of plasma protein from the blood into the tissues. Following this increase in vascular permeability, plasma fluids (including proteins and solutes) leak into the inflamed tissues, producing swelling. Leukocytes migrate through the endothelium and accumulate in the tissue at the site of the injury. The pain that occurs is attributed to the pressure of fluids or swelling on nerve endings and to the irritation of nerve endings by chemical mediators released at the site. Bradykinin is one of the chemical mediators suspected of causing pain. Loss of function is most likely related to the pain and swelling; however, the exact mechanism is not completely known.

As blood flow increases and fluid leaks into the surrounding tissues, the formed elements (red blood cells, white blood cells, and platelets) remain in the blood, causing it to become more viscous. Leukocytes (white blood cells) collect in the vessels, exit, and migrate to the site of injury to engulf offending organisms and to remove cellular debris in a process called *phagocytosis*. Fibrinogen in the leaked plasma fluid coagulates, forming fibrin for clot

formation, which serves to wall off the injured area and prevent the spread of infection.

Physiology/Pathophysiology

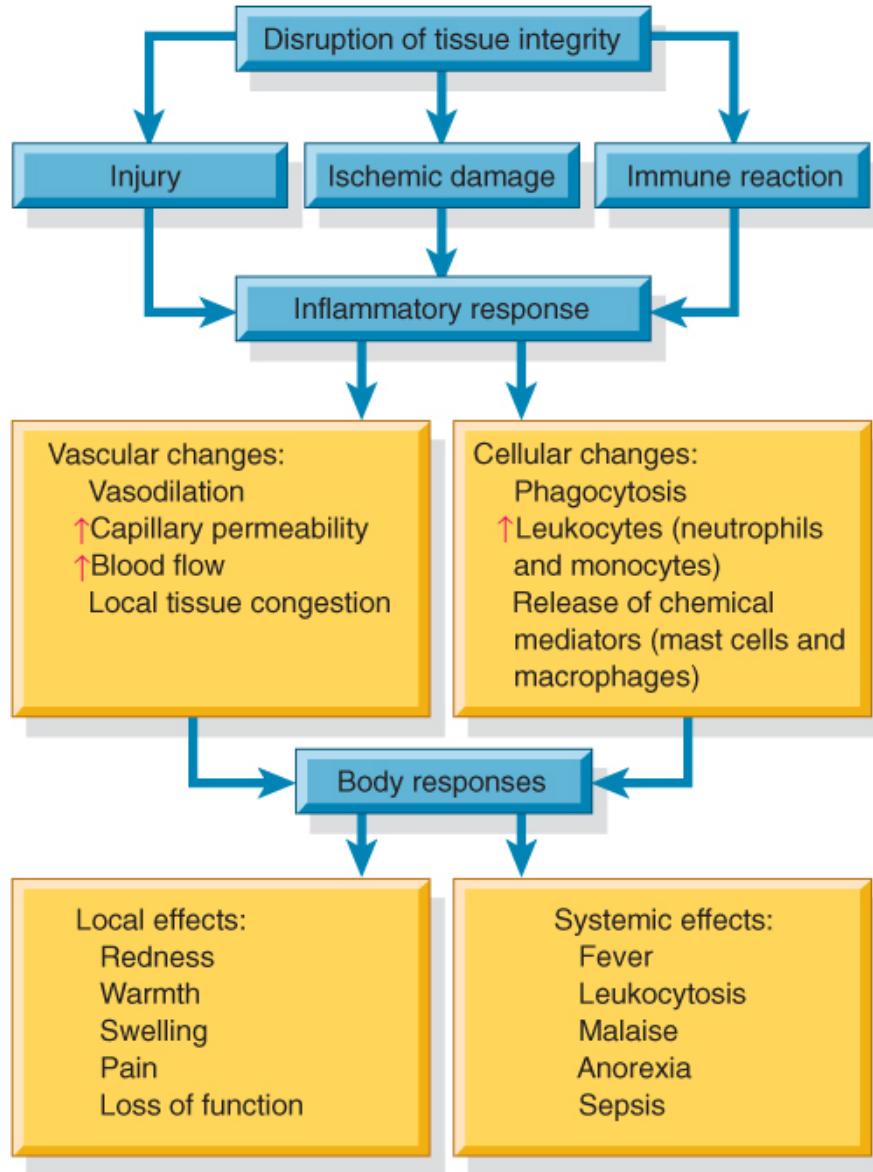


Figure 5-6 • Inflammatory response. Source: Norris, T. L. (2019). *Porth's pathophysiology: Concepts of altered health status* (10th ed.). Philadelphia, PA: Wolters Kluwer.

Chemical Mediators of Inflammation

Injury initiates the inflammatory response; however, chemical substances released at the site induce vascular changes. Foremost among these chemicals are histamine and kinins. Histamine is present in many tissues of the body but

is concentrated in the mast cells. It is released when injury occurs and is responsible for the early changes in vasodilation and vascular permeability. Kinins cause vasodilation and increased vascular permeability, and they attract neutrophils to the area. Prostaglandins—another group of chemical substances—are also suspected of causing increased vascular permeability (Norris, 2019).

Systemic Response to Inflammation

The inflammatory response is often confined to the site, causing only local signs and symptoms. However, systemic responses can also occur. Fever is the most common sign of a systemic response to injury, and it is most likely caused by endogenous pyrogens (internal substances that cause fever) released from neutrophils and macrophages (specialized forms of leukocytes). These substances reset the hypothalamic thermostat, which controls body temperature, and produce fever. Leukocytosis, an increase in the synthesis and release of neutrophils from bone marrow, may occur, enhancing the body's ability to fight infection. During this process, general, nonspecific symptoms develop, including malaise, loss of appetite, aching, and weakness.

Types of Inflammation

Inflammation is categorized primarily by its duration and the type of exudate produced. It is most often acute or chronic. Acute inflammation is characterized by the local vascular and exudative changes described previously and usually lasts less than 2 weeks. An acute inflammatory response is immediate and serves a protective function. After the causative agent is removed, the inflammation subsides and healing takes place with the return of normal or near-normal structure and function.

Chronic inflammation develops if the injurious agent persists and the acute response is perpetuated. Symptoms are present for many months or years. Chronic inflammation may also begin insidiously and never have an acute phase. The chronic response does not serve a beneficial and protective function; on the contrary, it is debilitating and can produce long-lasting effects. As the inflammation becomes chronic, changes occur at the site of injury, and the nature of the exudate becomes proliferative. A cycle of cellular infiltration, necrosis, and fibrosis begins, with repair and breakdown occurring simultaneously. Considerable scarring may occur, resulting in permanent tissue damage.

Cellular Healing

The reparative process begins at approximately the same time as the injury. Healing proceeds after the inflammatory debris has been removed. Healing

may occur by regeneration, in which the defect is gradually repaired by proliferation of the same type of cells as those destroyed, or by replacement, in which cells of another type, usually connective tissue, fill in the tissue defect and result in scar formation.

Regeneration

The ability of cells to regenerate depends on whether they are labile, permanent, or stable. Labile cells multiply constantly to replace cells worn out by normal physiologic processes; these include epithelial cells of the skin and those lining the gastrointestinal tract. Permanent cells include neurons—the nerve cell bodies, not their axons. Destruction of neurons is permanent; however, axons may regenerate. If normal activity is to return, tissue regeneration must occur in a functional pattern, especially in the growth of several axons. Stable cells in some organ systems have a latent ability to regenerate. Under normal physiologic processes, they are not shed and do not need replacement; if they are damaged or destroyed, they are able to regenerate. Examples include functional cells of the kidney, liver, and pancreas. Cells in other organs, such as the brain, do not regenerate.

Replacement

The condition of the host, the environment, and the nature and severity of the injury affect the processes of inflammation, repair, and replacement. Depending on the extent of damage, repair and replacement may occur by primary or secondary intention. In primary intention healing, the wound edges are approximated, as in a surgical wound (see [Chapter 16](#)). Little scar formation occurs, and the wound healing occurs without granulation. In secondary intention healing, there is tissue loss so the edges are not approximated and the wound fills with granulation tissue (Norris, 2019). The process of repair takes longer and may result in scar formation, with loss of specialized function. For example, people who have recovered from myocardial infarction have abnormal electrocardiographic tracings because the electrical signal cannot be conducted through the connective tissue that has replaced the infarcted area.

Nursing Management

Stress or the potential for stress is ubiquitous—that is, it is both everywhere and anywhere. It is essential for all people, particularly student nurses, to engage in strategies for stress relief. Nursing students experience stressors that can negatively affect their academic and clinical performance (Kinchen & Loerzel, 2019). See the Nursing Research Profile in [Chart 5-2](#). Anxiety, frustration, anger, and feelings of inadequacy, helplessness, or powerlessness

are emotions often associated with stress. In the presence of these emotions, the customary activities of daily living may be disrupted—for example, a sleep disturbance may occur, eating and activity patterns may be altered, and family processes or role performance may be disrupted.

The optimal point of intervention to promote health is during the stage when a person's own compensatory processes are still functioning effectively. A major role of nurses is the early identification of both physiologic and psychological stressors. Nurses should be able to relate the presenting signs and symptoms of distress to the physiology they represent and identify a person's position on the continuum of function, from health and compensation to pathophysiology and disease.

In the assessment of people who seek health care, both objective signs and subjective symptoms are the primary indicators of existing physiologic processes. The following questions are addressed:

- Are the heart rate, respiratory rate, and temperature normal?
- What emotional distress may be contributing to the patient's health problems?
- Are there other indicators of steady-state deviation?
- What are the patient's blood pressure, height, and weight?
- Are there any problems in movement or sensation?
- Are there any problems with affect, behavior, speech, cognitive ability, orientation, or memory?
- Are there obvious impairments, lesions, or deformities?

Objective evidence can be obtained from laboratory data, such as electrolytes, blood urea nitrogen, blood glucose, and urinalysis results. Further signs of injury are seen in diagnostic studies such as computed tomography (CT) scanning, magnetic resonance imaging (MRI), and positron emission tomography (PET). Further information on diagnostic evaluation can be found in assessment chapters of each unit of this book. Many nursing diagnoses are possible for patients suffering from stress. One nursing diagnosis associated with stress is anxiety, which is defined as a vague, uneasy feeling, the source of which may be nonspecific or not known to the person. Stress may also be manifested as difficulty coping patterns, decisional conflict, or relationship problem. These human responses are reflected in the nursing diagnoses of anxiety, difficulty coping, and denial, all of which indicate poor adaptive responses. Other possible nursing diagnoses include social isolation, risk for spiritual distress, readiness for positive family processes, decisional conflict, lack of resilience, and risk for powerlessness, among others. Because human responses to stress are varied, as are the sources of stress, arriving at an accurate diagnosis allows interventions and goals to be more specific and leads to improved outcomes.

Chart 5-2  **NURSING RESEARCH PROFILE**

Nursing Students' Attitudes and Use of Holistic Therapies for Stress Relief

Kinchen, E. V., & Loerzel, V. (2019). Nursing students' attitudes and use of holistic therapies for stress relief. *Journal of Holistic Nursing*, 37(1), 6–17.

Purpose

The purpose of this mixed methods research study was to determine nursing students' openness to using or making recommendations to use holistic strategies to manage school or work stress, along with their perceptions of engaging in the use of holistic therapies for their own personal health.

Design

In this quasi-experimental, mixed methods study, a convenience sample of nursing students was recruited from a senior undergraduate class and provided an email to obtain information about the study, the consent form, and the survey link. Participants completed the quantitative electronic survey and answered the accompanying three open-ended questions. The questions asked the participants about their personal use or recommendation to use holistic therapies for stress relief, the strategies they utilized for managing their stress, and their perceptions of the influence that holistic therapies have on personal health. Students who participated in the study were given two extra credit points; nonparticipants who desired to obtain the extra credit points were permitted to write a one-page essay as an alternative assignment on the holistic therapy of their choice.

Findings

The reported findings were only from the qualitative portion of the study. Of the 116 participants, 81 (70%) were very open or open to using or recommending holistic therapies, while 32 (28%) were somewhat open, and 3 (2%) were not open to using or recommending holistic modalities. From the data, eight categories of stress management activities were obtained: physical activity, prayer and meditation, time management, distraction, socialization, artistic/creative pursuits, interactions with animals, and other behaviors such as napping, taking a day off, stress eating, and crying. It was noted that 62% of the identified stress management actions are designated as holistic therapies. Overall, 85 of the participants (73%) held the view that holistic therapies had a positive influence on personal health, while 25 participants (22%) believed that holistic therapies had a potential influence on their health, and the remaining 6 (5%) perceived that holistic therapies had no effect on personal health. Four recurring themes were extracted from the data: wholeness, self-empowerment, relaxation/restoration, and alternative/complement to traditional medicine. The student participants were open to recommending these strategies to others. There also were barriers identified, such as a lack of knowledge and a lack of time, which interfered with using holistic methods for managing stress.

Nursing Implications

Information from this study supports that, in addition to the traditional behavioral health and pharmacologic interventions used for managing stress, many nursing students found holistic strategies useful for managing stress in their daily lives. This study lends support to the recommendations from many nursing organizations, such as the American Holistic Nurses Association (AHNA) and the American Nurses Association (ANA), to promote self-care and stress-relief strategies while providing students with the knowledge necessary to educate their patients about the use of holistic therapies. It is important for nursing education programs to establish and implement curriculum content and practical experiences related to holistic therapies.

Stress management is directed toward reducing and controlling stress and improving coping. The need to prevent illness, improve the quality of life, and decrease the cost of health care makes efforts to promote health essential, and stress control a significant health promotion goal. Stress reduction methods and coping enhancements can derive from either internal or external sources. For example, healthy eating habits and relaxation techniques are internal resources that help reduce stress, and a broad social network is an external resource that helps reduce stress. Goods and services that can be purchased are also external resources for stress management. It may be easier for people with adequate financial resources to cope with constraints in the environment, because their sense of vulnerability to threat is decreased compared to those without adequate financial resources.

Promoting a Healthy Lifestyle

A health-promoting lifestyle provides internal resources that aid in coping, and it buffers or cushions the impact of stressors. Lifestyles or habits that contribute to the risk of illness can be identified through a health risk appraisal, which is an assessment method designed to promote health by examining a person's habits and recommending changes when a health risk is identified.

Health risk appraisals involve the use of health risk questionnaires to estimate the likelihood that people with a given set of characteristics will become ill. People who receive this information may be influenced to adopt healthy behaviors (e.g., stop smoking, have periodic screening examinations) to improve their health. Questionnaires typically address the information presented in [Chart 5-3](#).

The personal information is compared with average population risk data, and the risk factors are identified and weighted. From this analysis, a person's risks and major health hazards are identified. Further comparisons with population data can estimate how many years will be added to a person's lifespan if the suggested changes are made. However, research has not yet

demonstrated that providing people with such information ensures that they will change their behaviors. The single most important factor for determining health status is social class, and within a social class, research suggests that the major factor influencing health is level of education (Bastable, Gramet, Jacobs, et al., 2019).

Chart 5-3

Information Addressed in Health Risk Questionnaires

Demographic data such as age, gender, race/ethnic background

Personal and family history of diseases and health problems

Lifestyle choices:

- Eating, sleeping, exercise, smoking, drinking, use of illicit drugs, sexual activity, recreation activity, and driving habits
- Stressors at home and on the job
- Roles, role relationships, and associated stressors
- Living and family situation
- Family and social supports

Physical measurements:

- Blood pressure
- Height, weight, body mass index
- Laboratory analyses of blood and urine

Participation in high-risk behaviors (e.g., engaging in unprotected sexual activity, not using seat belts while riding in a motor vehicle, using illicit drugs)

Enhancing Coping Strategies

Bulechek, Butcher, Dochterman, and colleagues (2018) identified coping enhancement as a nursing intervention and defined it as handling perceived and actual stressors, changes, or threats that affect how one meets daily life demands and roles ([Chart 5-4](#)). The nurse can build on the patient's existing coping strategies, as identified in the health appraisal, or provide education about new strategies for coping if necessary.

Chart 5-4

Coping Enhancement: Nursing Interventions

Definition

Facilitation of cognitive and behavioral efforts to manage perceived stressors, changes, or threats that interfere with meeting life's demands and roles.

Select Activities

Assist the patient in identifying appropriate short- and long-term goals.

Assist the patient to solve problems in a constructive manner.

Provide information concerning diagnosis, treatment, and prognosis.

Encourage an attitude of realistic hope as a way of dealing with feelings of helplessness.

Acknowledge the patient's spiritual/cultural background and encourage the use of spiritual resources if desired.

Foster constructive outlets for anger and hostility.

Assist the patient in examining available resources to meet goals.

Appraise the needs and desires for social support, and assist the patient to identify available support systems.

Assist the patient to identify positive strategies to deal with limitations, manage needed lifestyle or role changes, and work through the losses of chronic illness and/or disability if appropriate.

Adapted from Bulechek, G. M., Butcher, H. K., Dochterman, J. M., et al. (Eds.). (2018). *Nursing interventions classification (NIC)* (7th ed.). St. Louis, MO: Mosby-Elsevier.

The five predominant ways of coping with illness identified in a review of 57 nursing research studies were as follows (Jalowiec, 1993):

- Trying to be optimistic about the outcome
- Using social support
- Using spiritual resources
- Trying to maintain control either over the situation or over feelings
- Trying to accept the situation

Other ways of coping included seeking information, reprioritizing needs and roles, lowering expectations, making compromises, comparing oneself to others, planning activities to conserve energy, taking things one step at a time, listening to one's body, and using self-talk for encouragement.

Unfolding Patient Stories: Skyler Hansen • Part 1



Skyler Hansen is an 18-year-old male recently diagnosed with type 1 diabetes. He lives with his parents and two younger siblings and is active in high school sports. He now requires insulin injections, glucose monitoring, and a diabetic diet. Examine how the psychological, physical, and educational needs for managing a new diagnosis can be a great source of stress to the patient and the family. How can the nurse enhance his ability to cope with and adapt to diabetes management? (Skyler Hansen's story continues in [Chapter 46](#).)

Care for Skyler and other patients in a realistic virtual environment: **vSim** (theopoint.lww.com/vSimMedicalSurgical). Practice documenting these patients' care in DocuCare (theopoint.lww.com/DocuCareEHR).



Educating About Relaxation Techniques

Relaxation techniques are a major method used to relieve stress. The goal of using relaxation techniques is to produce a response that counters the stress response. When this goal is achieved, the action of the hypothalamus adjusts, decreasing sympathetic and parasympathetic nervous system activity. The sequence of physiologic effects and their signs and symptoms are then interrupted, thus reducing psychological stress. This is a learned response and requires practice to achieve. Commonly used techniques include progressive muscle relaxation, the Benson relaxation response, and relaxation with guided imagery (all discussed later). Other relaxation techniques include meditation, breathing techniques, massage, Reiki, music therapy, biofeedback, and the use of humor.

The different relaxation techniques share four similar elements: (1) a quiet environment, (2) a comfortable position, (3) a passive attitude, and (4) a mental device (something on which to focus one's attention, such as a word, phrase, or sound).

Chart 5-5

The Benson Relaxation Response

1. Pick a brief phrase or word that reflects your basic belief system.
2. Choose a comfortable position.
3. Close your eyes.
4. Relax your muscles.
5. Become aware of your breathing and start using your selected focus word.
6. Maintain a passive demeanor.
7. Continue for a set period of time.
8. Practice the technique twice daily.

Adapted from Benson, H. (1993). The relaxation response. In D. Goleman, & J. Gurin. (Eds.). *Mind-body medicine: How to use your mind for better health*. Yonkers, NY: Consumer Reports Books.

Progressive Muscle Relaxation

Progressive muscle relaxation involves tensing and releasing the muscles of the body in sequence and sensing the difference in feeling. It is best if the person lies on a soft cushion in a quiet room, breathing easily. Someone usually reads the instructions in a low tone in a slow and relaxed manner, or a recording of the instructions may be played. The person tenses the muscles in the entire body (one muscle group at a time), holds, senses the tension, and then relaxes. As each muscle group is tensed, the person keeps the rest of the body relaxed. Each time the focus is on feeling the tension and relaxation. When the exercise is completed, the entire body should be relaxed (Benson, 1993; Benson & Stark, 1996).

The Benson Relaxation Response

The Benson relaxation response ([Chart 5-5](#)) combines meditation with relaxation. Along with the repeated word or phrase, a passive demeanor is essential. If other thoughts or distractions (noises, pain) occur, Benson recommends not fighting the distraction but simply continuing to repeat the focus phrase. Time of day is not important; however, the exercise works best on an empty stomach (Benson, 1993; Benson & Proctor, 1984; Benson & Stark, 1996).

Guided Imagery

Simple **guided imagery** is the mindful use of a word, phrase, or visual image for the purpose of distracting oneself from distressing situations or consciously taking time to relax or re-energize. A nurse can help a person select a pleasant scene or experience, such as watching the ocean or dabbling the feet in a cool stream. The image serves as the mental device in this technique. As the person

sits comfortably and quietly, the nurse guides the person to review the scene, trying to feel and relive the imagery with all of the senses. A recording may be made of the description of the image, or commercial recordings for guided imagery and relaxation can be used.



Educating About Stress Management

Two commonly prescribed nursing educational interventions—providing sensory information and providing procedural information (e.g., preoperative education)—aim to reduce stress and improve the patient's coping ability. This preparatory education includes giving structured content, such as a lesson in childbirth preparation to expectant parents, a review of how an implantable cardioverter defibrillator works to a patient with heart disease, or a description of sensations a patient will experience during cardiac catheterization. These techniques may alter the person–environment relationship such that something that might have been viewed as harmful or a threat will now be perceived more positively. Giving patients information also reduces the emotional response so that they can concentrate and solve problems more effectively (Kittleson, 2019; Miller & Stoeckel, 2017; Rhee, Marottoli, Van Ness, et al., 2018).



Veterans Considerations

Veterans have similar educational needs to nonveterans. Yet one study revealed that, in a postsecondary education setting, women service members and veterans received less health information compared to women who were not service members or veterans (Albright, Thomas, McDaniel, et al., 2019). In this cross-sectional study, women service members and veterans received less education about alcohol and illicit drug use, depression and anxiety, sexual assault and relational violence prevention, and stress reduction. Nurses who work on college campuses should be attuned to the educational needs of women veterans.

Promoting Family Health

In addition to individual concepts of homeostasis, stress, adaptation, and health problems associated with maladaptation, the concept of family is also important. Nurses can intervene with both individuals and families to reduce stress and its health-related effects. The **family** (group whose members are related by reciprocal caring, mutual responsibilities, and loyalties) plays a central role in the life of the patient and is a major part of the context of the patient's life. It is within families that people grow, are nurtured, acquire a sense of self, develop beliefs and values about life, and progress through life's

developmental stages (Fig. 5-7). Families are also the first source for socialization and education about health and illness.

Ideally, the health care team conducts a careful and comprehensive family assessment (including coping style), develops interventions tailored to handle the stressors, implements the specified treatment protocols, and facilitates the construction of social support systems. The use of existing family strengths, resources, and education is augmented by therapeutic family interventions. The nurse's primary goals are to maintain and improve the patient's present level of health and to prevent physical and emotional deterioration. Next, the nurse intervenes in the cycle that the illness creates: patient illness, stress for other family members, new illness in other family members, and additional patient stress.



Figure 5-7 • Within families, individuals progress through life's developmental stages.

Helping the family members manage the myriad stressors that bombard them daily involves working with family members to develop coping skills. Seven traits that enhance coping of family members under stress have been identified (Burr, Klein, Burr, et al., 1994). Communication skills and spirituality were frequently useful traits. Cognitive abilities, emotional strengths, relationship capabilities, willingness to use community resources, and individual strengths and talents were also associated with effective coping. As nurses work with families, they must not underestimate the impact of their therapeutic interactions, educational information, positive role modeling, provision of direct care, and education on promoting health. Maladaptive coping may result if health care team members are not perceived as actively supporting family members. Often, denial and blaming of others occur.

Sometimes, physiologic illness, emotional withdrawal, and physical distancing are the results of severe family conflict, violent behavior, or addiction to drugs and alcohol. Substance abuse may develop in family members who feel unable to cope or solve problems. People may engage in these dysfunctional behaviors when faced with difficult or problematic situations.

Enhancing Social Support

The nature of social support and its influence on coping have been studied extensively. Social support has been demonstrated to be an effective moderator of life stress. Such support has been found to provide people with several different types of emotional information (Nicks, Wray, Peavler, et al., 2019; Warner, Roberts, Jeanblanc, et al., 2017). The first type of information leads people to believe that they are cared for and loved. This emotional support appears most often in a relationship between two people in which mutual trust and attachment are expressed by helping each other to meet their emotional needs. The second type of information leads people to believe that they are esteemed and valued. This is most effective when others in a group recognize a person's favorable position within that group, demonstrating the person's value. Known as esteem support, this elevates the person's sense of self-worth. The third type of information leads people to feel that they belong to a network of communication and mutual obligation. Members of this network share information and make goods and services available to the members as needed.

Social support also facilitates a person's coping behaviors; however, this depends on the nature of the social support. People can have extensive relationships and interact frequently; however, the necessary support comes only when people feel a deep level of involvement and concern, not when they merely touch the surface of each other's lives.

The critical qualities within a social network are the exchange of intimate communications and the presence of solidarity and trust.

Emotional support from family and significant others provides love and a sense of sharing the burden. The emotions that accompany stress are unpleasant and often increase in a spiraling fashion if relief is not provided. Being able to talk with someone and express feelings openly may help a person gain mastery of the situation. Nurses can provide this support but also must identify the person's social support system and encourage its use. People who are "loners," who are isolated, or who withdraw in times of stress have a high risk of coping failure.

Because anxiety can also distort a person's ability to process information, it helps to seek information and advice from others who can assist with analyzing the threat and developing a strategy to manage it. Again, this use of others helps people maintain mastery of a situation and self-esteem.

Thus, social networks assist with management of stress by providing people with:

- A positive social identity
- Emotional support
- Material aid and tangible services
- Access to information
- Access to new social contacts and new social roles

Recommending Support and Therapy Groups

Support groups exist especially for people in similar stressful situations. Groups have been formed by people with ostomies; women who have had mastectomies; and people with cancer or other serious diseases, chronic illness and disability. There are groups for single parents, substance abusers and their family members, homicide bereavement, and victims of child abuse. Professional, civic, and religious support groups are active in many communities (Mavandadi, Wray, & Toseland, 2019; Supiano & Overfelt, 2018). Encounter groups, assertiveness training programs, and consciousness-raising groups help people modify their usual behaviors in their transactions with their environment. Many find that being a member of a group with similar problems or goals has a releasing effect that promotes freedom of expression and exchange of ideas.



Veterans Considerations

Due to the loss of their military community and associated support systems, veterans are at higher risk compared to civilians of experiencing psychiatric symptoms (such as posttraumatic stress disorder [PTSD]) and interpersonal distress. One group of researchers reported that in a study of 117 veterans, group psychotherapy helped to reduce the symptoms of PTSD and interpersonal distress, mainly by increasing social support among the veterans (Cox, Owen, & Ograniczuk, 2017).

The Role of Stress in Health Patterns

As noted previously, a person's psychological and biologic health, internal and external sources of stress management, and relationships with the environment are predictors of health outcomes. These factors are directly related to the person's health patterns. The nurse has a significant role and responsibility in identifying the health patterns of patients receiving care as well as those of their families. If those patterns are not achieving physiologic, psychological,

and social balance, the nurse is obligated, with the assistance and agreement of the patient, to seek ways to promote individual and family balance.

This chapter has presented some physiologic mechanisms and perspectives on health and disease, the way that one copes with stress. Nurses should keep in mind that the way that one relates to others and the values and goals held are also interwoven into those physiologic patterns. To evaluate a patient's health patterns and to intervene if a disorder exists requires a total assessment of the person. Specific disorders and their nursing management are addressed in greater depth in other chapters.

CRITICAL THINKING EXERCISES

1  ebp You are the nurse in a student health center, and a female veteran comes in after experiencing 1 week of persistent discomfort in her shoulder after spiking a ball during a volleyball game. During the appointment, the student tells you, "I play hard as this is the only form of exercise that I get during the week. I have been putting ice on it at night, but that has stopped helping. I'm very stressed-out about this injury, and I am afraid that I may have torn my rotator cuff. How serious do you think this is?" What is the evidence base for offering guidelines for managing this student's health situation and her high level of stress? What educational information can you share to assist her to make appropriate health decisions and establish positive health behaviors? Identify the criteria used to evaluate the strength of the evidence for this practice.

2  pq An 82-year-old man recently moved out of his daughter's home into an assisted living program where you are working. His reason for coming to see you is "because I haven't been feeling well and sometimes my chest is sore." During his interview, he states, "I am a stomach cancer survivor and I have heart disease. I chose to move into assisted living rather than being with my daughter and her crazy family. Those people make me upset and anxious. They raise my blood pressure and make me sick." Identify this older man's health priorities and state the next steps you will take to meet his identified needs and other health promotion needs.

3  ipc You are the nurse working in an outpatient clinic. You tell a 30-year-old woman that during her routine physical examination a thyroid nodule was found. How will you educate this patient about this finding? What referrals do you anticipate will be made? What steps will the interdisciplinary team take to address the patient's health care needs?

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*Asterisk indicates nursing research.

**Double asterisk indicates classic reference.

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Resources

American Holistic Nurses Association (AHNA), www.ahna.org

Anxiety and Depression Association of America (ADAA), www.adaa.org

Grief Recovery Institute, www.griefrecoverymethod.com

Help Guide: A Nonprofit Guide to Mental Health and Well Being,

www.helpguide.org

Institute of HeartMath: Connecting Hearts and Minds, www.heartmath.org

National Hospice and Palliative Care Organization (NHPCO), www.nhpco.org

Physiological Stress Response: Its Effects on the Body,

www.stressfocus.com/stress_focus_article/stress-removal.htm

Psych Central: Tips to Decrease Stress, www.psychcentral.com/lib/20-tips-to-tame-your-stress

Stress: The Silent Killer, www.holisticonline.com/Stress/stress_home.htm

The Compassionate Friends, www.compassionatefriends.org

The Psychology of “Stress,” www.guidetopsychology.com/stress.htm

Widowed Persons Service, 3950 Ferrara Dr., Silver Spring, MD; 1-301-949-7398;
www.wpsgr.org

Women's Health Network, www.womentowomen.com/inflammation/default.aspx

6 Genetics and Genomics in Nursing

LEARNING OUTCOMES

On completion of this chapter, the learner will be able to:

1. Describe the role of the nurse in integrating genetics and genomics in nursing care.
2. Identify the common patterns of inheritance of genetic disorders.
3. Conduct a comprehensive genetic- and genomic-based assessment.
4. Apply the principles, concepts, and theories of genetics and genomics to individuals, families, groups, and communities.
5. Identify ethical, legal, and social issues in nursing related to genetics and genomics.

NURSING CONCEPTS

Legal Issues
Reproduction

GLOSSARY

carrier: a person who is heterozygous; possessing two different alleles of a gene pair, with one allele typically altered/mutated; therefore, the expression of the altered gene may not be expressed

chromosome: microscopic structures in the cell nucleus that contain genetic information; humans have 46 chromosomes in all somatic cells

deoxyribonucleic acid (DNA): the primary genetic material in humans consisting of nitrogenous bases, a sugar group, and phosphate combined into a double helix

dominant: a genetic trait that is normally expressed when a person has a gene mutation on one of a pair of chromosomes and the “normal” form of the gene is on the other chromosome

epigenetics: the study of changes in gene expression that are not directly related to changes in the DNA genetic code

genetics: the scientific study of heredity; how specific traits or predispositions are transmitted from parents to offspring

genome: the total genetic complement of an individual genotype

genomics: the study of the human genome, including gene sequencing, mapping, and function

genotype: the genetic structure and the variations therein that a person inherits from their parents

mutation: a heritable alteration in a DNA sequence

nondisjunction: the failure of a chromosome pair to separate appropriately during cell division, resulting in abnormal chromosome numbers in daughter cells

pedigree: a diagrammatic representation of a family history

pharmacogenetics: the study of the safety and efficacy of medication administration based on a person’s genotype

phenotype: a person’s entire physical, biochemical, and physiologic genetic makeup that generates the physical presentation of the person

preimplantation genetic testing: a testing procedure used to identify genetic alterations in embryos

prenatal screening: testing that is used to identify whether a fetus is at risk for a birth defect (e.g., Down syndrome or spina bifida)

presymptomatic testing: genetic testing that is used to determine whether a person with a family history of a disorder, but no

current symptoms, has the gene mutation (e.g., testing for Huntington disease)

recessive: a genetic trait that is expressed only when a person has two copies of a mutant autosomal gene or a single copy of a mutant X-linked gene in the absence of another X chromosome

variable expression: variation in the degree to which a trait is manifested; clinical severity

X-linked: located on the X chromosome

The completion of the Human Genome Project, which was an international research project focused on identifying and characterizing the DNA of the human genome, generated rapid advances in the application of genetics and genomics in health care, and stimulated the growth of translational genetic research (Khoury, Bowen, Clyne, et al., 2018). This genetic revolution gave rise to understanding how genetics and genomics influence health and to the development of tests and screening tools to diagnose genetic alterations and mutations. **Pharmacogenetics**, the study of the safety and efficacy of medication administration based on a person's genotype, preimplantation genetic testing, a testing procedure used to identify genetic alterations in embryos, and the use of biobanking, the storage of genetic material for research or personal use, are just a few examples of the advances in genetic and genomic technologies since the discovery of the human genome.

The anticipated rapid growth of genetics and genomics led to the creation of the Genetic Information Nondiscrimination Act (GINA), a law created to protect the privacy and confidentiality of a person's genetic information (Rothstein, 2018). The Precision Medicine Initiative is a national effort intended to advance personalized medicine through the understanding of genetic makeup, lifestyle, and the environment (National Institutes of Health [NIH], U.S. National Library of Medicine [NLM], 2019a).

Identification of genetic and genomic factors associated with disease, including gene–gene function and gene–environment interactions, contributes to the development of more effective therapies customized to that person's genetic makeup and the genomic profile of his or her disease. The term **genetics** (i.e., the study of heredity) generally applies to single genes and their impact on relatively rare single gene disorders, whereas **genomics** is the study of the interaction of all genes in the human **genome** (i.e., the total genetic complement of a person), environmental

factors, and their interactions with each other (NIH, National Human Genome Research Institute [NHGRI], 2019a). **Epigenetics** refers to changes in the expression of a given gene due to environmental exposures or personal health activity rather than the alteration of a specific gene (NIH, NLM, 2019b). Over time, epigenetic influences can cause alterations to DNA. Genetic and genomic profiles allow health care providers to prescribe individualized and effective treatment for each patient, to identify and follow individuals at high risk for disease, and to avoid adverse drug reactions (NIH, NLM, 2019a). New genomic-based strategies for disease detection, management, and treatment are being utilized, making personalized medicine a reality ([Table 6-1](#)).

TABLE 6-1 Transition from the Medical Era to the Genomic Era of Personalized Medicine

	Medical Era	Genomic Era of Personalized Medicine
Defining characteristics	<ul style="list-style-type: none"> • Considers single genes • Waits for disease symptoms to appear • Treats symptoms of presenting disease • Uses trial-and-error approach to treatment • Tailors medication administration according to clinical trials 	<ul style="list-style-type: none"> • Considers interaction of genes with each other and the environment • Identifies genetic predisposition and optimizes risk reduction to prevent disease • Treats underlying genetic cause of disease • Uses personalized approach tailored to the genetic/genomic profile of the person and the disease • Adapts medication administration per clinical trials <i>and</i> personalized genetic response to medication

Chart 6-1

Essential Nursing Competencies for Genetics and Genomics

Professional Responsibilities

- Recognition of attitudes and beliefs related to genetic and genomic science
- Advocacy for genetic and genomic services
- Incorporation of genetic and genomic technologies and information into practice
- Demonstration of personalizing genetic and genomic information and services
- Providing autonomous, informed genetics- and genomics-related decision making

Professional Practice

- Integrate and apply genetic and genomic knowledge to nursing assessment.
- Identify patients who may benefit from specific genetic and genomic resources, services, or technologies.
- Facilitate referrals for genetic and genomic services.
- Provide education, care, and support related to the interpretation of genetic or genomic tests, services, interventions, or treatments.

Adapted from Consensus Panel on Genetic/Genomic Nursing Competencies (Consensus Panel). (2009). *Essentials of genetic and genomic nursing: Competencies, curricular guidelines, and outcome indicators* (2nd ed.). Silver Spring, MD: American Nurses Association.

To meet the challenges of personalized medicine, nurses must understand how genetics and genomics can influence the health of the patient and the family. Nurses must stay abreast of new genetic and genomic technologies and understand how these influence treatments that support personalized medicine. Nurses are a vital link between the patient and health care services; patients often turn to nurses first with questions about a family history of risk factors, information regarding genetics, and genetic tests and interpretations. The incorporation of genetics and genomics is relevant to all aspects of the nursing process. For instance, genetics and genomics should be included in conducting health assessments, in devising nursing diagnoses (as appropriate) in planning nursing interventions that are specific to the patient and based on the patient's diagnosis and genetic makeup, in implementing interventions that support the identification of and in response to genetic-related health

needs, and in evaluating responses to medications based on pharmacogenetics (Consensus Panel on Genetic/Genomic Nursing Competencies [Consensus Panel], 2009). This chapter offers a foundation for the clinical application of genetic and genomic principles in medical-surgical nursing; outlines the nurse's role in genetic counseling and evaluation; addresses important legal, ethical, and social issues; and provides related information and resources for nurses and patients.

Genomic Framework for Nursing Practice

Nurses' contribution to genomic focused health care offers a holistic perspective that takes into account each person's intellectual, physical, spiritual, social, cultural, biopsychological, ethical, and aesthetic experiences. Because genomics addresses all of the genes of a given person's human genome working together as a whole, genomics expands nursing's holistic view. Genetics and genomics are the basis of normal and pathophysiologic development, human health and disease, and health outcomes. Knowledge and interpretation of genetic and genomic information, gene-based testing, diagnosis, and treatment broaden the holistic view of nursing. It is a professional expectation that nurses understand genetics and genomics, and can apply this information in the clinical setting (American Nurses Association [ANA], 2017; Rogers, Lizer, Doughty, et al., 2017).

The *Essentials of Genetic and Genomic Nursing* (Consensus Panel, 2009) provides a framework for integrating genetics and genomics into nursing practice ([Chart 6-1](#)). This document includes a philosophy of care that recognizes when genetic and genomic factors play a role or could play a role in a person's health. This means assessing predictive genetic and genomic factors using family history and the results of genetic tests effectively, informing patients about genetic and genomic concepts, understanding the personal and societal impact of genetics and genomic information, and valuing the privacy and confidentiality of genetics and genomic information. There is also formal consensus regarding higher-level competencies in the application of genetics and genomics for nurses with graduate degrees. In addition, nurses need to be aware of genetic and genomic standards of practice as it relates to their specific area of clinical practice (Kerber & Ledbetter, 2017).

A person's response to genetic and genomic information, genetic testing, or genetic-related conditions may be either empowering or disabling. Genetic and genomic information may stigmatize people if it

affects how they view themselves or how others view them. Nurses help individuals and families learn how genetic traits and conditions are passed on within families as well as how genetic and environmental factors influence health and disease (Consensus Panel, 2009). Nurses facilitate communication among family members, the health care system, and community resources, and they offer valuable support to patients and families. All nurses should be able to apply genetic and genomic knowledge by (ANA, 2017):

- providing basic genetic or genomic information to a patient or family member,
- obtaining family health histories that are inclusive of genetic information for at least three generations,
- conducting physical and developmental assessments and then correlating relevant assessment findings to genetic alterations,
- formulating nursing diagnoses based on actual or potential genetic risk,
- implementing nursing care that is reflective of genetic and genomic competencies,
- facilitating genetic and genomic referrals, and
- collaborating with other health professionals.

For example, when nurses assess patients' cardiovascular risk, they can expand their assessment to include information about family history of hypertension, hypercholesterolemia, clotting disorders, or premature sudden cardiac death. Knowledge that genes are involved in the control of lipid metabolism, insulin resistance, blood pressure regulation, clotting factors, cardiac structure, and vascular lining function helps individualize care based on the patient's genetic and genomic risk profile.

Essential to a genetic and genomic framework in nursing is the awareness of one's attitudes, experience, and assumptions about genetics and genomic concepts and how these are manifested in one's own practice (Consensus Panel, 2009). To develop awareness of these attitudes, experiences, and assumptions, nurses must examine their own:

- Beliefs or values about health as well as family, religious, or cultural beliefs about the cause of illness and how one's values or biases affect understanding of genetic conditions
- Philosophical, theologic, cultural, and ethical perspectives related to health and how these perspectives influence one's use of genetic information or services
- Level of expertise about genetics and genomics

- Experiences with birth defects, chronic illnesses, and genetic conditions, along with one's view of such conditions as disabling or empowering
- Attitudes about the right to access and other rights of individuals with genetic disorders
- View and assumptions about deoxyribonucleic acid (DNA) and beliefs about the value of information about one's risk for genetic disorders
- Beliefs about reproductive options
- View of genetic testing and engineering
- Approach to patients with disability

Integrating Genetic and Genomic Knowledge

Scientific developments and advances in technology have increased our understanding of genetics, promoted prompt genetic screening and genetic testing for common and rare genetic disorders, and improved patient health outcomes (Khoury et al., 2018). Scientists are able to characterize inherited metabolic variations that interact over time and lead to common diseases such as cancer, heart disease, and dementia. The transition from genetics to genomics has increased understanding of how multiple genes act and control biologic processes. Many diseases are the result of a combination of genetic and environmental influences (Khoury, 2019).

Genes and Their Role in Human Variation

Genes are central components of human health and disease. The Human Genome Project has linked basic human genetics to human development, health, and disease (NIH, NHGRI, 2018). Knowledge that specific genes are associated with specific genetic conditions makes diagnosis possible, even in the unborn. Many common conditions have genetic causes, and many more associations between genetics, health, and disease continue to be identified.

Genes and Chromosomes

A person's unique genetic composition, called a **genotype**, is made up of approximately 25,000 genes (NIH, NLM, 2019c). A person's **phenotype**—the observable characteristics or expression of their genotype—

includes physical appearance and other biologic, physiologic, and molecular traits. Environmental influences modify every person's phenotype, even phenotypes with a major genetic component. This concept of genotype and phenotype applies to a person's total genome and the respective traits of their genetic makeup.

The concepts of genotype and phenotype also apply to specific diseases. For example, in hypercholesterolemia, the genotype refers to specific apolipoprotein genes (*LDLR*, *APOB*, *LDLRAP1*, or *PCSK9*) that involve mutations in low-density lipoprotein (LDL) receptors which control lipid metabolism (NIH, NLM, 2019d). Whereas, phenotype is characterized by early onset of cardiovascular disease, high levels of LDL, skin xanthomas, and a family history of heart disease. A person's genotype, consisting of normal functioning genes as well as some mutations, is characterized by physical and biologic traits that may predispose to disease.

Human growth and development and disease occur as a result of both genetic and environmental influences and interactions. The contribution of genetic factors may be large or small. For example, in a person with cystic fibrosis or phenylketonuria (PKU), the genetic contribution is significant. In contrast, the genetic contribution underlying a person's response to infection may be less applicable.

A single gene is conceptualized as a unit of heredity. A gene is composed of a segment of **deoxyribonucleic acid (DNA)** that contains a specific set of instructions for making the protein or proteins needed by body cells for proper functioning. Genes regulate both the types of proteins made and the rate at which proteins are produced. The structure of the DNA molecule is referred to as a double helix. The essential components of the DNA molecule are sugar–phosphate molecules and pairs of nitrogenous bases. Each nucleotide contains a sugar (deoxyribose), a phosphate group, and one of four nitrogenous bases: adenine (A), cytosine (C), guanine (G), and thymine (T). DNA is composed of two paired strands, each made up of a number of nucleotides. The strands are held together by hydrogen bonds between pairs of bases (Fig. 6-1).

Genes are arranged in a linear order within **chromosomes**, which are microscopic structures located in the cell nucleus. In humans, 46 chromosomes occur in pairs in all body cells except oocytes (eggs) and sperm, which each contains only 23 unpaired chromosomes. Twenty-two pairs of chromosomes, called *autosomes*, are the same in females and males. The 23rd pair is referred to as the sex chromosomes. A female has

two X chromosomes, whereas a male has one X chromosome and one Y chromosome. At conception, each parent normally gives one chromosome of each pair to their child. As a result, children receive half of their chromosomes from fathers and half from mothers (Fig. 6-2).

Careful examination of DNA sequences from many people shows that these sequences have multiple versions in a population. The different versions of these sequences are called *alleles*. Sequences found in many forms are said to be polymorphic, meaning that there are at least two common forms of a particular gene.

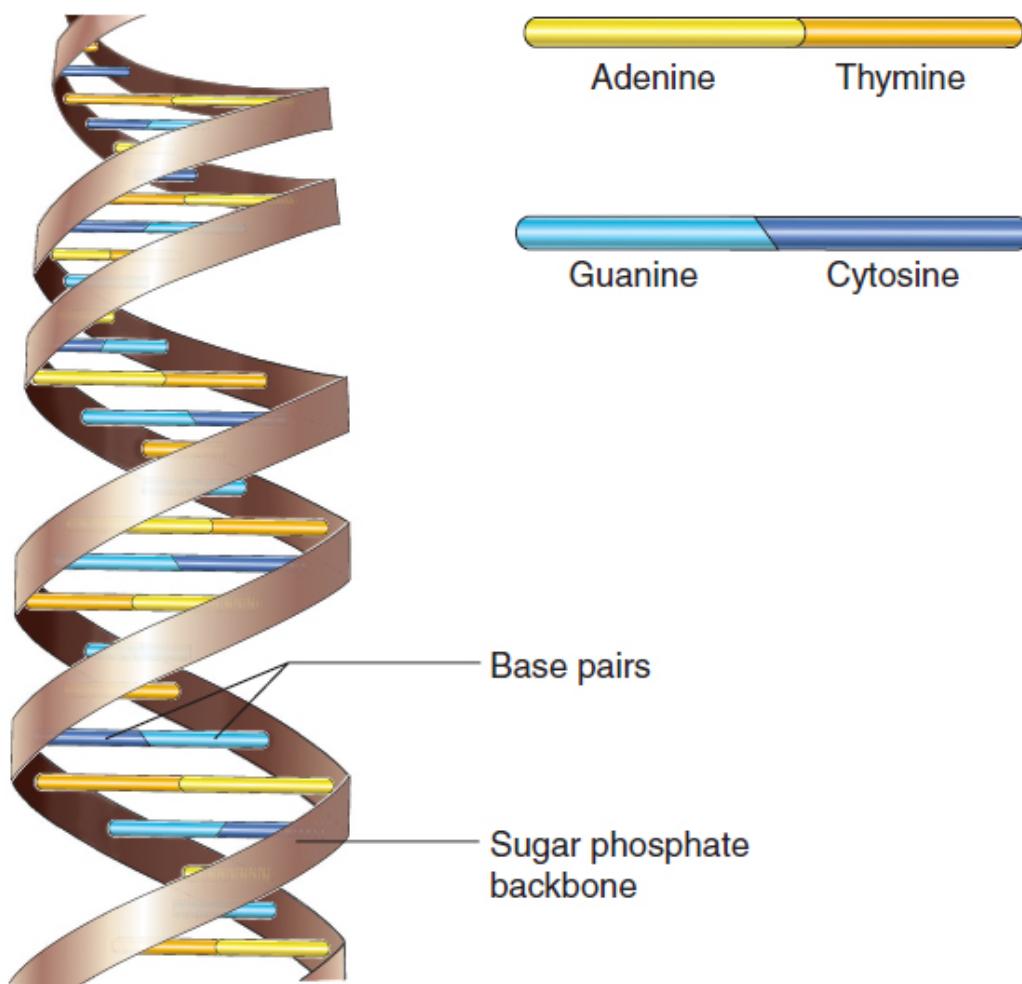


Figure 6-1 • DNA is a double helix formed by base pairs attached to a sugar-phosphate backbone. DNA carries the instructions that allow cells to make proteins. DNA is made up of four chemical bases. Redrawn from Genetics Home Reference, retrieved on 7/29/2020 at www.ghr.nlm.nih.gov/primer/basics/dna

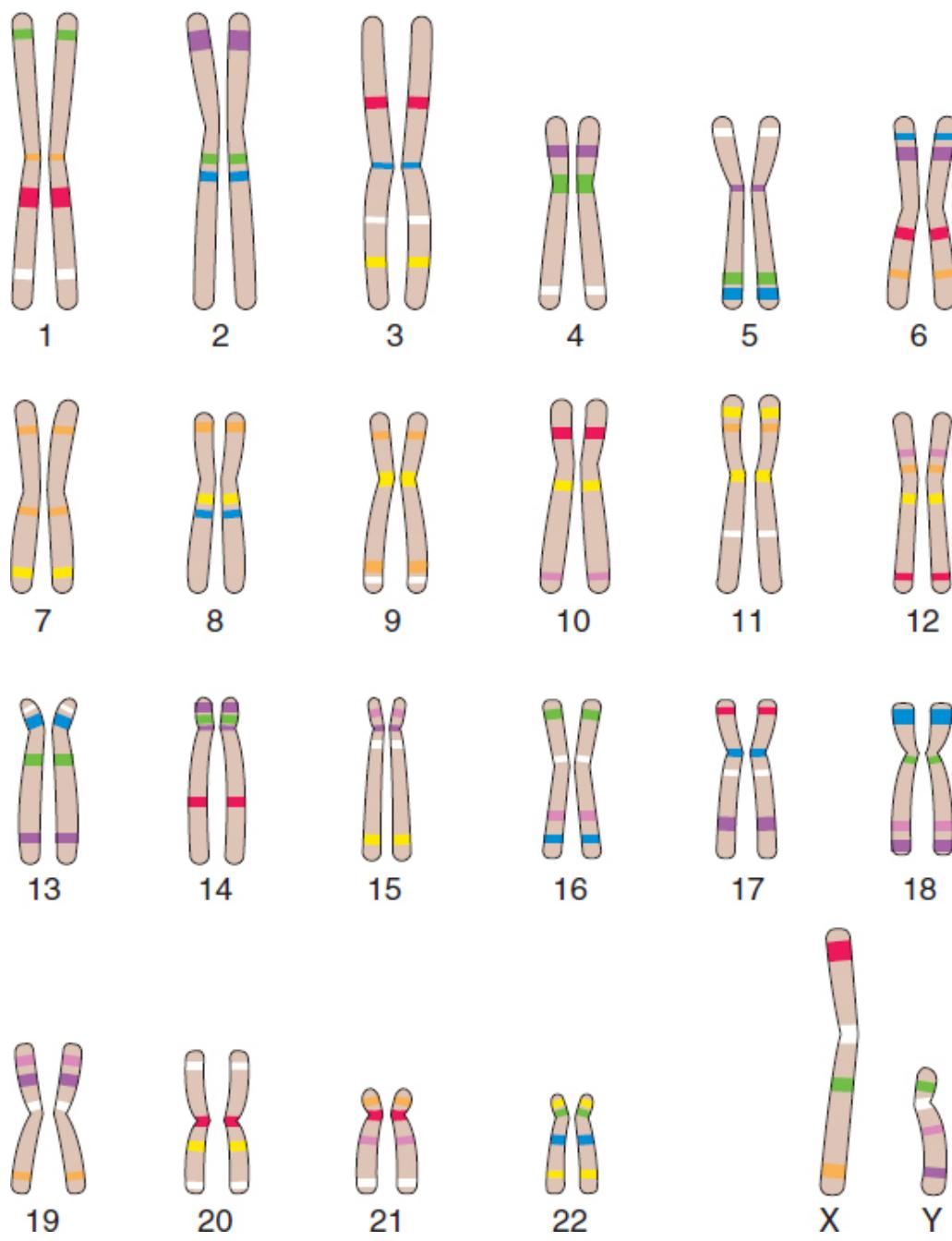


Figure 6-2 • Each human cell contains 23 pairs of chromosomes, which can be distinguished by their size and unique banding patterns. This set is from a male, because it contains a Y chromosome. Females have two X chromosomes.

Cell Division

The human body grows and develops as a result of the process of cell division. Mitosis and meiosis are two distinctly different types of cell

division.

Mitosis is involved in cell growth, differentiation, and repair. During mitosis, the chromosomes of each cell duplicate. The result is two cells, called *daughter cells*, each of which contains the same number of chromosomes as the parent cell. The daughter cells are said to be diploid because they contain 46 chromosomes in 23 pairs. Mitosis occurs in all cells of the body except oocytes and sperm.

Meiosis, in contrast, occurs only in reproductive cells and is the process by which oocytes and sperm are formed. During meiosis, a reduction in the number of chromosomes takes place, resulting in oocytes or sperm that contain half the usual number, or 23 chromosomes. Oocytes and sperm are referred to as haploid because they contain a single copy of each chromosome, compared to the usual two copies in all other body cells. During meiosis, as the paired chromosomes come together in preparation for cell division, portions cross over, and an exchange of genetic material occurs before the chromosomes separate. This event, called *recombination*, creates greater diversity in the makeup of oocytes and sperm.

During the process of meiosis, a pair of chromosomes may fail to separate completely, creating a sperm or oocyte that contains either two copies or no copy of a particular chromosome. This sporadic event, called **nondisjunction**, can lead to either a trisomy or a monosomy (Jackson, Marks, May, et al., 2018). Down syndrome is an example of trisomy, in which people have three copies of chromosome number 21. Turner syndrome is an example of monosomy, in which girls have a single X chromosome, causing them to have short stature and infertility (NIH, NLM, 2019e).

Gene Mutations

Within each cell, many intricate and complex interactions regulate and express human genes. Gene structure and function, transcription and translation, and protein synthesis are all involved. Alterations in gene structure and function and the process of protein synthesis may influence a person's health. Changes in gene structure, called **mutations**, permanently change the sequence of DNA, which in turn can alter the nature and type of proteins made (Fig. 6-3).

Some gene mutations have no significant effect on the protein product, whereas others cause partial or complete changes. How a protein is altered and its importance to body functioning determines the impact of the mutation. Gene mutations may occur in hormones, enzymes, or other

important protein products, with significant implications for health and disease. Sickle cell disease is a genetic condition caused by a small gene mutation that affects protein structure, producing hemoglobin S. A person who inherits two copies of the hemoglobin S gene mutation has sickle cell disease and experiences the symptoms of severe anemia and thrombotic organ damage resulting from hypoxia (NIH, NLM, 2019f).

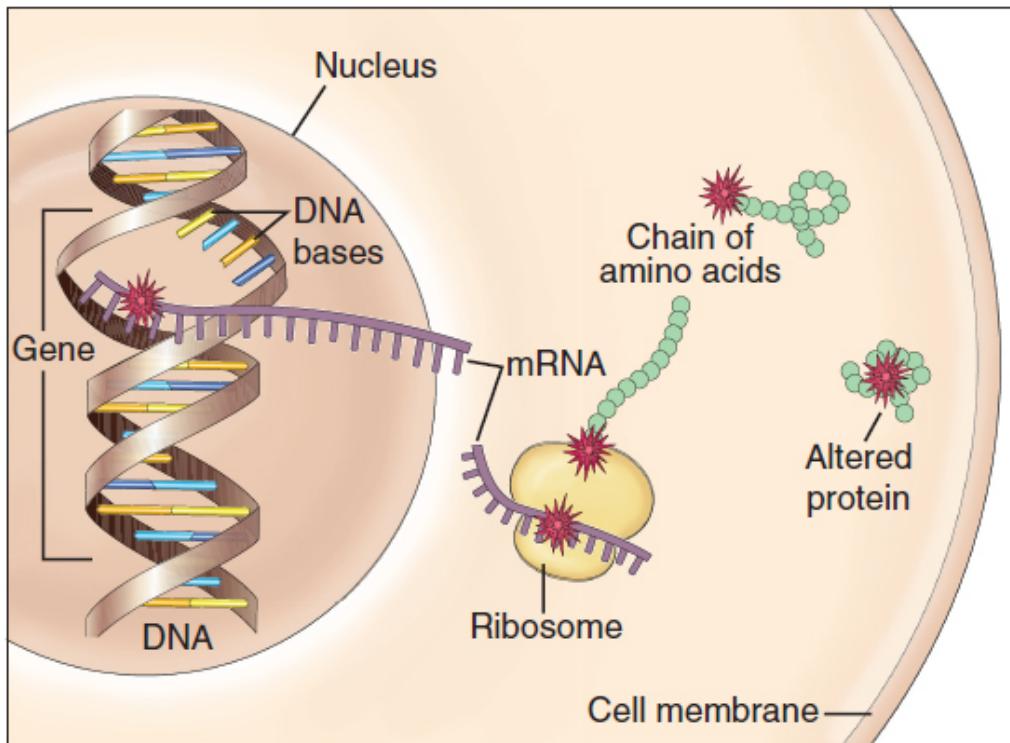


Figure 6-3 • When a gene contains a mutation, the protein encoded by that gene is likely to be abnormal. Sometimes the protein is able to function, although it does so imperfectly. In other cases, it is totally disabled. The outcome depends not only on how the mutation alters the protein's function but also on how vital that particular protein is to survival.

Other gene mutations include deletion (loss), insertion (addition), duplication (multiplication), or translocation (rearrangement) of a longer DNA segment (Jackson et al., 2018). Duchenne muscular dystrophy, myotonic dystrophy, Huntington disease, and fragile X syndrome are examples of conditions caused by gene mutations.

Gene mutations may be inherited or acquired. Inherited or germline gene mutations are present in the DNA of all body cells and are passed on in reproductive cells from parent to child. Germline or hereditary

mutations are passed on to all daughter cells when body cells replicate (Fig. 6-4). The gene that causes Huntington disease is one example of a germline mutation.

Spontaneous mutations take place in individual oocytes or sperm at the time of conception. A person who carries the new “spontaneous” mutation may pass on the mutation to his or her children. Achondroplasia, Marfan syndrome, and neurofibromatosis type 1 are examples of genetic conditions that may occur in a single family member as a result of spontaneous mutation.

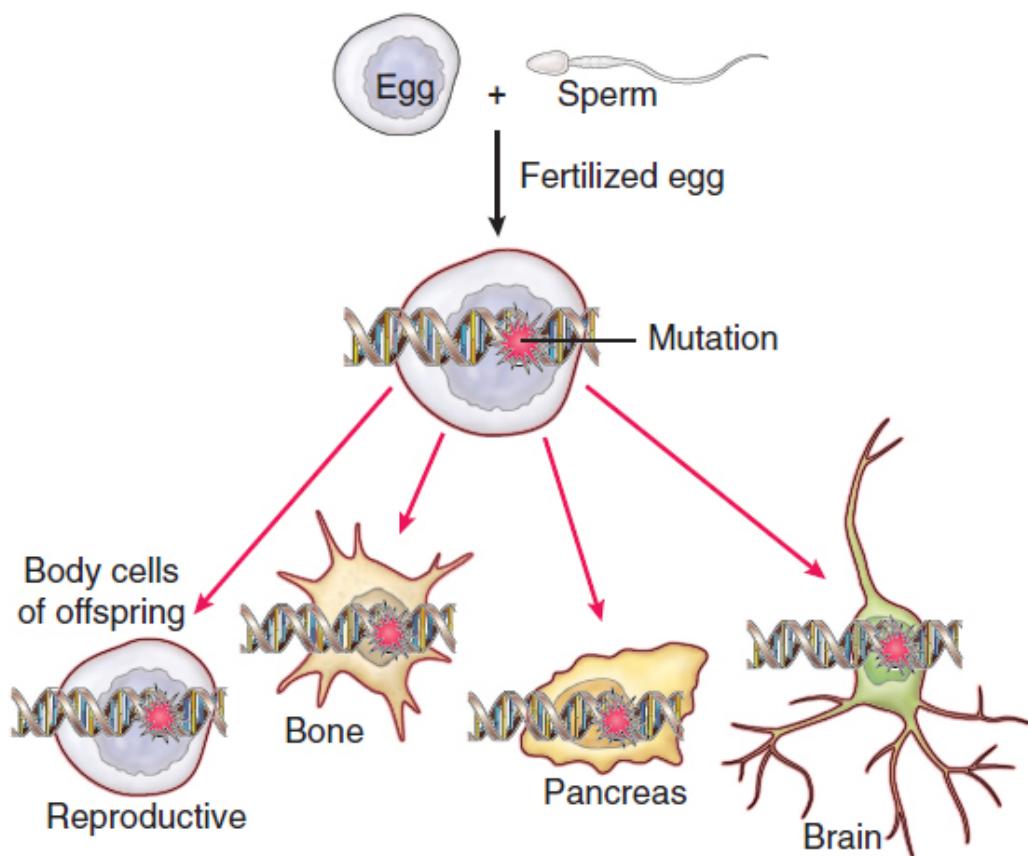


Figure 6-4 • Hereditary mutations are carried in the DNA of the reproductive cells. When reproductive cells containing mutations combine to produce offspring, the mutation is present in all of the offspring's body cells.

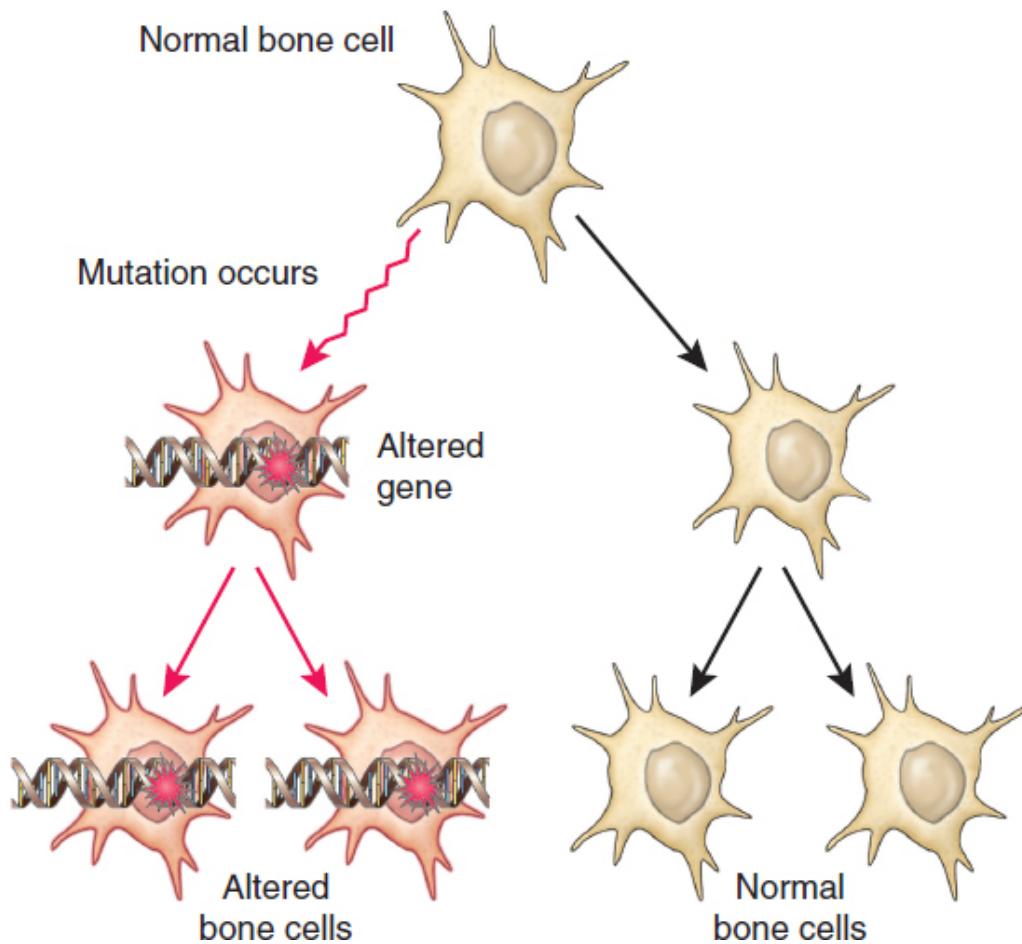


Figure 6-5 • Acquired mutations develop in DNA during a person's lifetime. If the mutation arises in a body cell, copies of the mutation will exist only in the descendants of that particular cell.

Acquired mutations take place in somatic cells and involve changes in DNA that occur after conception, during a person's lifetime. Acquired mutations develop as a result of cumulative changes in body cells other than reproductive cells (Fig. 6-5). Somatic gene mutations are passed on to the daughter cells derived from that particular cell line.

Gene mutations occur in the human body all the time. Cells have built-in mechanisms by which they can recognize mutations in DNA, and in most situations, they correct the changes before they are passed on by cell division. However, over time, body cells may lose their ability to repair damage from gene mutations, causing an accumulation of genetic changes that result in diseases such as cancer, Alzheimer's disease, and disorders associated with aging (Khoury, 2019).

Genetic Variation

Genetic variations occur among all people. Single nucleotide polymorphisms (SNPs, referred to as “snips”) is the term used to identify common genetic variations that occur most frequently throughout the human genome (Jackson et al., 2018). SNPs are changes in a single nucleotide (an A, T, C, or G) of the DNA sequence. For example, a normal DNA sequence of AAGG could change to ATGG; in this case, there is one single nucleotide change from A to T. Most SNPs do not alter normal cell function. Some SNPs do alter gene function and may influence disease development. Knowledge about SNPs that affect biologic function will help pinpoint individuals who may be more prone to common diseases such as cancer, diabetes, and heart disease. Information on SNPs has helped to clarify why some individuals metabolize drugs differently (Centers for Disease Control and Prevention [CDC], 2018a). For example, a polymorphism or SNP can alter protein or enzyme activity of medications. If the SNP causes a variation in drug transport or drug metabolism, the drug’s action, half-life, or excretion could lead to lack of drug response or drug toxicity.

Epigenetics

Epigenetics refers to generational changes within the genetic instruction (NIH, NLM, 2019b). Over time, epigenetic influences can cause cellular change throughout the lifetime of the affected person and be passed on to subsequent generations. Epigenomics, which is the study of epigenetics, is an expanding area of research that correlates epigenetics to cancer, psychiatric disorders, obesity, diabetes, and autoimmune disease (Jackson et al., 2018).

Inheritance Patterns

Nursing assessment of the patient’s health includes obtaining and recording family history information in the form of a **pedigree** (i.e., a diagrammatic representation of a family history). This is a first step in establishing the pattern of inheritance. Nurses must be familiar with mendelian patterns of inheritance and pedigree construction and analysis to help identify patients and families who may benefit from further genetic counseling, testing, and treatment (Consensus Panel, 2009).

Mendelian conditions are genetic conditions that are inherited in fixed proportions among generations. They result from gene mutations that are present on one or both chromosomes of a pair. A single gene inherited

from one or both parents can cause a mendelian condition. Mendelian conditions are classified according to their pattern of inheritance: autosomal dominant, autosomal recessive, and X-linked. The terms dominant and recessive refer to the trait, genetic condition, or phenotype but not to the genes or alleles that cause the observable characteristics (Jackson et al., 2018).

Autosomal Dominant Inheritance

The term **dominant** refers to the trait of the gene that is expressed when two genes do not mirror each other on matched chromosomes. Autosomal dominant inherited conditions affect female and male family members equally and follow a vertical pattern of inheritance in families ([Fig. 6-6](#)). The presence of an autosomal dominant inherited condition only requires a genetic mutation on one of the chromosomes associated with that pair. Each of that person's offspring has a 50% chance of inheriting the gene mutation for the condition and a 50% chance of inheriting the normal version of the gene ([Fig. 6-7](#)). Offspring who do not inherit the gene mutation do not develop the condition and do not have an increased chance for having children with the same condition. [Table 6-2](#) presents characteristics and examples of different patterns of inherited conditions.

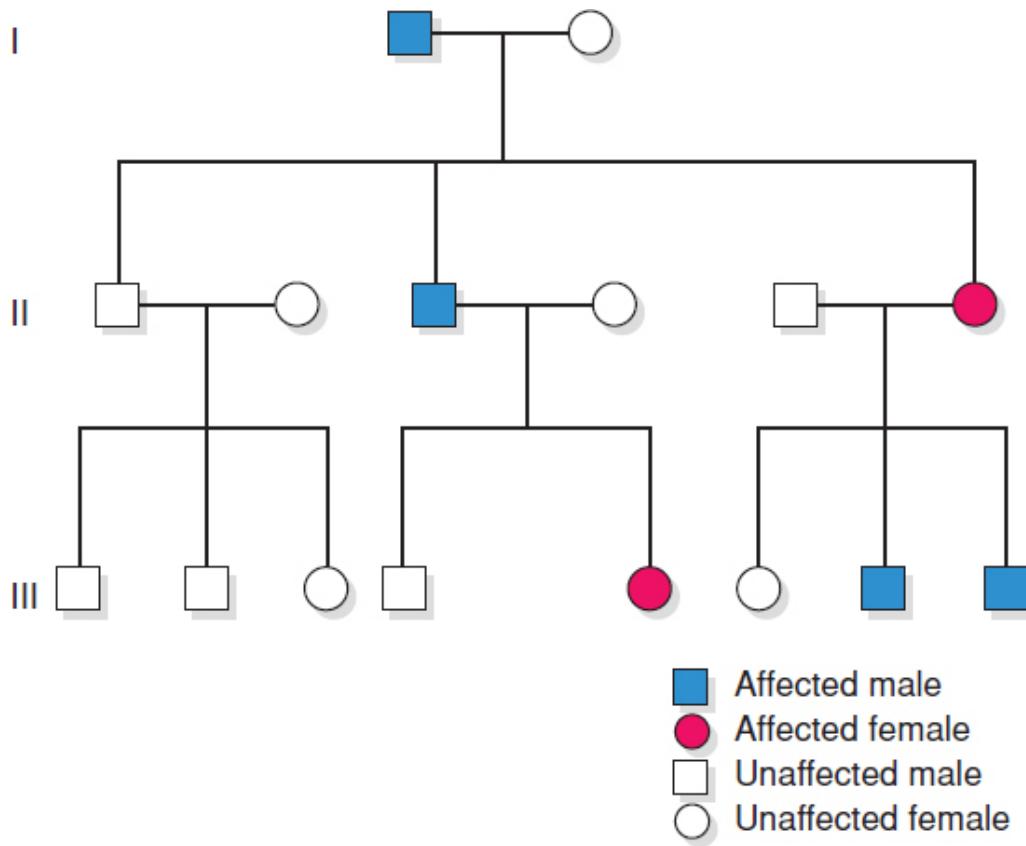


Figure 6-6 • Three-generation pedigree illustrating autosomal dominant inheritance.

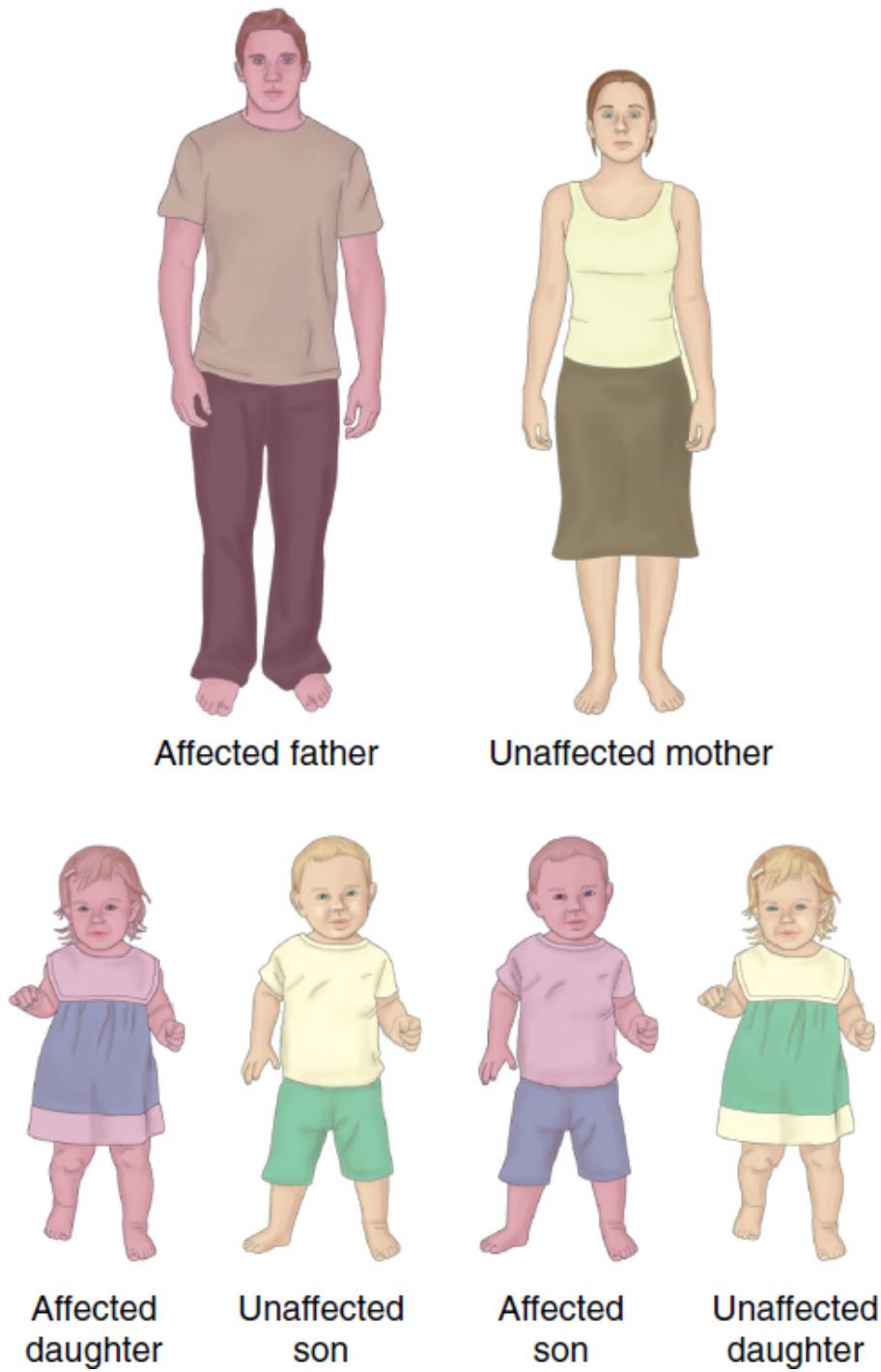


Figure 6-7 • In dominant genetic disorders, if one affected parent has a disease-causing allele that dominates its normal counterpart, each child in the family has a 50% chance of inheriting the disease allele and the disorder.

Autosomal dominant conditions often manifest with varying degrees of severity. Some affected people may have significant symptoms,

whereas others may have only mild ones. This characteristic is referred to as **variable expression**; it results from the influences of genetic and environmental factors on clinical presentation.

Another phenomenon observed in autosomal dominant inheritance is penetrance, or the percentage of people known to have a particular gene mutation who actually show the trait. Almost complete penetrance is observed in conditions such as achondroplasia, in which nearly 100% of people with the gene mutation typically display traits of the disease. However, in some conditions, the presence of a gene mutation does not invariably mean that a person has or will develop an autosomal inherited condition. For example, a woman who has the *BRCA1* hereditary breast cancer gene mutation has a lifetime risk of breast cancer that can be as high as 80%, not 100%. This quality, known as reduced or incomplete penetrance, indicates the probability that a given gene will produce disease. In other words, a person may inherit the gene mutation that causes an autosomal dominant condition but may not have any of the observable physical or developmental features of that condition. However, this person carries the gene mutation and still has a 50% chance of passing the gene for the condition to each of their children (NIH, NLM, 2019g). One of the effects of incomplete penetrance is that the gene appears to “skip” a generation, thus leading to errors in interpreting family history and in genetic counseling.

TABLE 6-2 Patterns of Inheritance

Characteristics	Examples
Autosomal Dominant Inherited Conditions	
Vertical transmission in families Males and females equally affected Variable expression among family members and others with condition Reduced penetrance (in some conditions) Advanced paternal age associated with sporadic cases	Hereditary breast/ovarian cancer syndrome Familial hypercholesterolemia Hereditary non-polyposis colorectal cancer Huntington disease Marfan syndrome Neurofibromatosis
Autosomal Recessive Inherited Conditions	
Horizontal pattern of transmission seen in families Males and females equally affected Associated with consanguinity (genetic relatedness) Associated with particular ethnic groups	Cystic fibrosis Galactosemia Phenylketonuria Sickle cell disease Tay-Sachs disease Canavan disease
X-Linked Inherited Conditions	
Vertical transmission in families Males predominantly affected	Duchenne muscular dystrophy Hemophilia A Wiskott–Aldrich syndrome Color blindness Fragile X
Mitochondrial Inherited Conditions	
Transmission occurs through the mother All children have the condition	Leber's hereditary optic neuropathy Leigh syndrome Kearns–Sayre syndrome
Multifactorial Inherited Conditions	
Occur as a result of combination of genetic and environmental factors May recur in families Inheritance pattern does not demonstrate characteristic pattern of inheritance seen with other mendelian conditions	Congenital heart defects Cleft lip and/or palate Neural tube defects (anencephaly and spina bifida) Diabetes Osteoarthritis High blood pressure Alzheimer's disease Hypothyroidism

Adapted from Learn Genetics, Genetic Science Learning Center. (2019). Genetic disorders. Retrieved on 8/30/2019 at:

www.learn.genetics.utah.edu/content/disorders; National Institutes of Health (NIH), U.S. National Library of Medicine (NLM); Genetics Home Reference. (2015). What are the different ways in which a genetic condition can be inherited? Retrieved on 8/30/2019 at: www.ghr.nlm.nih.gov/primer/inheritance/inheritancepatterns

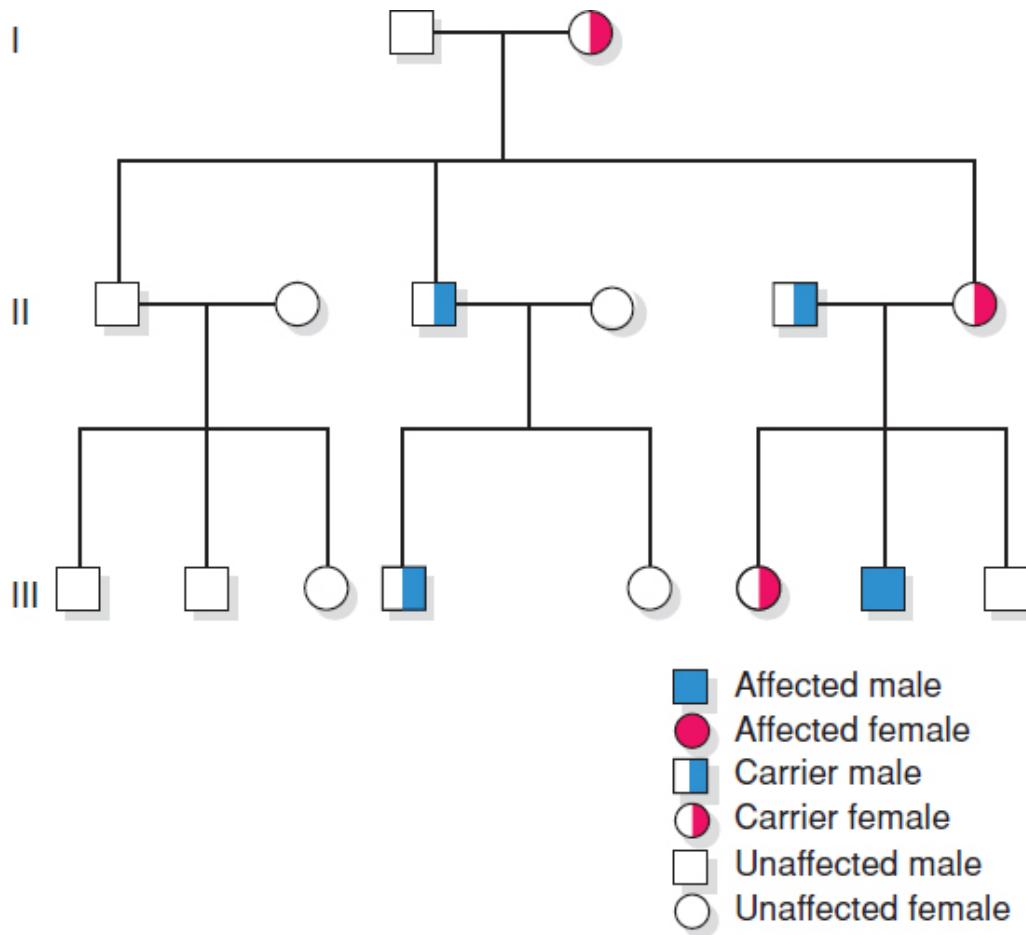


Figure 6-8 • Three-generation pedigree illustrating autosomal recessive inheritance.

Autosomal Recessive Inheritance

The term **recessive** refers to a genetic trait that is expressed only when a person has two copies of a mutant autosomal gene or a single copy of a mutant X-linked gene in the absence of another X chromosome. In contrast to autosomal dominant conditions, autosomal recessive conditions have a pattern that is more horizontal than vertical; relatives of a single generation tend to have the condition (Fig. 6-8). Autosomal recessive conditions are frequently seen among particular ethnic groups

and usually occur more often in children of parents who are related by blood, such as first cousins (see [Table 6-2](#)).

In autosomal recessive inheritance, each parent carries a gene mutation on one chromosome of the pair and a normal gene on the other chromosome. The parents are said to be **carriers** of the gene mutation. Unlike people with an autosomal dominant condition, carriers of a gene mutation for a recessive condition do not have symptoms of the genetic condition. When carriers have children together, there is a 25% chance that each child may inherit the gene mutation from both parents and have the condition ([Fig. 6-9](#)). Cystic fibrosis, sickle cell disease, and PKU are examples of autosomal recessive conditions (Jackson et al., 2018).

X-Linked Inheritance

X-linked conditions may be inherited in recessive or dominant patterns (see [Table 6-2](#)). In both, the gene mutation is located on the X chromosome. All males inherit an X chromosome from mothers and a Y chromosome from fathers for a normal sex constitution of 46, XY. Because males have only one X chromosome, they do not have a counterpart for its genes, as do females. This means that a gene mutation on the X chromosome of a male is expressed even though it is present in only one copy. Females, on the contrary, inherit one X chromosome from each parent for a normal sex constitution of 46, XX. A female may be an unaffected carrier of a gene mutation, or she may be affected if the condition results from a gene mutation causing an X-linked dominant condition. Either the X chromosome that she received from her mother or the X chromosome she received from her father may be passed on to each of her offspring, and this is a random occurrence.

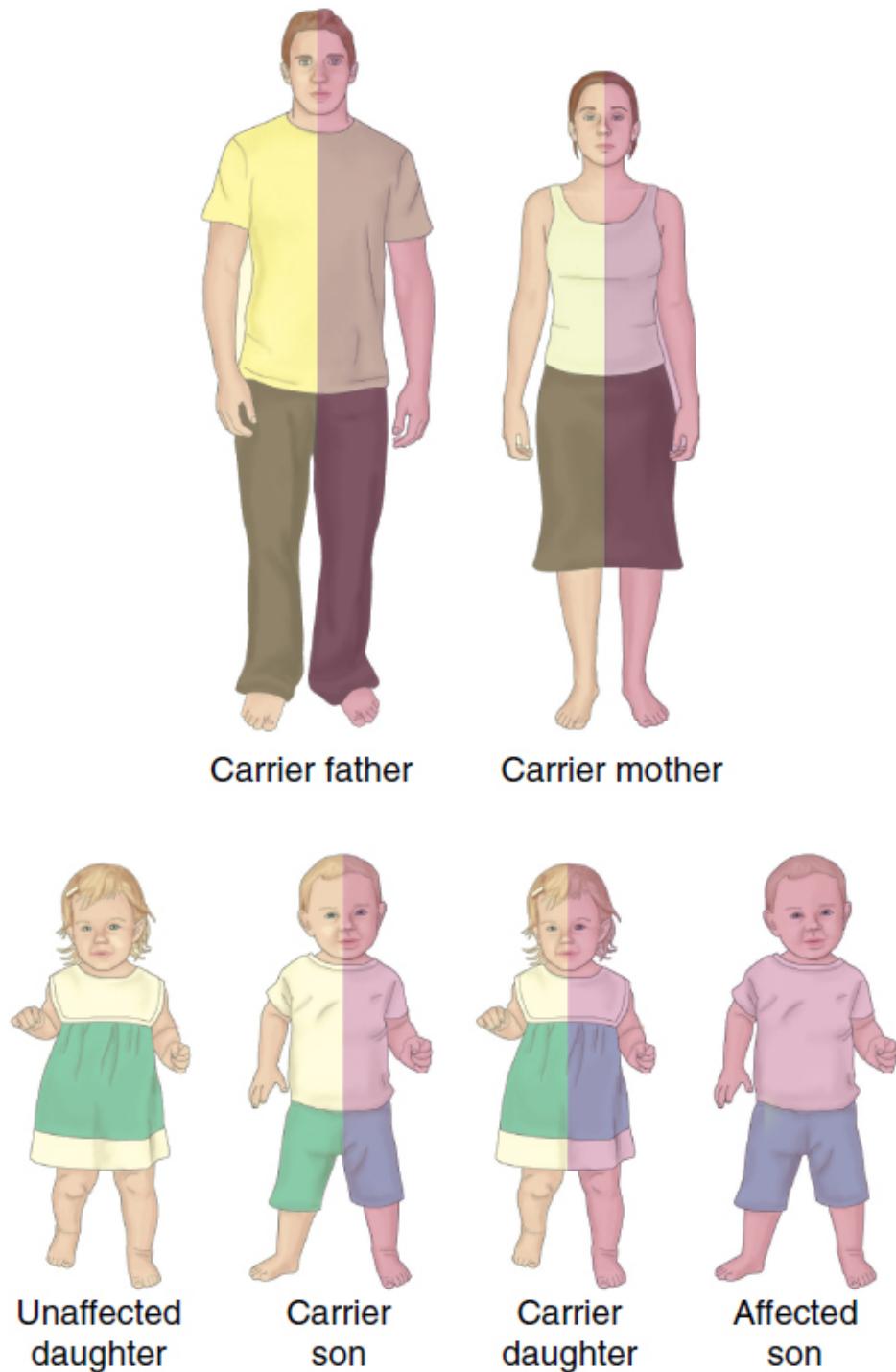


Figure 6-9 • In diseases associated with altered recessive genes, both parents—although disease free themselves—carry one normal allele and one altered allele. Each child has one chance in four of inheriting two abnormal alleles and developing the disorder; one chance in four of inheriting two normal alleles; and two chances in four of inheriting one normal

and one altered allele—therefore, being a carrier like both parents.

The most common pattern of X-linked inheritance is that in which a female is a carrier for a gene mutation on one of her X chromosomes. This is referred to as X-linked recessive inheritance, in which a female carrier has a 50% chance of passing on the gene mutation to a son, who would be affected, or to a daughter, who would be a carrier like her mother ([Fig. 6-10](#)). Examples of X-linked recessive conditions include factor VIII and factor IX hemophilia, severe combined immunodeficiency, and Duchenne muscular dystrophy (Jackson et al., 2018).

Mitochondrial Inheritance

The mitochondrion is an organelle, a cellular component associated with generating cellular energy. Although it is not a part of the nucleus, genetic alterations can occur in the mitochondria and be passed to offspring. These disorders are typically associated with muscle or nerve tissue. Unique to mitochondrial inheritance is that only the mother will pass the mitochondrial DNA to her offspring, and thus the genetic disorder to her children, and all of her children will inherit the disorder. Examples of mitochondrial inheritance include Leber's hereditary optic neuropathy, Leigh syndrome, and Kearns–Sayre syndrome (Jackson et al., 2018; see [Table 6-2](#)).

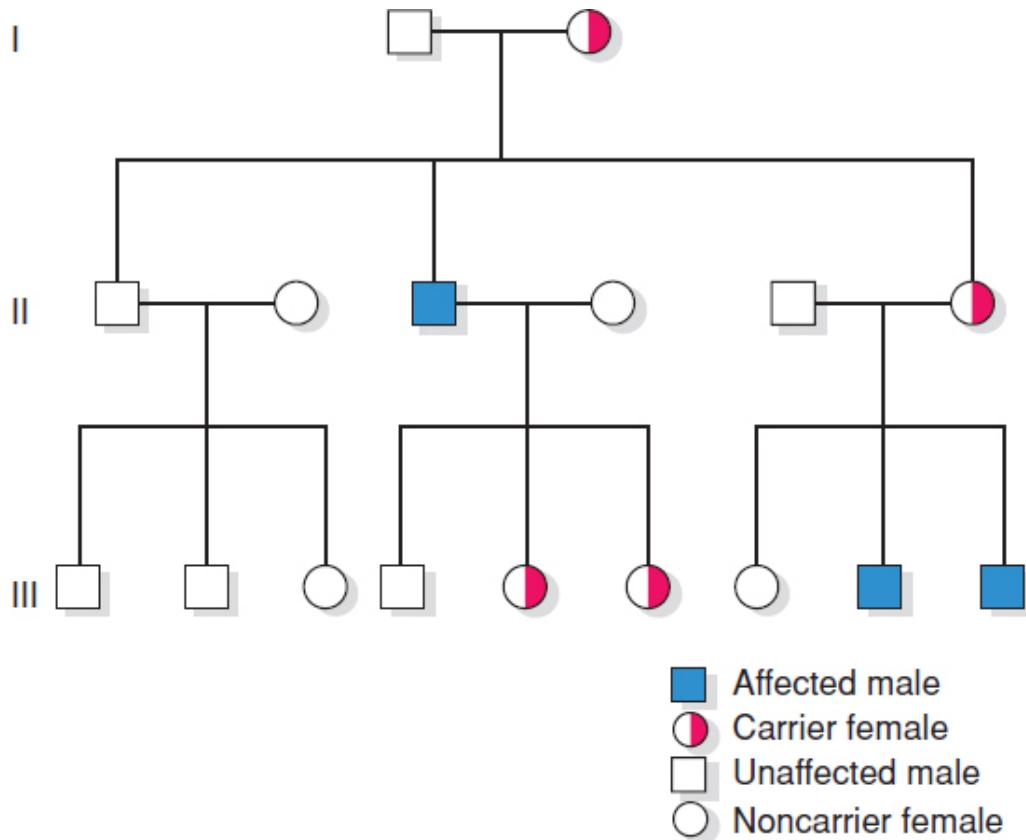


Figure 6-10 • Three-generation pedigree illustrating X-linked recessive inheritance.

Multifactorial Inheritance and Complex Genetic Conditions

Many birth defects and common health conditions such as heart disease, high blood pressure, cancer, osteoarthritis, and diabetes occur as a result of interactions of multiple gene mutations and environmental influences. Thus, they are called *multifactorial* or *complex conditions* (see Table 6-2). Other examples of multifactorial genetic conditions include neural tube defects such as spina bifida and anencephaly. Multifactorial conditions may cluster in families; however, they do not always result in the characteristic pattern of inheritance seen in families who have mendelian inherited conditions (Fig. 6-11).

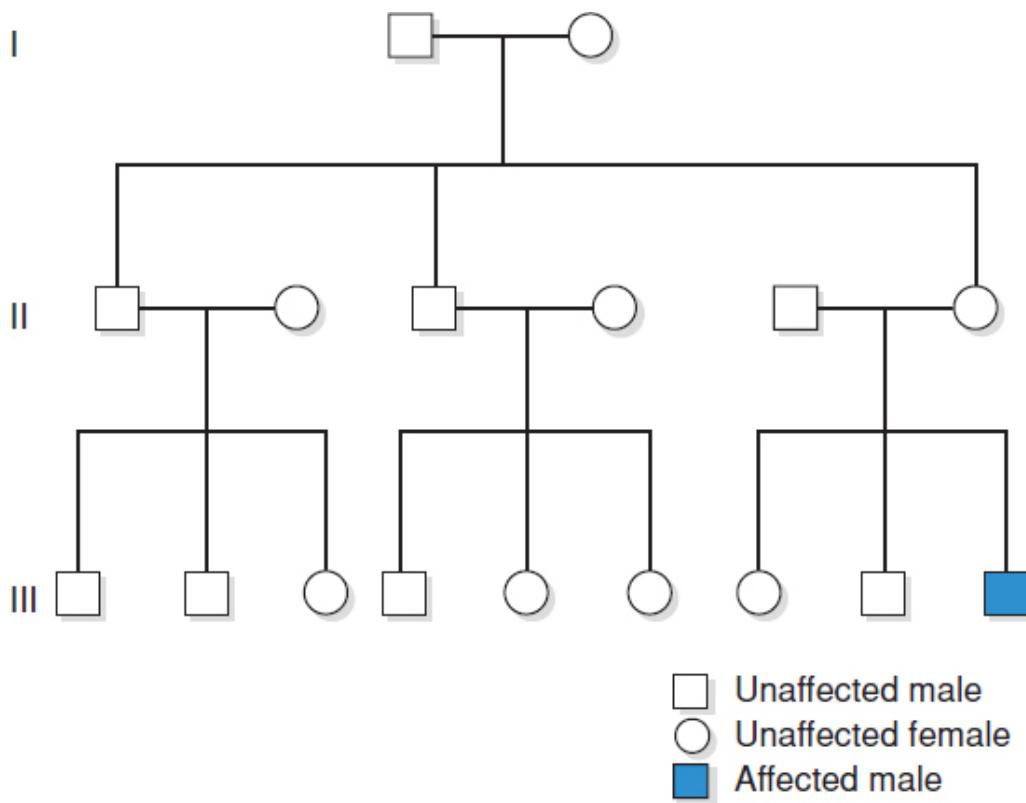


Figure 6-11 • Three-generation pedigree illustrating multifactorial conditions.

Nontraditional Inheritance

Although mendelian conditions manifest with a specific pattern of inheritance in some families, many diseases and traits do not follow these simple patterns. Various factors influence how a gene performs and is expressed. Different mutations in the same gene can produce variable symptoms in different people, as in cystic fibrosis. Different mutations in several genes can lead to identical outcomes, as in Alzheimer's disease. Some traits involve simultaneous mutation in two or more genes. A phenomenon known as genetic imprinting can determine which of a pair of genes (that of the mother or the father) is silenced or activated. This form of inheritance has been observed in Angelman syndrome, a severe form of intellectual disability and ataxia (NIH, NLM, 2019h).

Chromosomal Differences and Genetic Conditions

Differences in the number or structure of chromosomes are a major cause of birth defects, intellectual disability, and malignancies. Chromosomal differences most commonly involve an extra or missing chromosome; this

is called *aneuploidy*. These genetic alterations are neither inherited nor passed down through generations. Whenever there is an extra or missing chromosome, there is always associated intellectual or physical disability to some degree (NIH, National Center for Advancing Translational Sciences [NCATS], 2017).

Down syndrome, or trisomy 21, is a common chromosomal condition that occurs with greater frequency in pregnancies of women who are 35 years of age or older. A person with trisomy 21 has a complete extra chromosome 21, which causes a particular facial appearance and increased risk of congenital heart defects, thyroid and vision problems, and intellectual disability. Other examples of chromosomal differences include trisomy 13 and trisomy 18, both more severe than Down syndrome, and conditions involving extra or missing sex chromosomes, such as Turner syndrome (Jackson et al., 2018).

Chromosomal differences may also involve a structural rearrangement within or between chromosomes. These are less common than chromosomal conditions in which there is an extra or missing chromosome (NIH, NCATS, 2017). People who carry “balanced” chromosome rearrangements have all of their chromosomal material; however, it is rearranged. Women with a “balanced” chromosomal rearrangement have an increased risk of spontaneous pregnancy loss and of having children with an unbalanced chromosomal arrangement that may result in physical or intellectual disability. Known carriers of these chromosomal differences are offered prenatal counseling and testing.

Chromosome studies may be needed at any age, depending on the indication. Two common indications for these studies include a suspected diagnosis of Down syndrome or a history of two or more unexplained pregnancy losses. Chromosome studies are accomplished by obtaining a tissue sample (e.g., blood, skin, and amniotic fluid), preparing and staining the chromosomes, and analyzing them under a microscope. The microscopic study of chromosomes, called *cytogenetics*, is used with molecular techniques such as fluorescent in situ hybridization (FISH), which permits more detailed examination of chromosomes (Jackson et al., 2018). FISH is useful to detect small abnormalities and to characterize chromosomal rearrangements.

Genetic and Genomic Technologies in Practice

Genetic tests are used to detect a trait, to diagnose a genetic condition, or to identify people who have a genetic predisposition to a particular

disease or condition. A plethora of genetic tests are available; some may be purchased directly by the consumer. The Genetic Testing Registry recognizes genetic tests for almost 12,000 genetic conditions (National Center for Biotechnology Information [NCBI], NLM, 2019a). Advances in the application of genetic testing are noted in pharmacogenetics, preimplantation genetic diagnosis, newborn screening, direct-to-consumer testing, and prenatal screening. Forms of genetic testing or genetic screening are available across the lifespan, extending from preimplantation genetic screening during pregnancy to posthumous testing (Bilkey, Burns, Coles, et al., 2019). Future applications may include the use of gene chips to map a person's individual genome for genetic variations that may lead to disease. Nurses are involved in caring for patients who are undergoing genetic testing and gene-based treatments. Knowledge of the clinical applications of modern genetic and genomic technologies enables nurses to inform and to support patients and their family members, and to provide high-quality genetic-related health care.

Genetic Testing

Genetic testing is the primary tool used to identify individuals who are predisposed to specific genetic diseases. Genetic tests provide information leading to the diagnosis of inherited conditions or other conditions with a known genetic contribution.

Approaches to genetic testing may focus on genotype or phenotype. Genotypic methods involve analysis of the chromosomes and genes directly, using specific laboratory techniques to learn whether a genetic alteration related to a specific disease or condition is present. This testing may be DNA based, chromosomal, or biochemical. Awareness of molecular biomarkers that can enhance the sensitivity and specificity of genetic-related tests allows for early detection of genetic illness, and for researchers to understand genetic pathways that may be useful in the treatment of specific disorders (van Lanschot, Bosch, de Wit, et al., 2017). Phenotypic methods examine the familial or biologic presentation of disease and include assessment of the patient's personal or family history and medical factors influencing their disease as well as testing for gene products such as protein markers in body fluids or diseased tissues. The family history, which is considered the first genetic test, is discussed later in this chapter (see the Family History Assessment section). It is

expected that all nurses are able to create and interpret a three-generation family pedigree (Consensus Panel, 2009).

Another phenotypic approach involves searching for gene products, such as proteins and enzymes that can clinically indicate a genetic abnormality. For example, germline mutations in the repair genes *MLH1*, *MSH2*, *MSH6*, and *PMS2* are responsible for hereditary early-onset colorectal cancer or Lynch syndrome. Colorectal tumors are now tested to measure the presence or absence of these proteins using immunohistochemistry, which is a routine type of pathology test. Specific colon cancer gene mutations are used to identify other genetic forms of colon cancer which increases the likelihood of cancer in other areas of the body. These include not only Lynch syndrome, but also familial adenomatous polyposis (FAP), Peutz–Jeghers, Cowden syndrome, and juvenile polyposis syndrome (Edwards & Maradiague, 2018).

Genetic testing can be used for various purposes in prenatal, pediatric, and adult populations. Prenatal testing is widely used for **prenatal screening** and diagnosis of conditions such as Down syndrome. **Preimplantation genetic testing**, a form of prenatal genetic testing, detects the presence of genetic abnormalities in embryos (Parikh, Athalye, Naik, et al., 2018). Carrier testing is used to determine if a person carries a recessive allele for an inherited condition (e.g., cystic fibrosis, sickle cell disease, Tay-Sachs disease) and, therefore, risks passing it on to his or her children. Genetic testing is also used widely in newborn screening. Newborn testing is performed on infants to identify conditions, such as PKU, in which interventions can be implemented to prevent severe outcomes.

Diagnostic testing is used to detect the presence or absence of a particular genetic alteration or allele to identify or confirm a diagnosis of a disease or condition (e.g., myotonic dystrophy, fragile X syndrome) (Chart 6-2). Increasingly, genetic tests are being used to predict drug response and to design specific and individualized treatment plans or personalized medicine. For example, genetic testing is used to identify specific gene variants that can predict the effectiveness of treatments of human immunodeficiency virus infection, atherothrombosis, thrombophilia, hyperlipidemia, breast cancer, pain management, hepatitis C, rheumatoid arthritis, leukemia, depression, and bipolar disorder (NCBI, NLM, 2019b). Select examples of current uses of genetic tests are shown in Table 6-3.

TABLE 6-3 Select Genetic Tests: Examples of Current Uses

Purpose of Genetic Test	Type of Genetic Test
Carrier Testing	
Cystic fibrosis	DNA analysis
Tay-Sachs disease	Hexosaminidase A activity testing and DNA analysis
Canavan disease	DNA analysis
Sickle cell disease	Hemoglobin electrophoresis
Thalassemia	Complete blood count and hemoglobin electrophoresis
Diagnosis	
Down syndrome	Chromosomal analysis
Fragile X syndrome	DNA analysis
Myotonic dystrophy	DNA analysis
Presymptomatic Testing	
Huntington disease	DNA analysis
Myotonic dystrophy	DNA analysis
Susceptibility Testing	
Hereditary breast/ovarian cancer	DNA analysis
Hereditary non-polyposis colorectal cancer	DNA analysis

DNA, deoxyribonucleic acid.

Adapted from National Institutes of Health (NIH), U.S. National Library of Medicine (NLM); Genetics Home Reference. (2019j). Help me understand genetics.

Retrieved on 8/30/2019 at: www.ghr.nlm.nih.gov/primer#testing; National Institutes of Health (NIH), U.S. National Library of Medicine (NLM). (2019k). Genetic testing. *MedlinePlus*. Retrieved on 8/30/2019 at: www.medlineplus.gov/genetictesting.html

Chart 6-2 ETHICAL DILEMMA

Can Predictive Genetic Testing Threaten Patient Autonomy?

Case Scenario

M.T., a high school biology teacher, brings her 11-year-old daughter to the family practice clinic where you are employed as the nurse manager. M.T. insists that she wants her daughter to have predictive genetic testing (PGT) for familial adenomatous polyposis (FAP), an autosomal dominant disorder associated with aggressive colorectal cancer that typically evidences pathology during young adulthood. M.T. tells you that her husband's sister, who is 36 years old, was recently diagnosed with FAP and advanced colorectal cancer. She also tells you that she recently discovered that her husband's father and his father's only sibling both died of colorectal cancer before they were 50. Her husband is 34 years old; according to M.T., he has not been seen by a health care provider since he was a teenager and refuses to do so or to be tested for FAP.

Discussion

There are many legal and ethical concerns raised by health care providers regarding PGT in children. Some genetic disorders are not amenable to treatment during childhood (e.g., carrying a *BRCA* genetic mutation, which is associated with various cancers in adulthood). In these instances, it is generally advisable to forego offering PGT to a child until such time that the child reaches adulthood and is able to make the autonomous decision to either be tested or not be tested. The American College of Medical Genetics contends that ultimately, the best interest of the person tested must be the focus of PGT.

In this particular case, it is presumed that the father has not consented to be tested for the FAP genetic mutation. However, should he consent to testing and find out that he does not have the genetic mutation associated with FAP, then the daughter could not have that mutated gene, since it is conferred through autosomal dominant inheritance. By contrast, if the father does carry the gene for FAP, then the daughter would have a 50% chance of having the gene; moreover, if she has the gene, she and her parents should be advised that she should begin screening colonoscopies. Precancerous colonic polyps can be found and excised before they become malignant in children with FAP, which can be a lifesaving treatment.

Analysis

- Describe the ethical principles that are in conflict in this case (see Chapter 1, Chart 1-7). Which principle do you believe should

have preeminence in deciding whether or not parents have the right to have PGT done for a child?

- In this case, do the benefits outweigh the risks of PGT for a child? Would your viewpoint on PGT be different if the child assented to be tested? What if she tells you that she would rather not be tested and wants to follow her father's example?
- Identify the stakeholders in this case. Does the father have the right to forego being tested for the genetic mutation? What if the daughter has PGT performed despite the father's refusal to be tested, and it is found that she has the genetic mutation? In that case, the father must also have the genetic mutation. Does he have the right to be told or to not be told these results and their implications?
- Are there any professional guidelines that you can turn to for help in determining the ethical issues that revolve around PGT? If so, what are they, and how can they help?

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- Keogh, L. A., Niven, H., Rutstein, A., et al. (2017). Choosing not to undergo predictive genetic testing for hereditary colorectal cancer syndromes: Expanding our understanding of decliners and declining. *Journal of Behavioral Medicine*, 40(4), 583–594.

Resources

See [Chapter 1, Chart 1-10](#) for Steps of an Ethical Analysis and Ethics Resources.

Nurses are increasingly involved in taking family histories and educating the patient about aspects of genetic testing. They contribute by ensuring informed health choices and consent, advocating for privacy and confidentiality with regard to genetic test results, assessing genetic risk, and helping patients understand the complex issues involved (Edwards & Maradieque, 2018). The rapid uptake of direct-to-consumer genetic testing mandates that nurses educate patients about the pros and cons of the selected type of genetic testing, navigate the psychosocial needs of patients and their families, and make referrals to genetic specialists as indicated (Mahon, 2018).

Genetic Screening

Genetic screening, in contrast to genetic testing, is performed independent of having a positive family history or symptom manifestation based on a personal risk or based on the person having a risk associated with a specific population or group of people that they belong to. There are multiple forms of genetic screening which are useful at different points across the lifespan. Most commonly, genetic screening occurs in prenatal and newborn programs. For example, shortly after birth, newborns are screened for a variety of conditions, including PKU, congenital hypothyroidism, and galactosemia as a means to identify treatable genetic conditions that could prove dangerous to their health if left untreated. Prenatal genetic screening is provided as a reproductive option to people with a high probability of having children with severe, untreatable diseases and for whom genetic counseling, prenatal diagnosis, and other reproductive options could be helpful. Genetic screening of pregnant women is used to detect birth defects such as neural tube defects and Down syndrome. Cascade screening is a cost-effective strategy to identify those at risk for genetic illness based on the identification of another family member with the disorder (Silva, Jannes, Oliveira, et al., 2018). This form of genetic screening is most useful for autosomal dominant disorders such as familial hypercholesterolemia or Lynch syndrome. The results of genetic screening may also be used for public health purposes to determine the incidence and prevalence of a birth defect or to investigate the feasibility and value of new genetic testing methods. [Table 6-4](#) gives examples of types of genetic screening.



Concept Mastery Alert

Genetic testing and *genetic screening* are terms that are often confused. Nurses need to remember that testing is individual; screening is population based.

TABLE 6-4 Applications for Genetic Screening

Timing of Screening	Purpose	Examples
Preconception/preimplantation screening	Preconception screening may be done to test for autosomal recessive inherited genetic conditions that occur with greater frequency among individuals of certain ethnic groups; furthermore, through the use of in vitro fertilization, embryos may be tested for specific genetic or chromosomal abnormalities	Cystic fibrosis— all couples, but especially northern European Caucasian and Ashkenazi Jewish Tay-Sachs disease —Ashkenazi Jewish Sickle cell disease —African American, Puerto Rican, Mediterranean, Middle Eastern Alpha-thalassemia —Southeast Asian, African American
Prenatal screening	For genetic conditions that are common and for which prenatal diagnosis is available when a pregnancy is identified at increased risk	Neural tube defects—spina bifida, anencephaly Down syndrome Other chromosomal abnormalities— trisomy 18
Newborn screening	For genetic conditions for which there is specific treatment	Phenylketonuria (PKU) Galactosemia Homocystinuria Biotinidase deficiency
Diagnostic screening	To determine whether a specific genetic mutation exists or to confirm diagnosis when phenotypic presentation exists	Hypertrophic cardiomyopathy
Carrier testing	To determine if a person carries a mutated gene; this type of testing is useful for	Cystic fibrosis— all couples, but especially

	couples to ascertain genetic risk of having a child with a genetic disorder; particularly useful with autosomal recessive disorders	northern European Caucasian and Ashkenazi Jewish Tay-Sachs disease —Ashkenazi Jewish Sickle cell disease —African American, Puerto Rican, Mediterranean, Middle Eastern
Predictive testing	For genetic conditions that appear later in life or for genetic disorders that have minimal phenotypic presentation	Colorectal cancer Huntington disease Hemochromatosis

Adapted from National Institutes of Health (NIH), U.S. National Library of Medicine (NLM); Genetics Home Reference. (2019). What are the types of genetic tests? Retrieved on 8/30/2019 at: www.ghr.nlm.nih.gov/handbook/testing/uses

Population Screening

Population screening—the use of genetic testing for large groups or entire populations—to identify late-onset conditions is under development. For a test to be considered for population screening, there must be (1) sufficient information about gene distribution within populations, (2) accurate prediction about the development and progression of disease, and (3) appropriate medical management for asymptomatic people with a mutation. Currently, population screening is considered in some ethnic groups to identify cancer-predisposing genes. For example, individuals of Ashkenazi Jewish ancestry have a greater chance of inheriting breast and ovarian cancer than other ethnic groups (Manchanda & Gaba, 2019). The identification of one of these mutations gives patients options that may include cancer screening, chemoprevention, or prophylactic mastectomy or oophorectomy. In addition, population screening for this group could also include screening for conditions such as Tay-Sachs disease and Canavan disease. Population screening is being explored for other adult-onset conditions such as type 2 diabetes, heart disease, and hereditary hemochromatosis (i.e., iron overload disorder). In some countries, there is a push to conduct population screening as a form of precision medicine.

focused on prevention (Silva et al., 2018; Turnball, Sud, & Houlston, 2019).

Testing and Screening for Adult-Onset Conditions

Adult-onset conditions with a genetic or genomic basis are manifested during adulthood and the disease is clearly observed to run in families. Some conditions typically associated with advanced age that manifest earlier in life may also have a genetic correlation and require further examination. For example, hypercholesterolemia is often considered an adult-onset disorder associated with a diet high in fat. A form of hypercholesterolemia with excessively high cholesterol levels and lack of lifestyle risk factors correlates with a genetic alteration referred to as familial hypercholesterolemia (Knowles, Rader, & Khoury, 2017). This is an autosomal dominant disorder, suggesting that there is a 50% likelihood that each child of a parent with the disorder will inherit this disorder. Cascade screening of children of parents with familial hypercholesterolemia would be indicated to identify whether or not they have the disorder so that they may be promptly identified and treated (Setia, Saxena, Sawhney, et al., 2018). Adult-onset genetic conditions can be attributed to specific genetic mutations and follow either an autosomal dominant or an autosomal recessive inheritance pattern; however, most adult-onset conditions are considered to be genomic or multifactorial—that is, they result from a combination of genes or gene–environment interactions. Examples of multifactorial conditions include heart disease, diabetes, and arthritis. Genomic or multifactorial influences involve interactions among several genes (gene–gene interactions) and between genes and the environment (gene–environment interactions), the person’s lifestyle. Furthermore, some adult-onset conditions occur due to sporadic changes to a gene (Gael & Veltman, 2019).

Nursing assessment for adult-onset conditions is based on family history, personal and medical risk factors, and identification of associated diseases or clinical manifestations (the phenotype). Knowledge of adult-onset conditions and their genetic bases (i.e., mendelian vs. multifactorial conditions) influences the nursing considerations for genetic testing and health promotion. [Table 6-5](#) describes select adult-onset conditions, their age of onset, patterns of inheritance, molecular genetics, and test availability.

Single Gene Conditions

If a single gene accounts for an adult-onset condition in a symptomatic person, testing is used to confirm a diagnosis to assist in the plan of care and management. Diagnostic testing for adult-onset conditions is most frequently used with autosomal dominant conditions, such as Huntington disease or Factor V Leiden thrombophilia, and with autosomal recessive conditions such as hemochromatosis. Other single gene conditions are associated with a confirmed genetic mutation in an affected family member or with a family history suggestive of an inherited pattern of adult-onset disease, such as a particular type of cancer. **Presymptomatic testing** provides information to people without symptoms about the presence of a genetic mutation and about the likelihood of developing the disease. Presymptomatic testing is considered for people in families with a known adult-onset condition in which either a positive or a negative test result indicates an increased or reduced risk of developing the disease, affects medical management, or allows earlier treatment of a condition.

Huntington disease has long served as the model for presymptomatic testing because the presence of the genetic mutation predicts disease onset and progression. Although preventive measures are not yet available for Huntington disease, the genetic information enables health care providers to develop a clinical, supportive, and psychological plan of care. Indeed, the presence of a single gene mutation has implications for the risk of developing many types of cancer; therefore, presymptomatic testing has become more common as a means to start early planning and implementation of select medical measures that may reduce that risk (Edwards & Maradieque, 2018).

Genomic Conditions

The foremost factor that may influence the development and severity of disease is a person's genomic makeup. In the absence of a single disease-causing gene, it is thought that multiple genes and other environmental factors are related to the onset of most adult diseases. For some diseases, the interactions among several genes and other environmental or metabolic events affect disease onset and progression. Specific gene–gene interactions or SNPs can confer susceptibility to disease. Genomic testing helps distinguish variations within the same disease or response to treatment. For example, no single gene is associated with osteoporosis. Several polymorphisms on candidate genes related to the vitamin D receptor, estrogen and androgen receptors, and regulation of bone mineral

density (BMD) have been shown to contribute to osteoporosis and fracture risk. Moreover, diet and exercise have a strong interaction with the polymorphisms regulating BMD (Cho, Lee, & Kang, 2017).

TABLE 6-5 Select Adult-Onset Disorders

Clinical Description	Age of Onset	Genetic Inheritance	Associated Gene	Test Availability
Neurologic Conditions				
Alzheimer's Disease Progressive dementia, memory failure, personality disturbance, loss of intellectual functioning associated with cerebral cortical atrophy, beta-amyloid plaque formation, and intraneuronal neurofibrillary tangles	<60–65 y; often <55 y	A.D.	APOE PSEN1 APP PSEN2	Presymptomatic and diagnostic
Parkinson's Disease Dementia and/or parkinsonism: Slowly progressive behavioral changes, language disturbances and/or extrapyramidal signs, rigidity, bradykinesia, and saccadic eye movements	40–60 y	A.D.	MAPT PARK	Diagnostic and presymptomatic
Huntington Disease Widespread degenerative brain change with progressive motor loss; both voluntary disability and involuntary disability, cognitive decline, chorea (involuntary movements) at later stage, psychiatric disturbances	Mean age, 35–44 y	A.D.	HTT	Diagnostic and presymptomatic
Neuromuscular Disorders				
Spinocerebellar Ataxia Type 6 Progressive cerebellar ataxia, dysarthria, nystagmus, bulbar dysfunction, peripheral neuropathy, decreased deep tendon reflexes, dementia	Mean age, 30–52 y	A.D.	CACNA1A ATXN	Diagnostic and presymptomatic
Myotonic Muscular Dystrophy Type 1 Cataracts and myotonia or muscle wasting and weakness, frontal balding and electrocardiographic changes (heart block or arrhythmia), diabetes in 5% of all cases	20–70 y	A.D. with variable penetrance	DMPK CNBP	Diagnostic
Familial Amyotrophic Lateral Sclerosis Progressive loss of motor function with predominantly lower motor neuron manifestations	45–60 y	Both A.D. and A.R.	ALS1 ALS2 SOD1 SETX	Diagnostic

Hematologic Conditions					
Hereditary Hemochromatosis High absorption of iron by gastrointestinal mucosa resulting in excessive iron storage in liver, skin, pancreas, heart, joints, and testes. Abdominal pain, weakness, lethargy, and weight loss are early symptoms. Untreated individuals can present with skin pigmentation, diabetes, hepatic fibrosis or cirrhosis, congestive heart failure, arrhythmias, or arthritis.	40–60 y in males; after menopause in females	A.R.	HFE		Diagnostic and presymptomatic
Factor V Leiden Thrombophilia Poor anticoagulant response to activated protein C with increased risk for venous thromboembolism and increased risk for fetal loss during pregnancy	30s; during pregnancy in females	A.D.	F5		Diagnostic and presymptomatic
Polycystic Kidney Disease Dominant Most common genetic disease in humans. Manifests with renal cysts, liver cysts, and occasionally intracranial/aortic aneurysm and hypertension. Loss of glomerular filtration can lead to kidney failure.	Variable onset; all carriers have detectable disease by ultrasonography at age 30 y	A.D.	PKD1 PKD2		Diagnostic and presymptomatic
Cardiovascular Disease					
Familial Hypercholesterolemia Elevated low-density lipoprotein levels leading to coronary artery disease, xanthoma, and corneal arcus	40–50 y	A.D.	LDLR PCSK9 APOB		Diagnostic
Hyperlipidemia Elevated cholesterol and triglycerides associated with premature coronary disease and peripheral vascular disease	30–40 y	A.R.	APOE APOA		Clinical testing related to Alzheimer's research
Alpha₁-Antitrypsin Deficiency Small airway and alveolar wall destruction; emphysema, especially at base; chronic obstructive pulmonary disease	35-year-old smoker; 45-year-old nonsmoker	M.F. in A.R. fashion	SERPINA-1		Diagnostic and presymptomatic
Oncology Conditions					
Multiple Endocrine Neoplasia Familial medullary thyroid cancer: Medullary thyroid cancer, pheochromocytoma, and parathyroid abnormalities	Early adulthood 40–50 y	A.D.	MEN1 MEN2		Presymptomatic
Breast Cancer BRCA1/2 hereditary breast/ovarian cancer: Breast, ovarian, prostate, and colon (BRCA1); breast, ovarian, and other cancers (BRCA2)	30–70 y; often <50 y	A.D.	BRCA1 BRCA2		Presymptomatic Presymptomatic
Lynch Syndrome Colorectal, endometrial, bladder, gastric, biliary, and renal cell cancers as well as atypical endometrial hyperplasia and uterine leiomyosarcoma	<50 y	A.D.	MLH1 MSH2 MSH6 PMS2		Presymptomatic and diagnostic
Li–Fraumeni Syndrome Soft tissue sarcoma, breast cancer, leukemia, osteosarcoma, melanoma, and other cancers often including colon, pancreas, adrenal cortex, and brain	Often <40 y	A.D.	TP53 CHEK2		Presymptomatic and diagnostic
Cowden Syndrome Breast, nonmedullary (papillary or follicular) thyroid cancer; breast fibroadenomas and noncancerous thyroid nodules or goiter; multiple buccal mucosa papillomas (cobblestone-line papules), facial trichilemmomas, gastrointestinal polyps; high-arched palate, thickened furrowed tongue, megalecephaly, and pectus excavatum	40–50 y for cancer; teens—20 y for mucocutaneous lesions	A.D.	PTEN		Presymptomatic and research

AD, autosomal dominant; AR, autosomal recessive; MF, multifactorial.

Adapted from National Center for Biotechnology Information (NCBI), U.S. National Library of Medicine (NLM). (2019a). Genetic Testing Registry. Retrieved on 8/30/2019 at: www.ncbi.nlm.nih.gov/gtr

Some genomic tests may predict treatment response. For example, people may present with similar clinical signs and symptoms of asthma but have different responses to corticosteroid treatment. Mutations in genes that regulate corticosteroid receptors can help classify people with asthma as sensitive or resistant to treatment with corticosteroids (NCBI, NLM, 2019b).

The Nursing Role in Testing and Screening for Adult-Onset Conditions

Nurses participate in explaining risk and genetic predisposition, supporting informed health decisions and opportunities for prevention and early intervention, clarifying legal protections and risks related to genetic testing or health concerns, and protecting patients' privacy. Nurses assess family histories, which may indicate that multiple generations (autosomal dominant inheritance) or multiple siblings (autosomal recessive inheritance) are affected with the same condition or that onset of disease is earlier than expected (e.g., multiple generations with early-onset hyperlipidemia). Possible adult-onset conditions are discussed with other members of the health care team for appropriate resources and referral. When a family history of disease is identified, a patient is made aware that this is a risk factor for disease; resources and referral are then provided. It is the patient's decision whether or not to pursue a genetic testing workup. For example, if a 45-year-old woman presents for her annual gynecology visit and reports a family history of colon cancer in multiple paternal relatives, including her father, the nurse should discuss the family history with the gynecologist. In addition, the woman should be alerted to the risk of colon cancer on the basis of the family history and given information about possible genetic testing and referral for a colonoscopy.

If the existence of a mutation for an adult-onset condition in a family is identified, at-risk family members can be referred for cascade screening for a specific genetic disorder based on genetic susceptibility or genetic predisposition. If the patient is found to carry the mutation, the nurse provides them with information and referral for risk-reduction measures and educates the person about the risk to other family members. In that discussion, the nurse assures the patient that the test results are private and confidential and will not be shared with others, including family members, without the patient's permission. If the patient is an unaffected family member, the nurse discusses inheritance and the risk of developing the disease, provides support for the decision making process, and offers referral for genetics services.



Concept Mastery Alert

Cascade screening is used for at-risk family members if the existence of a mutation for an adult-onset condition in a family is identified. Presymptomatic testing provides information to people without symptoms about the presence of a genetic mutation and about the likelihood of developing the disease.

Personalized Genomic Treatments

Information about genes and their variations helps researchers identify genetic differences that predispose certain people to more aggressive diseases and affect their responses to treatment. Genetics and genomics have revolutionized the field of oncology because genetic mutations are the basis for the development and progression of all cancers. In the medical era, individuals with cancer faced treatment based on the stage of the cancer, lymph node involvement, and spread to distant organs. Treatments of a particular type of cancer, stage for stage, were similar. Now, in the genomic era of personalized medicine, cancer is treated on the basis of genetic makeup. For example, women with early stage breast cancer (i.e., tumor diameter less than 2 cm, estrogen receptor–positive tumors, no lymph node involvement) have often received chemotherapy. In the past, deciding which of these women would benefit the most from chemotherapy was unclear. Currently, a gene tumor profile of these women’s tumors can be used to predict which women are more likely to have an aggressive cancer. Genetic testing helps clinicians to provide personalized care and the most effective treatment based on the genetic signature of the tumor treatment, called *targeted therapy*, which tries to match the treatment to the specific malfunctioning genes expressed in the tumor, or to selectively inhibit genetic factors that promote cancer growth (Dodson, 2017; National Cancer Institute, 2019). Progressive personalized genomic treatment has expanded into genome editing, known as CRISPR (clustered regularly interspaced short palindromic repeats), which shows promise for single gene disorders and cancer by repairing, replacing, or deleting genes that are altered or damaged (Foss, Hochstrasser, & Wilson, 2019).

Pharmacogenomics

The difference between genetics and genomics, described earlier in this chapter, corresponds to the terms *pharmacogenetics* and

pharmacogenomics, which combine pharmacology and genetics or genomics. Pharmacogenetics refers to the study of the effect of variations in a single gene on drug response and toxicity. The field of pharmacogenetics has evolved so that it has become a broader genomic-based approach that recognizes the interaction of multiple genes and the environment on drug response. Pharmacogenomics refers to the study of the combined effect of variations in many genes on drug response and toxicity and involves methods that rapidly identify which genetic variations influence a drug's effect. The aim of pharmacogenomics is to deliver safe, effective medication and dosages that are specifically tailored to a person's genetic makeup (Dodson, 2017). The clinical application of pharmacogenetics has provided a better understanding of drug pathways, leading to the development of new drugs that do not have toxic side effects and that have the potential to change current standards of treatment (Conyers, Devaraja, & Elliott, 2018; Mannino, Andreozzi, & Sesti, 2019; Pickard, 2017). Drug pathways target specific gene biomarkers to elicit a specific and therapeutic response (U.S. Food and Drug Administration [FDA], 2019).

It has long been known that patients differ in their response to medications. The genetic and genomic variations in drug metabolism account largely for the differences in drug response and drug-related toxicities. Drug metabolism involves genetically controlled protein/enzyme activity for absorption, distribution, drug–cell interaction, inactivation, and excretion—metabolic processes that are known as pharmacokinetics. The cytochrome P450 (CYP) genes play a key role in the pharmacokinetic process of drug metabolism (Clinical Pharmacogenetics Implementation Consortium [CPIC], 2019). Once a drug reaches its target cell, other genes such as those regulating cell receptors and cell signaling control the drug's effect. This process is known as pharmacodynamics. Single genes may affect drug response. More commonly, drug response involves the interaction of multiple genes, the host, and the effects of other drugs. [Figure 6-12](#) is a schematic display of the genetic and genomic influences on drug metabolism and treatment effect.

SNPs, described earlier, are common genetic variations that occur most frequently throughout the human genome and often contribute to variations in enzymatic activity that affect drug metabolism. The CYPs, a family of enzymes, play a key role in the pharmacokinetic process of drug metabolism. Numerous variations (SNPs) of genes that control CYP activation and deactivation have been identified. Researchers have created

a catalog of CYP variations because of their role in drug metabolism (CPIC, 2019).

Four classes of CYP metabolic activity levels have been identified based on a person's CYP genotype and the corresponding drug response: (1) poor metabolizers, (2) intermediate metabolizers, (3) extensive metabolizers, and (4) ultrarapid metabolizers. Poor metabolizers have a specific SNP variation in a CYP gene that causes little or no function, resulting in very little or no drug metabolism and higher blood levels of active drug because the drug cannot be absorbed or excreted. Conversely, ultrarapid metabolizers have SNP variations that cause increased enzyme activity, resulting in rapid absorption, distribution, and excretion of a drug. Ultrarapid metabolizers have lower drug blood levels, usually with inadequate therapeutic response or longer treatment time to achieve therapeutic results. Both poor metabolizers and ultrarapid metabolizers are predisposed to adverse drug reactions. Poor metabolizers may have adverse effects or toxicities from high blood levels of drugs and need a lower dose, whereas ultrarapid metabolizers have inadequate treatment response because of lower drug blood levels and may need a higher dose or more frequent dosing. Intermediate metabolizers have reduced enzyme activity levels and metabolize drugs at a slower than normal rate. Because intermediate metabolizers have some enzyme activity, they may have differences in treatment response. Extensive metabolizers have normal enzyme activity levels and normal drug metabolism. Differences in metabolism of other medications occur with other genetic variations.

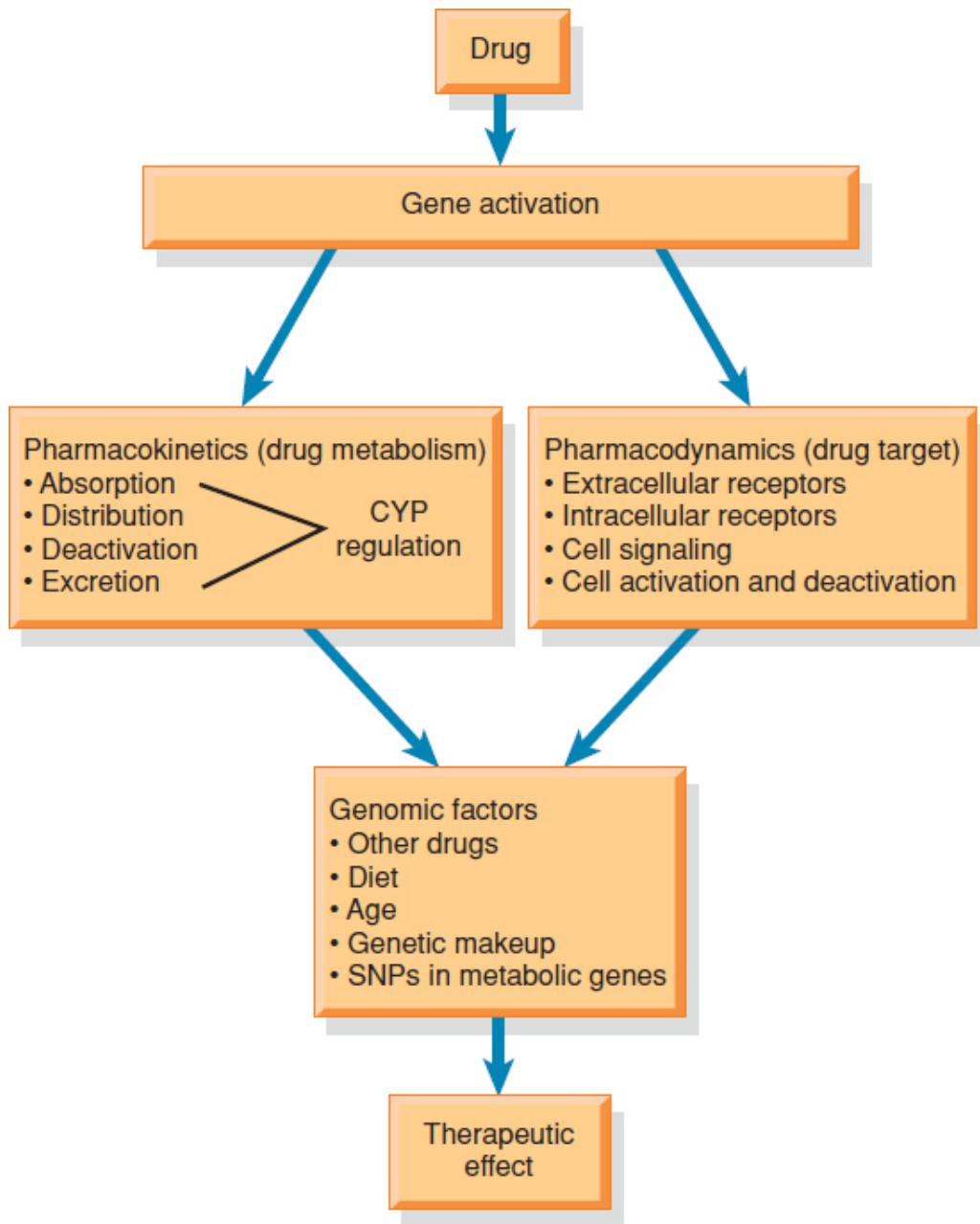


Figure 6-12 • Simplified schematic representation of the multiple, complex, genetic-regulated mechanisms involved in pharmacokinetics (cytochrome [CYP] dependent) and pharmacodynamics, along with other genomic and environmental factors affecting drug metabolism and treatment effect. SNPs, single nucleotide polymorphisms.

Nurses have traditionally monitored and reported drug response and drug adverse effects. Pharmacogenomic (drug–gene) testing is currently available for more than 16 drugs (Mayo Clinic, 2019). This type of testing

offers patients and health care providers more information about a specific drug and whether the medication is the best option for the patient based on genetic interactions that may influence the absorption, metabolism, or excretion of the drug, and the likelihood of an adverse effect from the medication. Nurses are in a position not only to provide education about a particular patient's genomic profile for drug metabolism, but also to explain the rationale for the recommended dosage and discuss associated symptoms related to potential adverse effects. Nurses will continue to incorporate information about gender differences, food interactions, and drug adherence into patient education (Consensus Panel, 2009).

Ethical, Legal, and Social Issues Surrounding Genetics

The rapid application of genetics and genomics across all sectors of health care has had implications for gathering, recording, and sharing personal health information. An ethical foundation provides nurses with a holistic framework for handling these issues with integrity and provides a basis for communicating genetic and genomic information to a patient, a family, other care providers, community agencies and organizations, and for society. Nurses must consider their responsibilities in handling genetic and genomic information and strive to ensure that informed decision making occurs, that patient and family health information is kept private and confidential, and that access to and justice in health care is available to everyone (ANA, 2017).

Ethical Concerns

Ethical principles of beneficence (i.e., to do good) and nonmaleficence (i.e., to do no harm), as well as autonomy, justice, fidelity, and veracity, are used to resolve ethical dilemmas that may arise in clinical care. Respect for persons is the ethical principle underlying all nursing care. Using these principles and the values of caring, nurses can promote thoughtful discussions that are useful when patients and families are facing genetics- and genomics-related health and reproductive decisions and consequences (ANA, 2017; Consensus Panel, 2009). The ethical principles of autonomy, fidelity, and veracity are also important (ANA, 2015). (Further information about ethics is included in [Chapter 1](#).)

Ethical questions relating to genetics and genomics occur in all settings and at all levels of nursing practice. At the level of direct patient care, nurses participate in providing genetic information, testing, and gene-based therapeutics. They offer patient care based on the values of self-determination and personal autonomy. To be as fully informed as possible, patients need appropriate, accurate, and complete information given at a level and in a form so that they and their families can make well-informed personal, medical, and reproductive health decisions. Nurses can help patients clarify values and goals, assess understanding of information, protect their rights, and support their decisions. Nurses can advocate for patient autonomy in health decisions. Several resources and position statements have been developed to guide genetic-related nursing practice (International Society of Nurses in Genetics [ISONG], 2019).

Respecting the patient's right to self-determination—that is, supporting decisions that reflect the patient's personal beliefs, values, and interests—is a central principle in directing how nurses provide genetic and genomic information and counseling. Nurses and others participating in genetic counseling make every attempt to respect the patient's ability to make autonomous decisions. Recognizing one's own attitudes and beliefs and how communication of genetic and genomic information may be influenced by those attitudes and beliefs is a first step toward assuring patients' autonomous decision making.

Confidentiality of genetic and genomic information and respect for privacy are other essential principles underlying genetic counseling. Patients have the right to not have test results divulged to anyone, including insurers, primary providers, employers, or family members. Some patients pay for testing themselves so that insurers will not learn of the test, and others use a different name for testing to protect their privacy.

Ethical challenges may occur for family members and health care providers when the findings of one person's test may inadvertently disclose another family member's risk or carrier status. A nurse may want to disclose genetic information to family members who could experience significant harm if they do not know such information. However, the patient may have other views and may wish to keep this information from the family, resulting in an ethical dilemma for both patient and nurse. The nurse must honor the patient's wishes, while explaining to the patient the potential benefit this information may have for other family members (ANA, 2017; ISONG, 2019).

Ethical considerations must be reviewed as part of genetic and genomic research. For example, before a person participates in genetic and genomic clinical research, the research team must discuss how incidental findings will be addressed. Incidental findings are genetic-related illnesses which are found secondary to the intended goals of the research project or purpose of the test (Boardman & Hale, 2018). The American College of Medical Genetics and Genomics (American College of Medical Genetics and Genomics Policy Statement [ACMG], 2017) issued a policy statement that lists conditions known to be treatable and should be reported to the patient if found incidentally during clinical research.

Legal Aspects of Personalized Health Care

The Genetic Information Nondiscrimination Act (GINA), a law passed in 2008, protects individuals from genetic discrimination (Rothstein, 2018). Its purpose is to protect Americans against improper use of genetic and genomic information in insurance and employment decisions. GINA is particularly helpful for people who carry a gene mutation but are asymptomatic for the illness. The act prohibits health insurers from denying coverage to a healthy person or charging higher insurance rates based on a person's genetic predisposition to a disease. GINA offers legal protection with regard to health insurance and employment; however, gaps in protection exist with regard to disability, life, and long-term care insurance. The act also prevents employers from using a person's genetic and genomic information to make decisions about hiring, job placement, promotion, or firing. Protection provided by GINA does not apply to employers with less than 15 employees, to people in the military, Veterans Health Administration, Indian Health Services, and Federal Employees Health Benefits Programs (Rothstein, 2018). As a result of GINA, most Americans are free to use genetic and genomic information in health care without the fear of misuse; however, public awareness of this law is limited (Cragun, Weidner, Kechik, et al., 2019).

While not specifically intended for genetic health-related concerns, other health care laws offer some additional protection to individuals with regard to genetics. For example, the Affordable Care Act, enacted in 2010, offers some protection for a person with a genetic illness by prohibiting health insurers from discrimination based on a preexisting condition (Rich, 2018). The Americans With Disabilities Act offers legal protection related to employment concerns and physical or intellectual

impairment as a result of a genetic disorder. Finally, the Health Insurance Portability and Accountability Act (HIPAA), enacted in 1996, places restrictions on sharing identifiable health information and places stringent requirements on maintaining the privacy of health-related content and prohibits the use of genetic information to establish insurance eligibility (U.S. Department of Health and Human Services [HHS], 2017). However, HIPAA does not prohibit group plans from increasing premiums, excluding coverage for a specific condition, or imposing a lifetime cap on benefits.

The National Human Genome Research Institute, Policy and Program Analysis branch, has a summary of each state's legislation related to genomic statutes and bills (NIH, NHGRI, 2019b). See also the Resources section at the end of this chapter.

Ancestry, Cultural, Social, and Spiritual Concerns Related to Genetic and Genomic Practice

Genetic assessment addresses the ancestry of patients and families, as well as their ethnicity. This information helps identify individual patients and groups who could benefit from genetic testing for carrier identification, prenatal diagnosis, and susceptibility testing. For example, carrier testing for sickle cell disease is routinely offered to people of African American descent, and carrier testing for Tay-Sachs disease and Canavan disease is offered to people of Ashkenazi Jewish descent. The American College of Obstetricians and Gynecologists ([ACOG], 2019) recognizes the benefit of a thorough family history in correlation with the identification of personalized risks and the option of genetic testing prior to conception. Health care providers must be aware of at-risk status based on racial and ethnic population. Ideally, carrier testing is offered before conception to allow people who are carriers to make decisions about reproduction. Prenatal diagnosis is offered and discussed when both partners of a couple are found to be carriers.

It is important to inquire about the patient's ethnic backgrounds when assessing for susceptibilities to adult-onset conditions such as hereditary breast or ovarian cancer. For example, a *BRCA1* cancer–predisposing gene mutation seems to occur more frequently in women of Ashkenazi Jewish descent. Therefore, asking about ethnicity can help identify people with an increased risk of cancer gene mutations.

Nurses should consider patients' views about the significance of a genetic condition and its effect on self-concept, as well as patients'

perception of the role of genetics in health and illness, reproduction, and disability. For instance, among women without a history of breast cancer but with a strong family history of breast cancer, negative results for the *BRCA1* and *BRCA2* genetic mutations may not be a relief, since those women's risks for having breast cancer is estimated to be four times as high as women who do not have a family history. Among these women, negative findings for known genetic mutations may simply seem uninformative and cause frustration (Schroeder, Duggleby, & Cameron, 2017; see [Chart 6-3: Nursing Research Profile: Living with Breast Cancer Risk](#)). Patients' social and cultural backgrounds determine their interpretations and values about information obtained from genetic testing and evaluation and thus influence their perceptions of health, illness, and risk. Family structure, decision making, and educational background contribute in the same way (Consensus Panel, 2009).

Assessment of the patients' beliefs, values, and expectations regarding genetic testing and genetic and genomic information helps nurses provide appropriate information about the specific genetics or genomics topic. For example, in some cultures, people believe that health means the absence of symptoms and that the cause of illness is supernatural. Patients with these beliefs may initially reject suggestions for presymptomatic or carrier testing. However, by including resources such as family and cultural and religious community leaders when providing genetics- or genomics-related health care, nurses can help ensure that patients receive information in a way that transcends social, cultural, and economic barriers (Tluczek, Twal, Beamer, et al., 2019).

Chart 6-3



NURSING RESEARCH PROFILE

Living with Breast Cancer Risk

Schroeder, D., Duggleby, W., & Cameron, B. L. (2017). Moving in and out of the what-ifs: The experiences of unaffected women living in families where a breast cancer 1 or 2 genetic mutation was not found. *Cancer Nursing*, 40(5), 386–393.

Purpose

The genetic mutations of *BRCA1* and *BRCA2* account for approximately 15% of cases of familial breast cancer in women. For women without these mutations and without breast cancer but with a strong family history, the risk of eventually having breast cancer remains high. These risks may be related to another currently unidentified *BRCA* mutation or to a mutation in another gene not yet identified. Little is known about the effects that living with a high breast cancer risk has on these women. Therefore, the aims of this study were to discover the day-to-day lived experience of having breast cancer risk on women with a strong family history of breast cancer but who are *BRCA1* and *BRCA2* negative, and to elucidate how they cope with the knowledge of their breast cancer risk.

Design

This was a hermeneutic phenomenologic study that used van Manen's methods to explore the lived experiences among *BRCA1* and *BRCA2* negative women without breast cancer but with a strong family history of breast cancer and to uncover the meanings this knowledge had on their everyday lives. Purposive sampling was used to recruit participants eligible to be included in the study. The researchers hoped to recruit between five and eight participants. Ten patients who received care in a hereditary breast and ovarian cancer clinic (HBOC) in Western Canada consented to participate in this study, although one dropped out prior to data collection, resulting in a total of nine participants.

Findings

Participants ($N = 9$) engaged in a total of 20 interviews with the researchers. Each participant engaged in at least two conversations. After each session, participants were given copies of the summaries of the conversations and proposed emerging themes that researchers posited for corroboration, in order to ensure trustworthiness of findings. Researchers identified one main overarching theme of *Moving In and Out of the What-Ifs*, which identified the tensions between "normal" living, as expressed in the subtheme *Just Moving Along: Living a Normal Life*, that was juxtaposed with the "what-ifs" subthemes, which included *Moving Into Those Dark Spaces, Is There Something Wrong*

with Me? and *Markings in Time*. For instance, all participants identified that most of the time they had an awareness of their familial breast cancer risk, but kept it in the background, expressing the need to “live a normal life.” The “dark spaces” were described as triggers that provoked anxiety about their risks, such as anticipating an appointment at the HBOC, or hearing news of a close relative newly diagnosed with cancer. Although all participants identified themselves as “healthy,” they found that many times, others who knew of their risks tended to label them as not healthy, causing conflict within them “Is there something wrong with me?” Lastly, there were key milestones in participants’ lives that caused tension, or “time marks,” such as approaching or surpassing an age when a family member was diagnosed with cancer, or when a family member died of cancer. Coping through the “dark spaces” the “wrongness” and the “marks in time” was facilitated through the methods employed in the subthemes *Living in the Moment*, or slowing down to enjoy the “here and now”; *Being Cared For*, or feeling cared for by significant others as well as the staff at the HBOC; and, *Keeping Me Grounded*, expressed by having family and significant others find ways to keep them out of the “dark spaces,” supporting their view of themselves as healthy, and celebrating significant “time marks” with them.

Nursing Implications

Findings from this study suggest that being *BRCA1* and *BRCA2* negative can be seen as both a blessing and a curse for women who are nonetheless at risk for familial breast cancer. These women must deal with conflicting emotions and anxieties that surround the uncertainty of living with this risk. Nurses who care for women at risk for familial breast cancer who are *BRCA1* and *BRCA2* negative should aim to foster their coping mechanisms by encouraging them to focus on the positives in the “here and now” of their lives, by keeping them grounded, and by demonstrating a caring relationship with them.

Applications of Genetics and Genomics in Nursing Practice

Nurses who provide genetics- and genomics-related health care blend the principles of human genetics with nursing care in collaboration with other professionals, including genetic specialists, to foster improvement, maintenance, and restoration of patients’ health (Tluczek et al., 2019). Genetic-related nursing practice involves the care of people who have

genetic conditions, those who may be predisposed to develop or pass on genetic conditions, and those who are seeking genetic information and referral for additional genetics services. The application of genomic information has been integrated into clinical practice areas of preconception, preimplantation, and prenatal testing, newborn screening, disease susceptibility, screening and diagnosis, prognosis and therapeutic decisions, and in monitoring disease recurrence (see [Table 6-4](#)). In the near future, nurses will need to engage in public health efforts to improve genetic literacy within the public domain so that patients can make informed genetic-genomic related decisions (Boerwinkel, Yarden, & Waarlo, 2017).

Nurses are positioned to support patients and families with genetics- and genomics-related health concerns by ensuring not only that their health choices are informed ones but by also advocating for the privacy and confidentiality of genetic and genomic information and for equal access to genetic testing and treatments. Nurses are expected to attend to the genetic and genomic health care needs of the patient (ANA, 2017).

Genetics and Genomics in Health Assessment

Assessment of a person's genetic and genomic health status is an ongoing process. Nurses collect information that can help identify individuals and families who have actual or potential genetics- or genomics-related health concerns or who may benefit from further genetic information, counseling, testing, and treatment. This process can begin before conception and continue throughout the lifespan. Nurses evaluate family and past medical histories, including prenatal history, childhood illnesses, developmental history, adult-onset conditions, past surgeries, treatments, and medications; this information may relate to the genetic or genomic condition at hand or to a condition being considered (see [Chapter 4](#) for more information on assessing past medical history). Nurses also identify the patient's ethnic background and conduct a physical assessment to gather pertinent genetic information. The assessment also includes information about culture, spiritual beliefs, and ancestry. Health assessment includes determining a patient's or family's understanding of actual or potential genetics- or genomics-related health concerns and awareness of how these issues are communicated within a family (ANA, 2017).

Family History Assessment

Nurses in any practice setting can assess families' genetics histories to identify a genetic trait, inherited condition, or predisposition. Obtaining a thorough family health history is the first, most important tool when determining the potential risk for a genetic illness. Targeted questions are used to identify genetic and genomic conditions for which further information, education, testing, or treatment can be offered ([Chart 6-4](#)). A three-generation family history should be collected that includes ages of each family member, medical illnesses, age and cause of death, history of miscarriages or stillbirths, and ethnicity (ACOG, 2018). After consultation and collaboration with other health care providers and specialists, further genetic testing and evaluation is offered for the trait or condition in question. A genetic family history is used to make a diagnosis, identify testing strategies, and establish a pattern of inheritance. Nurses can also inquire about medical conditions that are known to have a heritable component and for which genetic testing may be available. Information is obtained about the presence of birth defects, intellectual disability, familial traits, or similarly affected family members (Consensus Panel, 2009).

Nurses need to consider the closeness of the relationship (genetic relatedness or consanguinity) among family members when assessing the risk of genetic conditions in couples or families. For example, when obtaining a preconception or prenatal family history, it is important for the nurse to ask if the prospective parents have common ancestors (i.e., are they cousins?). This is key because, as noted previously, people who are related have more genes in common than those who are unrelated, thus increasing their chance of having children with an autosomal recessive inherited condition such as cystic fibrosis. Ascertaining genetic relatedness provides direction for genetic counseling and evaluation. It may also serve as an explanation for parents who have a child with a rare autosomal recessive inherited condition or for an adult who is similarly affected.

When the assessment of family history reveals that a patient has been adopted, genetic- and genomic-based health assessment becomes more challenging. Every effort is made to help the patient obtain as much information as possible about their biologic parents, including their ethnic backgrounds.

Questions about previous miscarriage or stillbirth are included in genetics health assessments to identify possible chromosomal conditions. Nurses can also inquire about any history of family members with inherited conditions or birth defects; maternal health conditions such as

type 1 diabetes, seizure disorders, or PKU, which may increase the risk for birth defects in children; and about exposure to alcohol or other drugs during pregnancy. Maternal age is also noted; women who are 35 years of age or older who are considering pregnancy and childbearing or who are already pregnant should be offered prenatal diagnosis (e.g., testing through amniocentesis) because of the association between advanced maternal age and chromosomal abnormalities such as Down syndrome. Advanced paternal age, which includes men over 40 years of age, is associated with a slightly higher risk for a child to have autism, schizophrenia, or leukemia (Mayo Clinic, 2018).

Chart 6-4



GENETICS FAMILY HISTORY

An Essential Tool for All Nurses

A Well-Documented Family History Can Be Used to:

- Assess risk of certain diseases
- Decide on testing strategies, such as what genetic and other diagnostic tests to order
- Establish a pattern of inheritance
- Identify other family members who are at increased risk
- Identify shared environmental risk factors
- Calculate risks
- Assess risk of passing on conditions to children
- Determine and recommend treatments that modify disease risk
- Make decisions about management or surveillance
- Develop patient rapport
- Educate patients

Key Questions to Ask About Each Family Member Include:

- What is the current age, or what was the age at death?
- What is the ethnic background (some genetic conditions are more common in certain ethnic groups)?
- Is there a history of:
 - Multiple pregnancy losses/stillbirths?
 - Unexplained infertility?
 - Birth defects?
 - Intellectual disability or developmental delay?
 - Learning disability?
 - Medical problems in children whose parents are closely related (second cousins or closer)?
 - Congenital or juvenile blindness, cataracts, hearing loss, or deafness?
 - Very short or very tall stature?
 - Several close relatives with the same or related conditions (e.g., breast or colon cancer, diabetes, heart disease, asthma, stroke, high blood pressure, kidney disease)?
 - Occurrence of a common condition with earlier age of onset than is usual (e.g., breast or colon cancer, hearing loss, dementia, heart disease)?

Adapted from Ginsburg, G. S., Wu, R. R., & Orlando, L. A. (2019). Family health history: Underused for actionable risk assessment. *Lancet*, 394(10198), 596–603.

Physical Assessment

Physical assessment may provide clues that a particular genetic or genomic condition is present in a person and family. Family history assessment may serve as a guide to focus the physical assessment. For example, a history of familial hypercholesterolemia would alert the nurse to assess for symptoms of hyperlipidemias (xanthomas, corneal arcus, and abdominal pain of unexplained origin). A family history of neurofibromatosis type 1, an inherited condition involving tumors of the central nervous system, would prompt the nurse to carry out a detailed assessment of closely related family members. Skin findings such as *café-au-lait* spots, axillary freckling, or tumors of the skin (neurofibromas) would warrant referral for further evaluation, including genetic evaluation and counseling (NIH, NLM, 2019i).

If a genetic or genomic condition is suspected as a result of a family history or physical assessment, the nurse, as a part of their role, and in collaboration with the health care team, may initiate further discussion of genetics and genomic information, offering and discussing genetic tests, and suggesting a referral for further genetic evaluation ([Chart 6-5](#)).

Chart 6-5

Indications for Making a Genetics Referral

Prepregnancy and Prenatal

- Maternal age of 35 y or older at expected time of delivery
- Previous child with a chromosome problem
- Positive alpha-fetoprotein profile screening test
- Previous child with a birth defect or family history of birth defects
- Pregnancy history of two or more unexplained miscarriages
- Maternal conditions such as diabetes, epilepsy, or alcoholism
- Exposures to certain medications or drugs during pregnancy
- Family history of intellectual disability
- Either member of the couple has a birth defect such as cleft lip or palate, spina bifida, or congenital heart defect
- Either member of the couple has a chromosome abnormality

Pediatric

- Positive newborn screening test
- One or more major birth defects
- Unusual (dysmorphic) facial features
- Developmental delay/intellectual disability
- Suspicion of a metabolic disorder
- Unusually tall or short stature, or growth delays
- Known chromosomal abnormality

Adult

- Intellectual disability without a known cause
- Unexplained infertility or multiple pregnancy losses
- A personal or family history of thrombotic events
- Adult-onset conditions such as hemochromatosis, hearing loss, and visual impairment
- Family history of an adult-onset neurodegenerative disorder (e.g., Huntington disease)
- Features of a genetic condition such as neurofibromatosis (*café-au-lait* spots, neurofibromas on the skin), Marfan syndrome (unusually tall stature, dilation of the aortic root), others
- Personal or family history of cardiovascular disorders known to be associated with genetic factors such as cardiomyopathy or long QT syndrome
- Family history of cancers known to be associated with specific genes such as hereditary breast/ovarian cancer or Lynch syndrome

- Family history of early-onset cancers and familial clustering of related tumors

Adapted from Centers for Disease Control and Prevention (CDC). (2017).

Family health history. Retrieved on 8/30/2019 at: www.cdc.gov/genomics/famhistory; McClatchey, T., Lay, E., Strassberg, M., et al. (2018). Missed opportunities: Unidentified genetic risk factors in prenatal care. *Prenatal Care*, 38, 75–79.

Chart 6-6 ASSESSMENT



Assessing Psychosocial Genetic Health

The nurse's assessment of psychosocial factors impacting a patient's genetic health is based on the nurse's professional responsibility to "demonstrate in practice the importance of tailoring genetic and genomic information and services to patients based on their culture, religion, knowledge level, literacy and preferred language." (Consensus Panel, 2009; p. 11).

The nurse assesses:

- Educational level and understanding of the genetic condition or concern in the family.
- Desired goals and health outcomes in relation to the genetic condition or concern.
- Family rules regarding disclosure of medical information (e.g., some families may not reveal a history of a disease such as cancer or mental illness during the family history assessment).
- Family rules, boundaries, and cultural practices as well as personal preference about knowing genetic information.
- Past coping mechanisms and social support.
- Ability to make an informed decision (e.g., is the patient under stress from family situations, acute or chronic illness, or medications that may impair the patient's ability to make an informed decision?).

Adapted from Consensus Panel on Genetic/Genomic Nursing Competencies (Consensus Panel). (2009). *Essentials of genetic and genomic nursing: Competencies, curricular guidelines, and outcome indicators* (2nd ed.). Silver Spring, MD: Author.

Psychosocial Assessment

Psychosocial assessment is an essential nursing component of the genetics health assessment. The assessment findings can help identify the potential impact of new genetic and genomic information on the patient and the family and how they may cope with this information ([Chart 6-6](#)).

Genetic Counseling and Evaluation Services

People seek genetic counseling for various reasons and at different stages of life. Some are seeking preconception or prenatal information, others are referred after the birth of a child with a birth defect or suspected genetic condition, and still others are seeking information for themselves or their families because of the presence of, or a family history of, a genetic condition. Regardless of the timing or setting, genetic counseling is offered to all people who have questions about genetics or genomics and their health.

As the contribution of genetics and genomics to the health–illness continuum is recognized, genetic counseling will become a responsibility of all health care professionals in clinical practice. Nurses are in an ideal position to assess the patient’s health and genetics family history and to make referrals for specialized diagnosis and treatment. They offer anticipatory guidance by explaining the purpose and goals of a referral. They collaborate with other health care providers in giving support and follow-up counseling; additionally, they coordinate follow-up and case management.

Genetic Services

Genetic services provide genetic information, education, and support to patients and families. Medical geneticists, genetic counselors, and advanced practice nurses in genetics provide specific genetics services to patients and families who are referred by their primary or specialty health care providers. A team approach is often used to obtain and interpret complex family history information, evaluate and diagnose genetic conditions, interpret and discuss complicated genetic test results, support patients throughout the evaluation process, and offer professional and family support. Patients participate as team members and decision makers throughout the process. Genetics services enable patients and their families to learn and understand relevant aspects of genetics and genomics, to make informed health decisions, and to receive support as they integrate personal and family genetic and genomic information into daily living.

Genetic counseling may take place over an extended period and may entail more than one counseling session, which may include other family members. The components of genetic counseling are outlined in [Chart 6-7](#). Although genetic counseling may be offered at any point during the lifespan, counseling issues are often relevant to the life stage in which counseling is sought (CDC, 2018b). Examples are presented in [Chart 6-8](#).

Providing Precounseling Information

All genetic specialists, including nurses who participate in the genetic counseling process and those with access to a person's genetic information, must honor a patient's desire for confidentiality. Genetic information should not be revealed to family members, insurance companies, employers, and schools if the patient so desires, even if keeping the information confidential is difficult.

Preparing the patient and the family, promoting informed decision making, and obtaining informed consent are essential in genetic counseling. Nurses assess the patient's capacity and ability to give voluntary consent. This includes assessment of factors that may interfere with informed consent, such as hearing loss, language differences, cognitive impairment, and the effects of medication. Nurses make sure that a person's decision to undergo testing is not affected by coercion, persuasion, or manipulation. Because information may need to be repeated over time, nurses offer follow-up discussion as needed (ANA 2017; Consensus Panel, 2009).

The genetic service to which a patient or a family is referred for genetic counseling will ask the nurse for background information for evaluation. Genetic specialists need to know the reason for referral, the patient's or family's reason for seeking genetic counseling, and potential genetic-related health concerns. For example, a nurse may refer a family with a new diagnosis of hereditary breast or ovarian cancer for counseling or to discuss the likelihood of developing the disease and the implications for other family members. The family may have concerns about confidentiality and privacy. The nurse and the genetic specialist tailor the genetic counseling to respond to these concerns.

With the patient's permission, genetic specialists will request the relevant test results and medical evaluations. Nurses obtain permission from the patient and, if applicable, from other family members to provide medical records that document the genetic condition of concern. In some situations, evaluation of more than one family member may be necessary to establish a diagnosis of a genetic disorder. Nurses explain that the

medical information is needed to ensure that appropriate information and counseling (including risk interpretation) are provided.

Chart 6-7

Components of Genetic Counseling

Information and Assessment Sources

- Reason for referral
- Family history
- Medical history/records
- Relevant test results and other medical evaluations
- Social and emotional concerns
- Relevant cultural, educational, and financial factors

Analysis of Data

- Family history
- Physical examination as needed
- Additional laboratory testing and procedures (e.g., echocardiogram, ophthalmology, or neurologic examination)

Communication of Genetic Finding

- Natural history of disorder
- Pattern of inheritance
- Reproductive and family health issues and options
- Testing options
- Management and treatment issues

Counseling and Support

- Identify individual and family questions and concerns
- Identify existing support systems
- Provide emotional and social support
- Refer for additional support and counseling as indicated

Follow-Up

- Written summary to referring primary providers and family
- Coordination of care with primary providers and specialists
- Additional discussions of test results or diagnosis

Genetics Resources

Genetic and Rare Diseases Information Center: provides links with experienced information specialists who can answer questions in English and Spanish to patients, families, and health care providers regarding specific genetic diseases, rarediseases.info.nih.gov

Genetics Home Reference: provides a layman's online encyclopedic guide to understanding genetic conditions, ghr.nlm.nih.gov

National Human Genome Research Institute, Genome Statute and Legislative Database: summarizes each state's legislation on employment and insurance discrimination, www.genome.gov/about-genomics/policy-issues/Genome-Statute-Legislation-Database

National Organization for Rare Disorders (NORD): a directory of support groups and information for patients and families with rare genetic disorders, rarediseases.org

Online Mendelian Inheritance in Man (OMIM): a complete listing of inherited genetic conditions, omim.org

The genetic service asks nurses about the emotional and social status of the patient and the family. Genetic specialists want to know the coping skills of patients and families who have recently learned of the diagnosis of a genetic disorder as well as what type of genetic information is being sought. Nurses help identify cultural and other issues that may influence how information is provided and by whom. For example, for patients with hearing loss, a sign interpreter's services may have to be arranged. For those with vision loss, alternative forms of communication may be necessary. Genetics professionals prepare for the genetic counseling and evaluation with these relevant issues in mind (CDC, 2018b).

Chart 6-8

Genetic Counseling across the Lifespan

Prenatal Issues

- Understanding prenatal screening and diagnosis testing
- Implications of reproductive choices
- Potential for anxiety and emotional distress
- Effects on partnership, family, and parental–fetal bonding

Newborn Issues

- Understanding newborn screening results
- Potential for disrupted parent–newborn relationship on diagnosis of a genetic condition
- Parental guilt
- Implications for siblings and other family members
- Coordination and continuity of care

Pediatric Issues

- Caring for children with complex medical needs
- Coordination of care
- Potential for impaired parent–child relationship
- Potential for social stigmatization

Adolescent Issues

- Potential for impaired self-image and decreased self-esteem
- Potential for altered perception of family
- Implications for lifestyle and family planning

Adult Issues

- Potential for ambiguous test results
- Identification of a genetic susceptibility or diagnosis without an existing cure
- Effect on marriage, reproduction, parenting, and lifestyle
- Potential impact on insurability and employability

Adapted from Dwyer, T. M., Glaser, R. L., & Mason, T. M. (2016). Inheritance patterns in human phenotypes and types of genetic disorders. In C. E. Kasper, T. A. Schneidereith, & F. R. Lashley. (Eds.). (2015). *Lashley's essentials of clinical genetics in nursing practice* (pp. 65–114). New York: Springer Publishing Company.

Preparing Patients for Genetics Evaluation

Before a genetic counseling appointment, the nurse discusses with the patient and the family the type of family history information that will be collected during the consultation. Family history collection and analysis are comprehensive and focus on information that may be relevant to the genetics- or genomics-related concern in question. The genetic analysis always includes assessment for any other potentially inherited conditions for which testing, prevention, and treatment may be possible.

A physical examination may be performed by the medical geneticist to identify specific clinical features commonly associated with a genetic condition. The examination also helps determine if further testing is needed to diagnose a genetic disorder. This examination generally involves assessment of all body systems, with a focus on specific physical characteristics. Nurses describe the diagnostic evaluations that are part of a genetics consultation and explain their purposes.

Communicating Genetic and Genomic Information to Patients

After the family history and the physical examination are completed, the genetics team reviews the information gathered before beginning genetic counseling with the patient and the family. The genetic specialists meet with the patient and the family to discuss their findings. If information gathered confirms a genetic condition in a family, genetic specialists discuss with the patient the natural history of the condition, the pattern of inheritance, and the implications of the condition for reproductive and general health. When appropriate, specialists also discuss relevant testing and management options.

Providing Support

The genetics team provides support throughout the counseling session and identifies personal and family concerns. Genetic specialists use active listening to interpret patient concerns and emotions, seek and provide feedback, and demonstrate understanding of those concerns. They suggest referral for additional social and emotional support. In addition, genetic specialists discuss pertinent patient and family concerns and needs with nurses and primary health care teams so that they can provide additional support and guidance (CDC, 2018b). Nurses assess the patient's understanding of the information given during the counseling session, clarify information, answer questions, assess patient reactions, and identify support systems.

Follow-Up After Genetic Evaluation

As a follow-up to genetic evaluation and counseling, genetic specialists prepare a written summary of the evaluation and counseling session for the patient and, with the patient's consent, send this summary to the primary provider as well as other providers identified by the patient as participants in care. The consultation summary outlines the results of the family history and physical and laboratory assessments, provides a discussion of any specific diagnosis made, reviews the inheritance and associated risk of recurrence for the patient and the family, presents reproductive and general health options, and makes recommendations for further testing and management. The nurse reviews the summary with the patient and identifies information, education, and counseling for which follow-up genetic counseling may be useful (ANA, 2017).

Follow-up genetic counseling is always offered because some patients and families need more time to understand and discuss the specifics of a genetic test or diagnosis, or they may wish to review reproductive options again later, when pregnancy is being considered. Follow-up counseling is also offered to patients when further evaluation and counseling of extended family members is recommended (ANA, 2017).

During follow-up sessions, nurses can educate patients about sources of information related to genetic and genomic issues. Some resources that provide the most up-to-date and reliable genetic and genomic information are available on the Internet (see the Resources section at the end of this chapter).

Genetics and Genomics Tomorrow

The pace of genetic and genomic research is transforming our understanding of the role of genetics and genomics in health and disease. In addition, it is increasing clinical opportunities for presymptomatic prediction of illness based on a patient's genetic makeup. Genetic research is now focused on identifying the genetic and environmental causes of common diseases such as diabetes, heart disease, and asthma. The studies are opening the doors for many advances in the prevention and treatment of both rare and common diseases (NIH, NHGRI, 2019c). Genetic testing as a part of palliative care is being discussed as having the potential to inform future generations of genetic health risk (Morrow, Jacobs, Best, et al., 2018). For example, a person dying of a rare cancer may biobank a DNA sample that could be helpful to future generations as research and technology advances to treat that specific illness. Additionally, advances are ongoing in the microbiome, the genetic

structure of the gut, which is now known to play a key role in many absorption and malabsorption disorders (Greathouse, Faucher, & Hastings-Tolsma, 2017; Sun, 2018). In addition, alterations to the telomere, the end unit or cap on each chromosome, referred to as telomeropathies, is providing insight to understanding the molecular mechanism of rare genetic disorders (Armando, Gomez, Maggio, et al., 2019).

As applications of genetics and genomics to health and disease develop, genetic testing may be used to scan all of a patient's genetic material so that disease risk variants can be identified and early interventions and treatments can be determined. It is estimated that the cost of testing a patient's entire genome is less than \$1000. Personalized medicine will continue to expand, and many treatments and interventions for medical conditions will be chosen on the basis of what genetic testing indicates about a patient's genetic makeup. Nurses will be on the front line in communicating genetic and genomic information to patients, families, and communities. Patients, families, and communities will also expect that health care providers, including nurses, will use new genetic and genomic information and technologies in the provision of care. It is, therefore, imperative that all nurses become fluent in the language of genetics and genomics so that they can provide effective nursing care (ANA 2017; Consensus Panel, 2009).

CRITICAL THINKING EXERCISES

1 ipc A 34-year-old male reports urinary difficulty. Following a medical examination and subsequent laboratory work, he is diagnosed with early stages of kidney failure. After a further, more extensive workup, he is diagnosed with polycystic kidney disease, an autosomal dominant disorder. You work as a nurse in the nephrology clinic where he is now being treated. How should this inheritance pattern be explained to the patient? Utilizing knowledge of the inheritance pattern, whom should you include as part of the family assessment of this patient as it relates to this genetic condition? What comorbidities should you be alert to and include in future assessments? Understanding the progressive nature of this illness, what additional members of the health care team should be included in the care of this patient?

2 pc You work as a nurse in a family practice office setting. Linda, the mother of three children, tells you during a well-child physical that her 2-year-old son tends to have bleeding gums. She relates this to aggressive brushing because he is still learning how to brush his teeth. Through further questioning, you begin to suspect that the child may have hemophilia A, an X-linked recessive disorder. Based on the inheritance pattern of X-linked recessive disorders, what would be critical to know in this family history? Linda states that she has a brother who has two daughters, ages 9 and 12, and she has a sister with an infant son. Her father died when she was young and sadly, she doesn't recall much about his family history. Her mother is 77 years of age and has rheumatoid arthritis. How could you use knowledge of the inheritance pattern to guide the care of Linda and her family? Create a three-generation pedigree to determine if anyone else in the family should be screened for hemophilia.

3 ebp A 50-year-old female is being screened in the neurology clinic where you work for progressive neurologic impairment and physical decline. Through DNA analysis and chromosomal testing, a diagnosis of Huntington chorea is made. This illness has an autosomal dominant inheritance pattern. What is the best evidence you find to guide the care of this patient and her family? What ethical concerns must be taken into consideration when caring for a patient with this genetic disorder? This patient has two daughters who are 17 and 20 years of age. Should the age of her daughters have an impact as to whether or not they should have genetic testing?

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- *Asterisk indicates nursing research.
**Double asterisk indicates classic reference.

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Resources

Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN), awhonn.org

Centers for Disease Control and Prevention, Public Health Genomics,
www.cdc.gov/genomics

Genetic and Rare Diseases Information Center,
www.rarediseases.info.nih.gov

International Society of Nurses in Genetics (ISONG), www.isong.org
Learn.Genetics, Genetic Learning Science Center, learn.genetics.utah.edu

National Cancer Institute (NCI), www.cancer.gov
National Center for Biotechnology Information, www.ncbi.nlm.nih.gov
National Human Genome Research Institute, Genome Statute and Legislative
Database, [www.genome.gov/about-genomics/policy-issues/Genome-
Statute-Legislation-Database](http://www.genome.gov/about-genomics/policy-issues/Genome-Statute-Legislation-Database)

National Organization for Rare Disorders (NORD), www.rarediseases.org
Oncology Nursing Society (ONS), www.ons.org
Online Mendelian Inheritance in Man, www.omim.org
The Human Genome Project, www.genome.gov/human-genome-project

7 Disability and Chronic Illness

LEARNING OUTCOMES

On completion of this chapter, the learner will be able to:

1. Compare and contrast the concepts of disability, chronic illness, and chronic disease.
2. Differentiate between models of disability.
3. Critically analyze the influence of disability on nursing care decisions and actions for patients.
4. Identify factors related to the increasing incidence of chronic conditions.
5. Describe characteristics of chronic conditions and nursing implications for people with chronic conditions and for their families.

NURSING CONCEPTS

- Development
Diversity
Health Promotion and Legal Issues
Health, Wellness, and Illness

GLOSSARY

chronic disease: medical or health problem with associated symptoms or disabilities that require long-term management; also referred to as noncommunicable disease, chronic condition, or chronic disorder

chronic illness: the experience of living with a chronic disease or condition; the person's perception of the experience and the person's and others' responses to the chronic disease or condition

cognitive disability: limitations in mental functioning and difficulties with communication, self-care, and social skills

developmental disability: a set of heterogeneous disorders characterized by difficulties in one or more domains; can include cognitive, physical, or both cognitive and physical impairments with an onset before 22 years of age

disability: restriction or lack of ability to perform an activity in a normal manner; the consequences of impairment in terms of a person's functional performance and activity—disability represents impairment at the level of the person (e.g., bathing, dressing, communication, walking, grooming)

intellectual disability: a disability that occurs before 18 years of age characterized by significant limitations in both intellectual functioning and in adaptive behavior, which includes many everyday social and practical skills

multiple chronic conditions (MCC): presence of more than one chronic disease or condition

noncommunicable diseases: a group of conditions that are not caused by an acute infection

secondary health conditions or disorders: any physical, mental, or social disorders resulting directly or indirectly from an initial disabling condition

sensory disability: a disorder characterized by impairment of the sense of sight, hearing, smell, touch, or taste (e.g., hearing loss, deafness, vision loss, blindness)

Disability and chronic illness affect people of all ages—the very young, the middle aged, older adults, and the very old. Disability and chronic illness are found in all ethnic, cultural, racial, and socioeconomic groups, although some disorders occur more frequently in some groups than in others. Nurses in all settings will encounter patients with disability and chronic illness. This chapter presents concepts about disability and chronic illness and ways that nurses can address the health issues of these patients and their families.

Disability

Definitions of Disability

A person is considered to have a **disability** (limitation in performance or function in everyday activities) if they have difficulty talking, hearing, seeing, walking, climbing stairs, lifting or carrying objects, performing activities of daily living (ADLs), such as feeding oneself, bathing, dressing, grooming, toileting, doing school work, or working at a job. A severe disability is present if a person is unable to perform one or more activities, uses an assistive device for mobility, or needs help from another person to accomplish basic activities. People are also considered severely disabled if they receive federal benefits because of an inability to work.

According to the World Health Organization (WHO, 2018a), *disability* is the interaction between individuals with a health condition (e.g., cerebral palsy, spinal cord injury, Down syndrome) personal and environmental factors (e.g., negative attitudes on the part of society, inaccessible transportation and public buildings, and limited social supports). In 2001, WHO developed the International Classification of Functioning, Disability and Health (ICF), which defined disability as an umbrella term for impairments, activity limitations, participation restrictions, and environmental factors.

The term *impairment* describes a loss or abnormality in body structure or physiologic function, including mental function. The term *societal participation* is used in the WHO classification system in place of *handicap* to acknowledge the fact that the environment is always interacting with people to either assist or hinder participation in life activities. The environment may have a greater impact on a person's ability to participate in life activities than do physical, mental, or emotional factors or conditions (WHO, 2018a).

In the United States, federal legislation uses multiple definitions of disability, which makes common understanding of disability difficult. The Americans With Disabilities Act of 1990 (ADA; discussed later in this chapter) defines a person with a disability as one who (1) has a physical or mental impairment that substantially limits one or more major life activities, (2) has a record of such an impairment, or (3) is regarded as having such an impairment. Other phrases used to describe people with disabilities that are not universally accepted, understood or recommended are “people who are physically challenged” and “people with special needs.”

Prevalence of Disability

According to the WHO (2018a), over one billion people, or about 15% of the global population, have some type of disability. Between 110 and 190 million adults worldwide have significant difficulties in function due to disability. The number of people with disabilities is increasing and is expected to continue to climb as people with early-onset disability, chronic disorders, and severe

trauma survive. People with disability comprise the world's largest minority (United Nations, n.d.).

The Centers for Disease Control and Prevention (CDC, 2017) reported that in 2016, one in four noninstitutionalized adults, or 61 million adults in the United States, had a disability that negatively affected major life activities. This reflects an increase from 2013 in which one in five noninstitutionalized adults in the United States had a disability (Okoro, Hollis, Cyrus, et al., 2018). The estimate is likely low as these figures do not include people who are living in institutions or are active duty military personnel.

The last U.S. Census indicated that more than 46% of people with one disability have other disabilities. Although the prevalence of disability is higher in men than in women for people younger than 65 years, the prevalence is higher in women than in men for people older than 65 years (U.S. Census Bureau, 2018a). In the United States, the prevalence of disability is higher among American Indians as well as Alaska Natives, adults with incomes below the federal poverty level, and people living in the southwestern U.S. census region (Okoro et al., 2018). In addition, the prevalence of disability in the United States is higher for African Americans and Whites than for Hispanics and Asians (U.S. Department of Labor, Bureau of Labor Statistics, 2019). Globally, more than 80% of the one billion people worldwide with disability live in low- and middle-income countries, in which all people have limited access to basic health care and social services. However, limited access to basic health care and support services has a more profound effect on those with disability.

The proportion of individuals with disability employed in 2018 was 19.1%. In contrast, 65.9% of those without disability were employed. About 8 in 10 people with a disability were not in the labor force in 2018, compared to about 3 in 10 of those with no disability. Individuals with disability are more likely to be employed part time than those with no disability. These discrepancies exist across all educational attainment groups (U.S. Department of Labor, Bureau of Labor Statistics, 2019). A consequence of lack of employment or only part-time employment is that those with a disability earn less money than people without disabilities. Low income along with limited access to basic health care and support services has a profound effect on those with disability. In 2017, the poverty rate of those individuals of working age, generally considered 18 to 64 years, with disability was 29.6%. In contrast, the poverty rate in 2017 of those without disability was 13.2% (Houtenville & Boege, 2019). See [Chart 7-1](#) for a summary of additional facts about people with disabilities.

Characteristics of Disability

The characteristics of disability include an understanding of the categories, types, and models of disability. Additional characteristics include understanding the broad concept of disability.

Categories and Types of Disability

There are many categories and types of disabilities that include cognitive, developmental, intellectual, sensory, acquired, psychiatric, and physical. A **cognitive disability** is defined as limitations in mental functioning and difficulties with communication, self-care, and difficulty with social skills.

Developmental disabilities are those that occur any time from birth to 22 years of age and result in impairment of physical or mental health, cognition, speech, language, or self-care. This is an umbrella term that includes intellectual disabilities but can be a physical disability only. Examples of developmental disabilities include spina bifida, cerebral palsy, Down syndrome, muscular dystrophy, dwarfism, and osteogenesis imperfecta. Some developmental disabilities occur as a result of birth trauma or severe illness or injury at a very young age, whereas many developmental disabilities are genetic in origin (see [Chapter 6](#)). Some developmental disabilities overlap with cognitive and/or intellectual disabilities that affect intellectual functioning and adaptive behavior. An **intellectual disability** occurs before 18 years of age and is characterized by significant limitations in both intellectual functioning as well as in adaptive behavior, including many everyday social and practical skills. Because individuals with developmental and intellectual disabilities are living well into adulthood and aging with a disability, all nurses and other health care providers will encounter them in practice and must be knowledgeable and prepared to provide high quality health care.

Chart 7-1

Summary of Facts About People with Disability

- Approximately 61 million people in the United States have a disability, or one in every four people.
- The prevalence of disabilities in adults is approximately 10% of people 18–64 years of age and 38% of adults 65 years of age and older.
- The prevalence of disabilities varies by state and by gender, with higher prevalence in the South and among females.
- More than 11 million people with disabilities require personal assistance with everyday activities (e.g., getting around inside the home, bathing or showering, preparing meals, and performing light housework).
- Approximately 3.3 million people use a wheelchair; another 10 million use a walking aid such as cane, crutches, or walker.
- More than 1.8 million people report being unable to see printed words because of vision impairment, 1 million are unable to hear conversations because of hearing impairment, and 2.5 million have difficulty with their speech being understood.
- More than 16 million people have limitations in cognitive function or have a mental or emotional illness that interferes with daily activities, including those with Alzheimer's disease and intellectual disabilities.
- Self-reported health status among adults with disabilities differs from that of people without disabilities, with fewer people with disabilities describing their health as excellent or good.
- The percentage of people with disabilities who are employed ranges from 17.8% to 23.4%; of those without disabilities, the percent ranges from 63.5% to 66.2%.
- Among all age groups, people with a disability are much less likely to be employed than those without a disability. People with a disability who work are more likely than those without disability to work part time. People with a disability who were not in the labor force (neither employed nor unemployed) are about 8 in 10, compared with about 3 in 10 of those without a disability.
- Many people with disabilities would like to work but are hampered in doing so by limited access, lack of accommodations in the workplace, lack of transportation, and reluctance of employers to hire them.
- The percentage of people with disabilities below the poverty level is more than twice that of people without disabilities.

Adapted from Centers for Disease Control and Prevention (CDC), National Center for Health Statistics. (2017). Disability and functioning (noninstitutionalized adults aged 18 and over). Retrieved on 7/15/2019 at: www.cdc.gov/nchs/fastats/disability.htm; Centers for Disease Control and Prevention (CDC). (2018). Disability and health. Common barriers to participation experienced by people with disabilities. Retrieved on 7/16/2019 at: www.cdc.gov/ncbddd/disabilityandhealth/disability-barriers.html; Lauer, E. A., & Houtenville, A. J. (2018). Estimates of

prevalence, demographic characteristics and social factors among people with disabilities in the USA: A cross-survey comparison. *BMJ Open*, 8, e017828; Na, L., Hennessy, S., Boner, H. R., et al. (2017). Disability stage and receipt of recommended care among elderly Medicare beneficiaries. *Disability & Health Journal*, 10(1), 48–57; U.S. Department of Labor, Bureau of Labor Statistics. (2019). Persons with a disability: Labor force characteristics—2018. Retrieved on 7/5/2019 at: www.bls.gov/news.release/pdf/disabl.pdf; United Nations. (n.d.). Factsheet on persons with disabilities. Retrieved on 7/20/2019 at: www.un.org/development/desa/disabilities/resources/factsheet-on-persons-with-disabilities.html

A sensory disability is characterized by impairment of the sense of sight, hearing, smell, touch, and/or taste. Sensory disabilities most commonly affect hearing or vision; however, they also include learning disabilities that affect the ability to learn, remember, or concentrate; disabilities that affect the ability to speak or communicate; and disabilities that affect the ability to work, shop, and care for oneself, or access health care. Risks associated with sensory disabilities include isolation, reduced cognitive function, poor physical and psychological health, and increased risk of falls and hospitalization (McKee, 2019).

Psychiatric disability is defined as a mental illness or impairment that substantially limits one's ability to complete major life activities, such as learning, working, and communicating (WHO, 2018b). Although psychiatric disability and mental health disorders are not the focus of this chapter, it is important to note that a person may have more than one type of disability at the same time, requiring health care providers to be prepared to care for patients with several types of disabilities.

Whether a disability is cognitive, developmental, intellectual, physical, or sensory it may also be characterized as acquired. Acquired disabilities may occur as a result of an acute and sudden injury (e.g., traumatic brain injury [TBI]; spinal cord injury; and traumatic amputation due to traffic crashes, falls, burns, or acts of violence such as intimate partner violence and war and military conflicts), acute nontraumatic disorders (e.g., stroke, myocardial infarction), or progression of a chronic disorder (e.g., arthritis, multiple sclerosis, Parkinson's disease, chronic obstructive pulmonary disease, heart disease, blindness due to diabetic retinopathy).

Many disabilities are visible; however, invisible disabilities are often as disabling as those that can be seen. Some disabilities affect only instrumental activities of living (IADLs), such as shopping for food, doing laundry, housekeeping, and handling financial matters. Other disabilities affect ADLs only. People can be temporarily disabled because of an injury or acute exacerbation of a chronic disorder but later return to full functioning.

A common challenge for people with disability is the need to hire and oversee caregivers who come into their homes to assist with ADLs and IADLs. For many, it is difficult to be in a position of hiring, supervising, and sometimes firing people who may provide them with intimate physical care. The need to balance the roles of receiving care and overseeing the person providing that care may lead to blurring of role boundaries.

Many people with disabilities are at risk for **secondary health conditions** (e.g., pressure injuries, urinary tract infections, low bone density, depression) because of a narrow margin of health. Many of these conditions are predictable and with treatment are preventable with appropriate assessment for risk, prevention and treatment strategies (WHO, 2018a). Some conditions can be both primary and secondary conditions depending on circumstances. For example, a mobility disability could lead to social isolation and absence of participation in activities. This in turn could lead to depression as a secondary condition (Krahn, 2019). Comorbidities (e.g., cardiac disease, cancer, hearing loss) are not due to disability and thus can occur in those with or without disability.

Although different impairments may result from different types of disabilities, there are some similarities across disabilities. People with disabilities are often considered by society to be dependent and needing to be cared for by others; however, many people with disabilities are highly functioning, independent, productive people who are capable of caring for themselves and others, having children and raising families, holding full-time jobs, and making significant and major contributions to society. Like other people, most individuals with disabilities prefer to live in their own homes with family members. Most of them are able to live at home independently. Some individuals with disabilities live alone in their own homes and use home care services. However, alternative living arrangements may be necessary; these include assisted living facilities, long-term care facilities, and group homes.

Chart 7-2

Models of Disability

Medical Model

The Medical Model equates people who are disabled with their disabilities and views disability as a problem of the person, directly caused by disease, trauma, or other health condition, that requires medical care provided in the form of individual treatment by professionals. Health care providers, rather than people with disabilities, are viewed as the experts or authorities. Management of the disability is aimed at cure or the person's adjustment and behavior change. The model is viewed as promoting passivity and dependency. People with disabilities are viewed as tragic.

Rehabilitation Model

The Rehabilitation Model emerged from the medical model. It regards disability as a deficiency that requires a rehabilitation specialist or other helping professional to fix the problem. People with disabilities are often perceived as having failed if they do not overcome the disability.

Social Model

The Social Model, which is also referred to as the barriers or disability model, views disability as socially constructed and as a political issue that is a result of social and physical barriers in the environment. Its perspective is that disability can be overcome by removal of these barriers.

Biopsychosocial Model

The Biopsychosocial Model integrates the medical and social models to address perspectives of health from a biologic, individual, and social perspective. Critiques of this model have suggested that the disabling condition, rather than the person and the experience of the person with a disability, remains the defining construct of the Biopsychosocial Model.

Functional Model

The Functional Model is driven by the World Health Organization's *International Classification of Functioning, Disability and Health (ICF)*. Disability is considered an umbrella term for impairments, activity limitations, participation restrictions, and their interaction with environmental factors. The ICF addresses components of health rather than consequence of disease.

Interface Model

The Interface Model is based on the life experience of the person with a disability and views disability at the intersection (i.e., interface) of the medical diagnosis of a disability and environmental barriers. It considers rather than ignores the diagnosis. The person with a disability, rather than others, defines the problems and seeks or directs solutions.

Other Models of Disability

Other models include the Identity Model (views disability as a positive rather than negative identity), the Human Rights Model (emphasizes the human dignity of individuals with disability and policy change), the Cultural Model (focuses on different views of disability within the context of a specific culture), the Charity Model (encourages humane treatment of people with disabilities, but views people with disabilities as victims of their impairment), and the Economic Model (approaches disability from the perspective of the ability of people with disabilities to work and contribute to society). Each of these models introduces elements that affect how individuals with disability are perceived and, as a result, how they are treated. Therefore, the underlying views and implications suggested by each model need to be examined and critiqued. Importantly, an analysis of these models helps promote introspection and discussion of the concept of disability.

Adapted from Drum, C. F. (2014). The dynamics of disability and chronic conditions. *Disability and Health Journal*, 7(1), 2–5; Goodall, C. J. (1995). Is disability any business of nurse education? *Nurse Education Today*, 15(5), 323–327; Retief, M., & Letšosa, R. (2018). Models of disability: A brief overview. *HTS Teologiese Studies/Theological Studies*, 74(1), a4738; Smeltzer, S. C. (2007). Improving the health and wellness of persons with disabilities: A call to action too important for nursing to ignore. *Nursing Outlook*, 55(4), 189–193; Smeltzer, S. C. (2021). *Delivering quality healthcare for people with disability*. Indianapolis, IN: Sigma Theta Tau International. World Health Organization. (2001). *International Classification of Functioning, Disability and Health—ICF*. Geneva, Switzerland: Author.

Models of Disability

Several models of disability have been used to address or explain the issues encountered by people with disabilities. [Chart 7-2](#) describes several models of disability. The Interface Model (Goodall, 1995), developed by a nurse, promotes care designed to be empowering rather than care that promotes dependency. It takes into account the disabling condition and its disabling effects. Furthermore, it promotes the view that people with disabilities are capable, responsible people who are able to function effectively despite having a disability. The Interface Model can serve as a basis for the role of nurses as advocates for the removal of barriers to health care and for the examination of how society and health care professionals contribute to discrimination by viewing disability as an abnormal state. Several other models of disability exist and serve as a guide for reflection on what disability means as well as its antecedents and outcomes (Retief & Letšosa, 2018).

Disability versus Disabling Disorders

Regardless of which definition or model of disability is adopted, it is important to realize that one can understand the pathophysiology and physical changes related to a disabling condition or injury without understanding the concept of disability. The nurse caring for patients with preexisting disabilities or new disabilities must recognize the impact of a disability on patients' well-being and their current and future health, their ability to participate in self-care or self-management, and their ability to obtain required health care and recommended health screening. Nursing management—from assessment through evaluation of the effectiveness of nursing interventions—must be monitored frequently to ensure that appropriate modifications have been made so that people with disabilities can receive health care equal to that of people without disabilities. Furthermore, nurses as well as other health care providers need to examine their facilities and procedures to ensure that the needs of people with various disabilities can be adequately addressed. Although the health care needs of people with disabilities generally do not differ from those of the general population, some disabilities create special needs and necessitate the use of special accommodations. [Chart 7-3](#) reviews questions to ask to ensure quality health care for people with disabilities.

Chart 7-3

Questions to Ask to Ensure Quality Health Care for People with Disability

Communication Strategies

- Does the patient with a disability require or prefer accommodations (e.g., a sign language interpreter) to ensure full participation in conversations about their health care?
- Are appropriate accommodations made to communicate with the patient?
- Are efforts made to direct all conversations to the patient rather than to others who have accompanied the patient to the health care facility?
- Is appropriate language (people-first language) used in referring to the patient?

Accessibility of the Health Care Facility

- Are clinics, hospital rooms, offices, restrooms, laboratories, and imaging facilities accessible to people with disabilities, as legally required by the Americans With Disabilities Act and Rehabilitation Act?
- Has accessibility been verified by a person with a disability?
- Is a sign language interpreter other than a family member available to assist in obtaining a patient's health history and in conducting a physical assessment?
- Does the facility include appropriate equipment to permit people with disabilities to obtain health care (including mammography, gynecologic examination and care, dental care) in a dignified and safe manner?

Assessment

Usual Health Considerations

- Does the health history address the same issues that would be included when obtaining a history from a person without disabilities, including recent preventive health screening, sexuality, sexual function, and reproductive health issues?

Disability-Related Considerations

- Does the health history address the patient's specific disability and the effect of disability on the patient's ability to obtain health care, manage self-care activities, and obtain preventive health screening and follow-up care?
- What physical modifications and positioning are needed to ensure a thorough physical examination, including pelvic or testicular and rectal examination?

Abuse

- Is the increased risk for abuse (physical, emotional, financial, and sexual) by various people (family, paid care providers, strangers) addressed in the assessment?

- If abuse is detected, are men and women with disability who are survivors of abuse directed to appropriate resources, including accessible shelters and hotlines?

Depression

- Is the patient experiencing depression? If so, is treatment offered just as it would be to a patient without a disability, without assuming that depression is normal and a result of having a disability?

Aging

- What concerns does the patient have about aging with a preexisting disability?
- What effect has aging had on the patient's disability, and what effect has the disability had on the patient's aging?

Secondary Health Conditions

- Does the patient have secondary health conditions related to their disability or its treatment?
- Is the patient at risk for secondary health conditions because of environmental barriers or lack of access to health care or health promotion activities?
- Are strategies in place to reduce the risk for secondary health conditions or to treat existing secondary health conditions?

Accommodations in the Home

- What accommodations does the patient have at home to encourage or permit self-care?
- What additional accommodations does the patient need at home to encourage or permit self-care?

Cognitive Status

- Is it assumed that the patient is able to participate in discussion and conversation rather than assuming that they are unable to do so because of a disability?
- Are appropriate modifications made in written and verbal communication strategies?

Modifications in Nursing Care

- Are modifications made during hospital stays, acute illness or injury, and other health care encounters to enable a patient with disability to be as independent as they prefer?
- Is "people-first language" used in referring to a patient with disability, and do nurses and other staff talk directly to the patient rather than to those who accompanied the patient?
- Are all staff informed about the activities of daily living for which the patient will require assistance?

- Are accommodations made to enable the patient to use his or her assistive devices (hearing/visual aids, prostheses, limb support devices, ventilators, service animals)?
- If a patient with disability is immobilized because of surgery, illness, injury, or treatments, are risks of immobility addressed and strategies implemented to minimize those risks?
- Is the patient with a disability assessed for other illnesses and health issues (e.g., other acute or chronic illness, depression, psychiatric-mental health, cognitive disorders) not related to the primary disability?

Patient Education

- Are accommodations and alternative formats of instructional materials (large print, Braille, visual materials, audiotapes) provided for patients with disabilities?
- Does patient instruction address the modifications (e.g., use of assistive devices) needed by patients with disabilities to enable them to adhere to recommendations?
- Are modifications made in educational strategies to address learning needs, cognitive changes, and communication impairment?

Health Promotion and Disease Prevention

- Are health promotion strategies discussed with people with disabilities along with their potential benefits: improving quality of life and preventing secondary health conditions (health problems that result because of preexisting disability)?
- Are patients aware of accessible community-based facilities (e.g., health care facilities, imaging centers, public exercise settings, transportation) to enable them to participate in health promotion?

Independence versus Dependence

- Is independence, rather than dependence, of the patient with a disability the focus of nursing care and interaction?
- Are care and interaction with the patient focused on empowerment rather than promoting dependence of the patient?
- Is the patient aware of available resources and supports and do they know how to access them?

Insurance Coverage

- Does the patient have access to the health insurance coverage and other services for which they qualify?
- Is the patient aware of various insurance and other available programs?
- Would the patient benefit from talking to a social worker about eligibility for Medicaid, Medicare, disability insurance, and other services?

Federal Legislation

Because of widespread discrimination against people with disabilities, the U.S. Congress has enacted legislation to address health care disparities in this population. This legislation includes the Rehabilitation Act of 1973 and the ADA. The Rehabilitation Act of 1973 protects people from discrimination based on their disability. This act applies to employers and organizations that receive financial assistance from any federal department or agency, including many hospitals, long-term care facilities, mental health centers, and human service programs. It forbids organizations from excluding or denying people with disabilities equal access to program benefits and services. It also prohibits discrimination related to availability, accessibility, and delivery of services, including health care services.

The ADA, implemented in 1990, mandates that people with disabilities have access to job opportunities and to the community without discrimination based on having a disability. The ADA also requires that “reasonable accommodations” be provided for transportation and to facilitate employment of a person with a disability. Examples of reasonable accommodations in health care settings include accessible facilities and equipment (e.g., accessible restrooms, adjustable examination tables, access ramps, grab bars, elevated toilet seats) and alternative communication methods (e.g., telecommunication devices and sign language interpreters for use by people who are deaf). Failure to make reasonable accommodations can result in poor care for patients with disabilities. For example, lack of accommodation for people who have hearing loss or are deaf can lead to failed communication and inadequate sharing of important information between them and their health care providers (McKee, 2019).

Although the ADA took effect in 1992, compliance has been slow, and some facilities continue to be inaccessible although all new construction and modifications of public facilities must address access for people with disabilities. Because some courts previously interpreted the definition of disability in the ADA so narrowly that few people could meet it, the ADA Amendments Act was signed into law in 2008 and enacted in January 2009 (U.S. Department of Justice, 2009). The act broadly defines *disability* to encompass impairments that substantially limit a major life activity. This wording states that effective use of assistive devices, auxiliary aids, accommodations, medical therapies, and supplies (other than eyeglasses and contact lenses) does not alter the determination of whether a disability qualifies under the law. The purpose of these amendments was to cover more people and to shift the attention from focusing on who has a disability to making accommodations and avoiding discrimination.

Right of Access to Health Care

People with disabilities have the right of access to health care that is equal in quality to that of other people. The United Nations Convention on the Rights of Persons with Disabilities (CRPD, 2006) identifies the rights of people with disabilities to receive the highest standard of health care, without discrimination. More than 30 years after the passage of the ADA, the United States has not ratified the CRPD. Despite the rights identified by the CRPD and the ADA in the United States, people with disabilities continue to experience health disparities (Kaye, 2019; McClintock, Kurichi, Barg, et al., 2018).

For years, people with disabilities around the world have been discriminated against in employment, public accommodations, and public and private services, including health care (WHO, 2018a). Unmet needs of people with disabilities include but are not limited to medical, dental, and prescription medication needs. The needs of people with disabilities in health care settings present challenges to health care providers: how to communicate effectively if there are communication deficits, how to address the additional physical requirements for mobility, and how to ensure sufficient time to provide assistance with self-care routines during hospitalization. Nurses and other clinicians need to be aware of the specific needs of people with disabilities and to provide appropriate care and services for them. People with disabilities have a legally mandated right to accessible health care facilities for all medical care and screening procedures. Furthermore, they have the right to health care provided by knowledgeable clinicians who are sensitive to the effects of disability on access to health care, including care that addresses their reproductive issues and sexuality. As multiple recent studies have demonstrated, however, improvements are needed to provide women with disabilities with quality care targeting their sexuality and reproductive health care needs (Hayward, Chen, Forbes, et al., 2017; LaPierre, Zimmerman, & Hall, 2017; Mitra, Smith, Smeltzer, et al., 2017; Morris, Maragh-Bass, Griffin, et al., 2017; Tarasoff, 2017).



Figure 7-1 • Examples of inappropriate communication by nurse with young woman with a disability in a wheelchair. The nurse stands instead of sitting at the patient's eye level (**A**) and talks to the patient's mother rather than directly to the patient (**B**).

Reasonable accommodations are mandated by law and are the financial responsibility of the health care provider or facility. People with disabilities should not be expected to provide their own accommodations (e.g., sign language interpreters, assistants). Family members should not be expected to serve as interpreters because of concern for the patient's privacy and confidentiality and the risk of errors in interpreting information by either the patient or the health care provider. [Chart 7-4](#) identifies strategies to communicate effectively with people with disabilities. [Figures 7-1A,B](#) and [7-2A,B](#) illustrate inappropriate and appropriate communication, respectively, with a person with a disability who uses a wheelchair or is seated.



Figure 7-2 • Examples of appropriate communication by nurse with young woman with a disability in a wheelchair. **A.** The nurse is sitting at patient's eye level and talks directly to the patient after asking her mother to step out of the room during the history. **B.** The nurse explains to the patient how the examination table moves up and down, which allows the patient to be as independent as possible in moving the table.

In response to continued accessibility issues, the U.S. Surgeon General issued *Call to Action to Improve the Health and Wellness of Persons with Disabilities* (Smeltzer, 2007; U.S. Department of Health and Human Services [HHS], 2005). This report recognized that all people with disabilities need to have access to comprehensive health care so that they are able to have full, engaged, and productive lives in their own communities. Among strategies to accomplish this, the call to action stipulated that health care professionals need to become knowledgeable about disability. It further recommended that schools educating health care professionals educate about disability and address the need for increased availability of methods to screen, diagnose, and treat the whole person with a disability with dignity.

Chart 7-4

Interacting and Communicating with People Who Have Disabilities

Patients will feel most comfortable receiving health care if you consider the following suggestions.

General Considerations

- Do not be afraid to make a mistake when interacting and communicating with someone with a disability or chronic medical condition. Keep in mind that a person with a disability is a person first and is entitled to the dignity, consideration, respect, and rights you expect for yourself.
- Treat adults as adults. Address people with disabilities by their first names only if extending the same familiarity to all others present. Never patronize people by patting them on the head or the shoulder.
- Relax. If you do not know what to do, allow the person who has a disability to identify how you may be of assistance and to put you at ease.
- If you offer assistance and the person declines, do not insist. If your offer is accepted, ask how you can best help, and follow directions. Do not take over.
- If someone with a disability is accompanied by another person, address the person with a disability directly rather than speaking through the accompanying companion.
- Be considerate of the extra time it might take for a person with a disability to get things done or said. Let the person set the pace.
- Do not be embarrassed to use common expressions, such as “See you later” or “Got to be running,” that seem to relate to the person’s disability.
- Use people-first language: Refer to “a person with a disability” rather than “a disabled person” and avoid referring to people by the disability or disorder they have (e.g., “the diabetic”).

Mobility Limitations

- Do not make assumptions about what a person can and cannot do.
- Do not push a person’s wheelchair or grab the arm of someone walking with difficulty without first asking whether you can be of assistance and how you can assist. Personal space includes a person’s wheelchair, scooter, crutches, walker, cane, or other mobility aid.
- Never move someone’s wheelchair, scooter, crutches, walker, cane, or other mobility aid without permission.
- When speaking for more than a few minutes to a person who is seated in a wheelchair, try to find a seat for yourself so that the two of you are at eye level (see Fig. 7-2A,B).

- When giving directions to people with mobility limitations, consider distance, weather conditions, and physical obstacles such as stairs, curbs, and steep hills.
- Shake hands when introduced to a person with a disability. People who have limited hand use or who wear an artificial limb do shake hands.

Vision Loss (Low Vision and Blindness)

- Identify yourself when you approach a person who has low vision or blindness. If a new person approaches, introduce them.
- Touch the person's arm lightly when you speak so that they know to whom you are speaking before you begin.
- Face the person and speak directly to them. Use a normal tone of voice.
- Do not leave without saying that you are leaving.
- If you are offering directions, be as specific as possible and point out obstacles in the path of travel. Use specifics such as "Left about 20 feet" or "Right 2 yards." Use clock cues, such as "The door is at 10 o'clock."
- When you offer to assist someone with vision loss, allow the person to take your arm. This will help you guide rather than propel or lead the person. When offering seating, place the person's hand on the back or the arm of the seat.
- Alert people with low vision or blindness to posted information.
- Never pet or otherwise distract a canine companion or service animal unless the owner has given you permission.

Hearing Loss (Hard of Hearing, Deaf, Deaf-Blind)

- Ask the person how they prefer to communicate.
- If you are speaking through a sign language interpreter, remember that the interpreter may lag a few words behind—especially if there are names or technical terms to be finger spelled—so pause occasionally to allow the interpreter time to translate completely and accurately.
- Talk directly to the person who has hearing loss, not to the interpreter. However, although it may seem awkward to you, the person who has hearing loss will look at the interpreter and may not make eye contact with you during the conversation.
- Before you start to speak, make sure that you have the attention of the person you are addressing. A wave, a light touch on the arm or the shoulder, or other visual or tactile signals are appropriate ways of getting the person's attention.
- Speak in a clear, expressive manner. Do not over enunciate or exaggerate words. Unless you are specifically requested to do so, do not raise your voice. Speak in a normal tone; do not shout.
- To facilitate lip reading, face the person and keep your hands and other objects away from your mouth. Maintain eye contact. Do not turn

- your back or walk around while talking. If you look away, the person might assume that the conversation is over.
- Avoid talking while you are writing a message for someone with hearing loss, because the person cannot read your note and your lips at the same time.
 - Try to eliminate background noise.
 - Encourage feedback to assess clear understanding.
 - If you do not understand something that is said, ask the person to repeat it or to write it down. The goal is communication; do not pretend to understand if you do not.
 - If you know any sign language, try using it. It may help you communicate, and it will at least demonstrate your interest in communicating and your willingness to try.

Speech Disabilities or Speech Difficulties

- Talk to people with speech disabilities as you would talk to anyone else.
- Be friendly; start up a conversation.
- Be patient; it may take the person a while to answer. Allow extra time for communication. Do not speak for the person.
- Give the person your undivided attention.
- Ask the person for help in communicating with them. If the person uses a communication device such as a manual or electronic communication board, ask the person the best way to use it.
- Speak in your regular tone of voice.
- Tell the person if you do not understand what they are trying to say. Ask the person to repeat the message, spell it, tell you in a different way, or write it down. Use hand gestures and notes.
- Repeat what you understand. The person's reactions will clue you in and guide you to understanding.
- To obtain information quickly, ask short questions that require brief answers or a head nod. Avoid insulting the person's intelligence with oversimplification.
- Keep your manner encouraging rather than correcting.

Intellectual/Cognitive Disabilities

- Treat adults with intellectual/cognitive disabilities as adults.
- Be alert to the person's responses so that you can adjust your method of communication as necessary. For example, some people may benefit from simple, direct sentences or from supplementary visual forms of communication, such as gestures, diagrams, or demonstrations.
- Use concrete rather than abstract language. Be specific, without being too simplistic. When possible, use words that relate to things you both can see. Avoid using directional terms such as right, left, east, or west.

- Be prepared to give the person the same information more than once in different ways.
- When asking questions, phrase them to elicit accurate information. People with intellectual/cognitive disabilities may be eager to please and may tell you what they think you want to hear. Verify responses by repeating the question in a different way.
- Give exact instructions. For example, “Be back for lab work at 4:30,” not “Be back in 15 min.”
- Avoid giving too many directions at one time, which may be confusing.
- Keep in mind that the person may prefer information provided in written or verbal form. Ask the person how you can best relay the information.
- Using humor is fine, but do not interpret a lack of response as rudeness. Some people may not grasp subtleties of language.
- Know that people with brain injuries may have short-term memory deficits and may repeat themselves or require information to be repeated.
- Recognize that people with auditory perceptual problems may need to have directions repeated and may take notes to help them remember directions or the sequence of tasks. They may benefit from watching a task demonstrated.
- Understand that people with perceptual or “sensory overload” problems may become disoriented or confused if there is too much to absorb at once. Provide information gradually and clearly. Reduce background noise if possible.
- Repeat information using different wording or a different communication approach if necessary. Allow time for the information to be fully understood.
- Do not pretend to understand if you do not. Ask the person to repeat what was said. Be patient, flexible, and supportive.
- Be aware that some people who have an intellectual disability are easily distracted. Try not to interpret distraction as rudeness.
- Do not expect all people to be able to read well. Some people may not read at all.

Psychiatric-Mental Health Disabilities

- Speak directly to the person. Use clear, simple communication.
- Offer to shake hands when introduced. Use the same good manners in interacting with a person who has a psychiatric-mental health disability that you would with anyone else.
- Make eye contact and be aware of your own body language. Like others, people with psychiatric-mental health disabilities will sense your discomfort.
- Listen attentively, and wait for the person to finish speaking. If needed, clarify what the person has said. Never pretend to understand.

- Treat adults as adults. Do not patronize, condescend, or threaten. Do not make decisions for the person or assume that you know the person's preferences.
- Do not give unsolicited advice or assistance. Do not panic or summon an ambulance or the police if a person appears to be experiencing a mental health crisis. Calmly ask the person how you can help.
- Do not blame the person. A person with a psychiatric disability has a complex, biomedical condition that is sometimes difficult to control. The person cannot just "shape up." It is rude, insensitive, and ineffective to tell or expect a person to do so.
- Question the accuracy of media stereotypes of psychiatric-mental health disabilities: Movies and media often sensationalize psychiatric-mental health disabilities. Most people never experience symptoms that include violent behavior.
- Relax. Be yourself. Do not be embarrassed if you happen to use common expressions that seem to relate to a psychiatric-mental health disability.
- Recognize that beneath the symptoms and behaviors of psychiatric disabilities is a person who has many of the same wants, needs, dreams, and desires as anyone else. If you are afraid, learn more about psychiatric-mental health disabilities.

This material is adapted and based in part on U.S. Department of Labor, Office of Disability Employment Policy. *Effective Interaction: Communicating With and About People with Disabilities in the Workplace*. Retrieved on 11/26/20 at: www.dol.gov/general/aboutdol/majorlaws

Health care in people with disabilities received further national attention through specific national objectives in *Healthy People 2020* (HHS, 2010). The midcourse review of those objectives indicated some improvement in health and health-related outcomes for people with disabilities (Sinclair, Fox, Jonas, et al., 2018). For example, the midcourse review revealed that national goals for health were improved or exceeded for 44.6% of objectives for people without disabilities compared to only 30.6% for people with disabilities (National Center for Health Statistics, 2016). These results indicate that work toward achieving equity in health care for individuals with disability is still needed.

Thirty years after the passage of the ADA in 1990, significant health status and health care disparities persist for people with disabilities. Furthermore, progress has been slow in ensuring that health care professionals receive adequate education about providing quality health care to them.

Barriers to Health Care

People with disabilities often encounter barriers in their daily lives and in their efforts to obtain health care, health promotion, and preventive health screening. For example, structural barriers such as stairs, lack of ramps, and narrow doorways may prevent people who are wheelchair users from entering facilities. Other structural barriers include restroom facilities that lack grab bars or sufficiently large restroom stalls, elevated toilet seats, and accessible sinks (CDC, 2018; WHO, 2018a).

Structural barriers to accessibility are most easily identified and eliminated. Other less visible barriers include negative and stereotypic attitudes (e.g., believing that all people with disabilities have a poor quality of life and are dependent and nonproductive) on the part of the public. Health care providers with similar negative attitudes make it difficult for people with disabilities to obtain health care equal in quality to that of people without disabilities. The Rehabilitation Act and the ADA were passed more than 46 and 30 years ago, respectively, to ensure equal access to people with disabilities; however, people with disabilities continue to encounter and report multiple barriers to health care facilities and providers. This legislation, the U.S. Surgeon General's call to action (HHS, 2005) and the ADA Amendments Act of 2008 are examples of efforts to eliminate barriers encountered by people with disabilities.

People with disabilities have also reported lack of access to information, transportation difficulties, inability to pay because of limited income, difficulty finding a health care provider knowledgeable about their particular disability, previous negative health care encounters, reliance on caregivers, and the demands of coping with the disability itself (HHS, 2005). These issues affect both men and women with severe disabilities; however, women are at higher risk for receiving a lower level of health care than men. Women with disabilities are significantly less likely to receive pelvic examinations than women without disabilities; the more severe the disability, the less frequent the examination. In particular, minority women and older women with disabilities are less likely to have regular pelvic examinations and Papanicolaou (Pap) tests. Reasons given by women for not having regular pelvic examinations are difficulty transferring on to the examination table, belief that they do not need pelvic examinations because of their disability, difficulty in accessing the office or the clinic, and difficulty finding transportation (HHS, 2005). Health care providers often underestimate the effect of disabilities on women's ability to access health care, including health screening and health promotion, and they focus on women's disabilities while ignoring women's general health issues and concerns. Furthermore, women with disabilities have reported lack of knowledge about disability and insensitivity on the part of health care providers.

Individuals with disabilities living in rural settings also face barriers associated with having fewer resources and less access to care than those

living in larger communities or urban settings. Therefore, establishing and maintaining involvement in their community can help ensure that they remain active and connected to others living around them, as described by Thurman, Harrison, and Walker (2019) (see the Nursing Research Profile in [Chart 7-5](#)). Additionally, those living in rural areas are less likely to have many types of recommended screenings (Goyat, Vyas, & Sambamoorthi, 2016; Magaña, Parish, Morales, et al., 2016; WHO, 2018a, 2018b).

Costs of care continue to be a factor in delaying or forgoing health care despite changes brought about by legislation, including the ADA and the Patient Protection and Affordable Care Act (ACA) (see later discussion in this chapter). Working individuals with disability are two to four times more likely to delay necessary health care than those without disabilities. Lack of transportation and being refused care are also associated with failure to obtain needed health care among those with disabilities. Further, individuals with multiple limitations and more severe disabilities are less likely to obtain or receive health care than those without disabilities and those without multiple limitations or less severe disability (Na, Hennessy, Boner, et al., 2017; Reichard, Stransky, Phillips, et al., 2017).

Race, gender, and type of disability also affect prevalence, health status and receipt of health care and screening. For example, African American women with intellectual disabilities are less likely to receive mammography than Caucasian women with intellectual disabilities.

Because of the persistence of these and other barriers, it is essential that nurses and other health care providers take steps to ensure that clinics, offices, hospitals, and other health care facilities are accessible to people with disabilities. This includes removal of structural barriers by the addition of ramps, designation of accessible parking spaces, and modification of restrooms to make them usable by people with disabilities. Alternative communication methods (e.g., sign language interpreters, teletypewriter devices, assistive listening devices) and types of patient education (e.g., audiotapes, large print, Braille) are essential to provision of appropriate health-related information to people with disabilities. Such accommodations are mandated by the ADA, which requires their provision without cost to the patient.

People with intellectual and developmental disabilities often need assistance in obtaining health care, including preventive health screening. They often lack knowledge about cancer screening, including breast cancer screening. Educational materials and interventions modified to accommodate patients with intellectual and developmental disabilities are needed to enable them to make informed decisions about screening. Major barriers to breast cancer screening by this population of women include fear, anxiety, and embarrassment, primarily due to lack of understanding about cancer and the importance of its early detection.

Federal Assistance Programs

Lack of financial resources, including health insurance, is an important barrier to health care for people with chronic illness and disabilities. However, several federal assistance programs provide financial assistance for health-related expenses for people with some chronic illnesses, acquired disabling acute and chronic diseases, and childhood disabilities.

Medicare is a federal health insurance program that is available to most people 65 years of age and older, people with permanent kidney injury, and qualified people with disabilities. Title II of the Social Security Disability Insurance program pays benefits to those people who meet medical criteria for disability, who have worked long enough (40 quarters of covered employment) to qualify, and who have paid Social Security taxes. Title II also provides benefits to people disabled since childhood (younger than 22 years), who are dependents of a deceased insured parent or a parent entitled to disability or retirement benefits, and disabled widows or widowers, 50 to 60 years of age, if their deceased spouse was insured under Social Security. Title XVI of the Social Security Disability Insurance program provides supplemental security income payments to people who are disabled and have limited income and resources.

Chart 7-5 NURSING RESEARCH PROFILE

Well-Being among Adults with Disabilities in Rural Settings

Thurman, W. A., Harrison, T. C., Walker, V. G., et al. (2019). Pursuing well-being among rural-dwelling adults with disabilities. *Qualitative Health Research*, 29(12), 1699–1710.

Purpose

The rate of disabilities is higher in rural areas globally than in more urban settings across gender, race, and type of disability or impairment. Individuals with disability who reside in rural communities are at a greater disadvantage for receiving services than those who live in urban settings. Although sociocultural and environmental factors affect the well-being of individuals with disabilities, little is known about the experience of adults with disabilities who live in rural areas. This qualitative study was conducted to explore the experience of living with a disability in rural America with the goal of greater understanding of how disability affects social roles, adaptation to impairments, and use of resources to improve well-being in individuals. The researchers' goal was to examine how working-age adults (35–70 years of age) with mobility and sensory disabilities living in rural areas of the United States define and pursue well-being.

Design

The researchers used a constructivist grounded theory approach with constant comparison analysis to study the well-being of community-residing adults with disabilities living in rural settings, defined as communities with fewer than 10,000 residents. The study participants were recruited through community organizations, newspaper announcements, word of mouth, and professional networks of the researchers. Twelve individuals who met inclusion criteria, including the ability to understand spoken or written English, participated in up to three one-to-one interviews. The interview questions addressed participants' perceptions of how their disability affected their lives over time, activities they enjoyed, qualities of their rural communities, and people who interacted with them regularly. Demographic data (e.g., age, race/ethnicity, length of time they lived in their rural setting, level of education, income, housing, employment status, occupation, age at onset of their disability, and the structure of their family) were collected to describe the sample. The study participants had a variety of mobility and sensory impairments, including osteoarthritis, paraplegia, multiple sclerosis, hearing loss, diabetes, and heart disease. Ten of the participants used some type of assistive device.

Findings

Six concepts related to well-being were identified: values, rural attitude, demands, set expectations, strategic participation, and membership. Membership in the rural community, identified as the core category, refers to a feeling of belonging and being part of something greater than one's self.

This was sustained by ongoing contributions to the rural community. Establishing and maintaining membership in the community described participants' sense of belonging to a group, and they felt that they were regarded as contributing participants in their communities. Membership also provided access to support from other community members when needed. These findings support previous research on rural settings indicating the importance of a sense of belonging to well-being. In the rural setting, social processes are used to mobilize resources needed to overcome functional limitations secondary to disability to establish group membership and create a sense of well-being. Meaningful social relationships contributed to participants' well-being, self-confidence, and self-valuing.

Nursing Implications

The findings indicate the importance of having social support, being a member of a group, and belonging to a network in which there is a reciprocal exchange of support and services for individuals with disabilities from rural communities. Thus, nurses and other health professionals working in rural settings could encourage individuals with disabilities to maintain social relationships, memberships, and participation in meaningful activities. Such participation could promote confidence and a sense of well-being and facilitate access to material and psychological support.

Medicaid provides home and community-based services to people with disabilities and long-term illnesses to enable them to lead meaningful lives in their families and communities (Krahn, Walker, & Correa-De-Araujo, 2015). The ACA has expanded insurance options for people with disabilities and made these options more affordable. Furthermore, although the ACA stipulates that people with preexisting chronic conditions and disabilities can no longer be dropped by insurance companies and no longer have a lifetime cap on benefits, comparison of pre-ACA and post-ACA access to health care indicates that health disparities based on disability status persist (Kaye, 2019). Because of differences in states' implementation of the ACA, differences in access to health care among people with disability also differ (Lindner, Rowland, Spurlock, et al., 2018). See later discussion of the ACA in this chapter, and the Resources section at the end of this chapter.

Despite the availability of these federal programs, people with disabilities often have health-related costs and other expenses related to disability that result in low-income status. Furthermore, people must undergo a disability determination process to establish eligibility for benefits, and the process can be prolonged and cumbersome for those who may need assistance in establishing their eligibility.

Nursing Care of Patients with Disability

As active members of society, people with disabilities are no longer an invisible minority. An increased awareness of their needs will bring about changes to improve access and accommodations. Modification of the physical environment permits access to public and private facilities and services, including health care, and nurses can serve as advocates for people with disabilities to eliminate discriminatory practices.

Nursing Considerations during Hospitalization

During hospitalization, as well as during periods of acute illness or injury or while recovering from surgery, patients with preexisting disabilities may require assistance with carrying out ADLs that they could otherwise manage at home independently and easily. Patients should be asked preferences about approaches to carrying out their ADLs, and assistive devices they require should be readily available. Careful planning with patients to ensure that the hospital room is arranged with their input enables them to manage as independently as possible. For example, patients who have paraplegia may be able to transfer independently from bed to their wheelchair; however, if the bed is left in an elevated position, they may be unable to do so. If patients usually use service animals to assist them with ADLs, it is necessary to make arrangements for the accommodation of these animals.

If patients with hearing loss or vision impairment are hospitalized, it is essential to establish effective communication strategies. Alternative methods for these patients to communicate with the health care team must be put in place and used, and all staff members must be aware that some patients are not able to respond to the intercom or telephone. If patients have vision impairment, it is necessary to orient them to the environment and talk to them in a normal tone of voice. When a patient has a disability that affects speech, referral with a speech-language therapist or communication specialist may assist in identifying alternative communication methods (use of sounds, gestures, eye movements) between the nurse and the patient. When a person with intellectual, cognitive, or psychiatric-mental health disability is hospitalized, the health care team must determine what strategies are effective in ensuring that the patient understands what is happening and can communicate his or her needs, promoting a safe and nonstressful environment, adhering as closely as possible to the patient's daily patterns, and consulting with the patient's family caregiver.

Health Promotion and Prevention

Health care providers often neglect health promotion concerns of people with disabilities, who may be unaware of these concerns. For example, people who have had hearing loss since childhood may lack exposure to information about

new immunizations through television and podcasts. People with lifelong disabilities may not have received information about general health issues as children, and people with new onset as well as lifelong disabilities may not receive encouragement to participate in health promotion activities. Because individuals with disabilities, including those with intellectual and developmental disabilities, are living longer and aging with their disability, the need for health promotion takes on increasing importance. Therefore, nurses should take every opportunity to emphasize the importance of participation in health promotion activities (e.g., healthy diet, exercise, social interactions) and preventive health screening.

The management of some disabilities increases the risk of illness, and in some people, health screening (e.g., bone density testing, gynecologic examinations, mammography) may be required earlier in life or more frequently (HHS, 2005). Referrals by nurses to accessible sites for screening may be needed, because many imaging centers are inaccessible or staff are unprepared to make modifications for women who need assistance for screening (McClintock et al., 2018). In addition, nursing consultation with physical therapists may be needed to identify creative ways of enabling people with disabilities to exercise safely, because exercise facilities are also often inaccessible for people with disabilities.

General health promotion strategies and health-screening recommendations for all men and women also apply to those with disabilities. Although physical limitations, cognitive impairments, and structural and attitudinal barriers existing in clinical facilities may make it difficult for some men and women to obtain health care and preventive health screening, the presence of a disability should not be used as a reason or excuse to defer recommended screening. Rather, the presence of a disability may *increase* the risk of secondary health conditions or disorders that require screening and follow-up. Just as people without disabilities should have regular screening tests, such as mammography or testicular and prostate examinations, so should people with disabilities. Nurses are often in a position to influence decisions about how equipment and procedures can be adapted to meet the special needs of their patients, whether these needs are cognitive, motor, or communicative.

The effect of the disabling condition on health risks should be considered. For example, the risk of osteoporosis may be increased in women and men whose disabilities limit their ability to participate in weight-bearing exercise or who use medications that contribute to bone loss (Smeltzer & Qi, 2014). Individuals with intellectual disabilities have several additional risk factors, such as taking medications to treat seizures that contribute to bone loss. Although people with certain disabilities have an increased risk of osteoporosis at a younger age than people without disabilities, little attention is given to prevention, detection, and treatment of osteoporosis, despite the increased risk for falls associated with many disabling disorders.

Nurses can provide expert health promotion education classes that are targeted to people with disabilities and refer them to accessible online resources. Classes on nutrition and weight management are extremely important to people who are wheelchair users and need assistance with transfers. Safer sex classes are needed by adolescents and young adults who have spinal cord injury, TBI, or developmental disabilities, because the threats of sexually transmitted infections and unplanned pregnancy exist for these populations just as they do for the population in general.

The need for health promotion in the areas of establishing relationships, sex, pregnancy, and childbearing is as great in people with disabilities, including those with intellectual and cognitive disabilities, as in people without disabilities. However, societal attitudes and biases against sexual relationships and childbearing in people with disabilities often result in health care providers either excluding such individuals from discussions about these issues, or failing to take their interest and questions seriously. Approaching these topics at the point of interest and knowledge level of a patient with a disability is important for sexual health. Furthermore, addressing sexual issues is important to prepare people with disabilities, who are at risk for sexual and other forms of abuse, to distinguish between healthy and abusive or exploitative sexual interactions and relationships. The increased risk for abuse and violence affects both men and women with disabilities; such abuse and violence has potential physical and psychological consequences that must be assessed and addressed (Dembo, Mitra, & McKee, 2018).

Other healthy behaviors about which people with neurologic disabilities need education include avoiding alcohol and nonprescription medications while taking antispasmodic and anticonvulsant medications, which are commonly prescribed for those with disabilities.



Veterans Considerations

Growing attention has addressed health issues of veterans, those individuals who have served in the military, including service-connected disability and chronic illness. There are currently 18.5 million U.S. veterans. Over 41% of those who served in the military after September 11, 2001 ("911") in Afghanistan, Iraq, and other war zones have disabilities, which is significantly higher than the rate of 25% of veterans from earlier eras (U.S. Census Bureau, 2018b). Many have more severe disabilities than previous veterans, because of survival of those who previously would have died from their injuries. In addition, the increased use of explosive devices in warfare has increased the number of veterans with limb loss and TBI. The impact of disability on the lives of veterans and their families is considerable and multifaceted and must be considered when providing care to them. Asking patients, "Have you ever served in the military?" is the first step to identifying health-related issues that

veterans face when seeking health care; asking this question also acknowledges the importance of military service to veterans.

Significance of “People-First” Language

It is important to all people, both those with and those without disabilities, that they not be equated with their illness or physical condition. Therefore, nurses should refer to all people using “people-first” language. That means referring to the person first: “the patient with diabetes” rather than “the diabetic” or “the diabetic patient,” “the person with a disability” rather than the “disabled person,” “women with disabilities” rather than “disabled women,” and “people who are wheelchair users” rather than “the wheelchair bound.” This simple use of language conveys the message that the person, rather than the illness or disability, is of greater importance to the nurse.



Gerontologic Considerations

The demographic profile in the United States reflects an increased number of older adults with disabilities, with two thirds of Americans 85 years of age and older experiencing functional limitations. Age-related disabilities are those that occur in the older adult population and are thought to be attributable to the aging process. Examples of age-related disabilities include osteoarthritis, osteoporosis, and hearing loss.

Although disability is often perceived as being associated with old age, it occurs across the lifespan; in fact, the majority of people with disabilities are younger than 65 years, with one third between 44 and 65 years of age (Krahn et al., 2015). While many people with intellectual and developmental disabilities (cerebral palsy, Down syndrome, autism spectrum disorder) have a slightly shorter lifespan than other people from their age cohort, others live well into adulthood and old age. The number of adults with intellectual and developmental disabilities aged 60 years and older is expected to nearly double from 850,600 in 2010 to 1.4 million by 2030 (Heller, 2017).

Aging is an important issue that affects people with preexisting disabilities, as they often develop changes associated with aging at a younger age than do those without disabilities. Therefore, people with preexisting disability should be evaluated for early onset of changes related to aging. The nurse must also consider the effects of aging on a preexisting disability and in turn the effects of disability on aging. The following are examples of changes that occur with aging in people with preexisting disabilities:

- People who use crutches for ambulation because of spina bifida, polio, and lower extremity amputation may experience muscle or joint problems as they age because of long-time overuse of the upper

- extremities; symptoms may not occur for many years but may cause discomfort and interfere with the person's ability to perform ADLs.
- People who experienced respiratory compromise with the onset of polio decades earlier may experience increasing respiratory symptoms with aging (National Institute of Neurological Disorders and Stroke, 2019). Others experience increased muscle weakness and fatigue, making it necessary to begin to use more extensive assistive devices for mobility (Duncan & Batliwala, 2018).
- Women with long-standing mobility limitations, lack of weight-bearing exercise, and issues associated with intellectual disabilities may experience bone loss and osteoporosis prior to menopause, yet their rate of screening is low (Dreyfus, Lauer, & Wilkinson, 2014; Heller, 2017; Smeltzer & Qi, 2014).

Concern about what the future holds is common in people aging with preexisting disabilities, who may have questions about what physical, financial, and emotional supports they will have as they age (Nosek, 2000). For example, if their disability becomes more severe, they may be concerned about entering an assisted living or a long-term care facility. The nurse should recognize the concerns of people with disabilities about their future and encourage them to make suitable plans, which may relieve some of their fears about what will happen to them as they age.

Aging parents of adult children with intellectual or developmental disabilities often fear what will happen when they are no longer available and able to care for their children. Limited long-term care resources, increased life expectancy for people with developmental disabilities, changing family patterns, and competition with the older adult population for similar resources increase the fears of these parents. Thus, nurses must identify needed community resources and services. Identifying these issues and concerns and assessing arrangements made by aging parents of adult children with disabilities can help reduce some of parents' fears about their children's futures.

Disability in Medical-Surgical Nursing Practice

Disability is often considered an issue that is specific or confined to rehabilitation, pediatrics, or gerontologic nursing. However, as noted previously, disability can occur across the lifespan and is encountered in all settings. Patients with preexisting disabilities due to conditions that have been present from birth or to illnesses or injuries experienced as an adolescent or young adult or during middle age often require health care and nursing care in medical-surgical settings. It is important to note that even if a disability has been present for patients' entire lives and they have adapted to it, the disability

may still have implications for nursing care and needs to be considered in planning and providing care.

Although in the past many people with lifelong disabilities or adult onset of severe disabilities may have had shortened lifespans, today most can expect to have normal or near-normal lifespans and to live productive and meaningful lives. They are also at risk for the same acute illnesses that can affect all people and are at increased risk for aging-related chronic diseases due to smoking, obesity, and lack of physical activity. In addition, they are at increased risk for unintentional injuries, with fall-related injuries the most common type of injury.

Because of unfavorable interactions with health care providers, including negative attitudes, insensitivity, and lack of knowledge, people with disabilities may avoid seeking medical intervention or health care services. For this reason, and because the number of people with disabilities is increasing, nurses must acquire knowledge and skills and be available to assist them in maintaining a high level of wellness. Nurses are in key positions to influence the architectural design of health care settings and the selection of equipment that promotes ease of access and health. Padded examination tables that can be raised or lowered make transfers easier for people with disabilities. Birthing chairs benefit women with disability during yearly pelvic examinations and Pap smears and during urologic evaluations. Ramps, grab bars, and raised and padded toilet seats benefit many people who have neurologic or musculoskeletal disabilities and need routine physical examination and monitoring. When a patient with a disability is admitted to the hospital for any reason, the patient's needs for these modifications should be assessed and addressed.

Men and women with disabilities may be encountered in hospitals, clinics, offices, and nursing centers when they seek health care to address a problem related to their disability. However, they may also be encountered in these settings when they seek care for a health problem that is not related in any way to their disability. For example, a woman with spina bifida, spinal cord injury, or post-polio syndrome might seek health care related to a gynecologic issue, such as vaginal bleeding. Although her disability should be considered in the course of assessment and delivery of health and nursing care, it should not be the exclusive focus of the assessment or care that she receives. Furthermore, neither a severe physical disability that affects a woman's ability to transfer to an examination table for a gynecologic examination nor a cognitive disability should be a reason to defer a complete health assessment and physical examination, including a pelvic examination. Reproductive care for women with disabilities is notoriously lacking due to absence of appropriate accessible equipment and facilities, health care providers' unfamiliarity with health issues of women with disabilities, and negative attitudes toward women with disabilities who are sexually active or who are pregnant or considering

pregnancy (Hasson-Ohayon, Hason-Shaked, Silberg, et al., 2018; Hayward et al., 2017; LaPierre et al., 2017; Mitra et al., 2017; Nosek, 2000; Tarasoff, 2017). Nurses who are knowledgeable about these issues and other barriers can make a significant impact on the quality of health care these women receive.

Health care, including preventive health screening and health promotion, is essential to enable people with disabilities to live the highest quality of life within the limitations imposed by their disabling conditions. Men and women with disabilities have the same needs and same rights for health care and preventive health screening as others, although in some cases, the consequences of their disability increase rather than decrease their need for health screening and participation in health-promoting activities. Therefore, it is essential that medical-surgical nurses be knowledgeable about disability and how it affects people across the lifespan as well as how to provide sensitive and quality nursing care for patients with preexisting and new-onset disability. In an effort to address these issues, specific information on health care of people with disabilities has been included throughout this book.

Home, Community-Based, and Transitional Care



Educating Patients About Self-Care

Chart 7-6 contains points the nurse should consider when educating patients about managing disability at home. A major and often overlooked issue in educating patients about a health problem, a treatment regimen, or health promotion strategies is the need for alternative formats to accommodate people with various disabilities. Patients with disabilities are in need of the same information as other patients; however, they often require large print, Braille, audiotapes, or the assistance of a sign language interpreter. Materials may be obtained from a variety of sources for patients who need these educational strategies and for patients with cognitive impairments attributable to developmental disabilities or newly acquired disabilities.

Nurses should ensure that all people—whether or not they have disabilities—recognize the warning signs and symptoms of stroke, heart attack, and cancer, as well as how to access help. In addition, nurses should educate all patients who are stroke survivors and those with diabetes how to monitor their own blood pressure or glucose levels.

Continuing and Transitional Care

When caring for patients with disabilities and helping them plan for discharge and continuing care in the home, it is important to consider how a particular disability affects a patient's ability to adhere to recommended treatment regimens and keep follow-up appointments. Furthermore, it is important to

consider how the health issue or treatment regimen affects the disability. Although many people with disabilities are independent and able to make decisions, arrangements for transportation, and appointments to accessible facilities, others may have difficulty doing so, particularly if they are experiencing a health problem. The nurse should recognize the effect that the disability has on the patient's ability to follow-up. The nurse should ask the patient whether they anticipate having any difficulties arranging for follow-up care. It is important for the nurse to assist the patient with disabilities to identify unmet needs and to find and use resources (community and social resources, and transportation services) that enable the patient to obtain needed services while remaining in his or her home, if preferred. The nurse should have a list of accessible sites and services available and share those resources with the patient and the family. In collaboration with other health care providers (occupational and physical therapists, speech therapists), the nurse can identify needed home modifications, including those that are simple and inexpensive, that will enable the patient to participate in self-care at home.

Chart 7-6



HOME CARE CHECKLIST

Managing Disability and Chronic Illness at Home

At the completion of education, the patient and/or caregiver will be able to:

- State the impact of disability or chronic illness on physiologic functioning, ADLs, IADLs, roles, relationships, and spirituality.
- State changes in lifestyle (e.g., diet, activity) necessary to maintain health.
- State the name, dose, side effects, frequency, and schedule for all medications.
- State how to carry out prescribed regimens (e.g., skin care, bladder/bowel care, daily weights).
- State how to obtain medical supplies after discharge.
- Identify durable medical equipment needs, proper usage, and maintenance necessary for safe utilization.
- Demonstrate safe usage of adaptive equipment for ADLs.
- Identify community resources for peer and caregiver/family support:
 - Identify sources of support (e.g., friends, relatives, faith community)
 - Identify phone numbers of support groups for people with chronic illness/disabilities and their caregivers/families
 - State meeting locations and times
- Demonstrate safe mobility skills and/or how to access transportation.
- Identify community resources for recreation:
 - State local recreation centers that offer programs for people with disabilities
 - Identify leisure activities that can be pursued in the community
- State how to reach health care provider with questions or complications.
- State time and date of follow-up appointments.
- Identify the need for health promotion, disease prevention, and preventive screening activities.

Transitional care, if available, is ideal for patients with severe disabilities being discharged home. Patients hospitalized for an acute or secondary health condition may be more vulnerable to deterioration in health status or developing other health conditions because of their narrow margin of health or deconditioning that occurs with hospitalization. Important roles of the transitional care nurse are to ensure that required services are available in the home at the time of the patient's discharge, to assess and monitor the patient through home visits, and to provide support and assistance to the patient and

the family in the aftermath of hospitalization and discharge (Naylor, Shaid, Carpenter, et al., 2017).

Chronic Disease and Chronic Illness

Chronic disease refers to **noncommunicable diseases** (conditions not caused by an acute infection or injury), chronic conditions, or chronic disorders. In contrast, **chronic illness** refers to the human experience of living with a chronic disease or condition. Chronic illness includes the person's perception of the experience of having a chronic disease or condition and the person's and others' responses to it, including health care professionals (Larsen, 2019). Persons' and their families' values and previous experiences determine their perceptions and beliefs about the condition, which in turn affect their illness and wellness behaviors. Their values are influenced by a number of demographic, socioeconomic, technologic, cultural, and environmental variables. Only the person and the family really know what it is like to live with chronic illness (Larsen, 2019).

The following section of this chapter discusses chronic illness and its implications for nursing practice. Because some degree of disability is often present in severe or advanced chronic illness, the previous discussion about disability is relevant to chronic disease as well.

Chronic diseases are long-term health conditions that affect one's well-being and function in an episodic, continuous, or progressive way over many years of life. Although each chronic disease or condition has its own specific physiologic characteristics, many chronic conditions share common features. For example, common symptoms typically include pain, fatigue, sleep disturbances, and difficulty adjusting to the onset and uncertainty of a chronic condition (Larsen, 2019). Many people with chronic health conditions and disability function independently with little or no inconvenience to their everyday lives; others, however, require frequent and close monitoring or placement in long-term care facilities. Certain conditions require advanced technology for survival, as in the late stages of chronic obstructive lung disease or end-stage renal disease, or intensive care or mechanical ventilation for periods of weeks, months, or years. People with disorders such as these have been described as being chronically critically ill, although there is no consensus on a definition of chronic critical illness. An overview of chronic disease in the United States is presented in [Chart 7-7](#).

Multiple Chronic Conditions

Having **multiple chronic conditions (MCC)** increases the complexity of care and often necessitates care by multiple health care specialists, a variety of

treatment regimens, and prescription medications that may not interact. Thus, patients with MCC are at risk for conflicting medical advice, adverse effects of medications, unnecessary and duplicative tests, and preventable hospitalizations, all of which can negatively affect their health (CDC, 2019b). Patients with MCC and their families may have to keep track of different medications with different schedules and multiple appointments with various health care professionals. Costs of health care increase with the number of chronic conditions a person has; those with five or more chronic conditions account for 41% of total health expenditures in the United States (Buttorff, Ruder, & Bauman, 2017). Approximately 80% of health care costs in the United States are associated with having MCC. Approximately 93% of the total health care expenditures for those who are covered by Medicare are associated with MCC. In addition, out-of-pocket health-related expenses increase with the number of MCC. Facts about MCC are summarized in [Chart 7-8](#).

Chart 7-7

Overview of Chronic Illness in the United States

- Chronic diseases are the leading causes of death and disability in the United States.
- Chronic disease and conditions (e.g., heart disease, stroke, cancer, diabetes, obesity, arthritis) are among the most common, costly, and preventable of all health problems.
- Heart disease, cancer, stroke, chronic lower respiratory diseases, Alzheimer's disease, and diabetes pose greater risks as people age.
- Chronic disease, specifically diabetes, is the leading cause of kidney failure, amputation of lower extremities, and new causes of blindness among adults.
- Obesity is a serious health concern with one third of adults and one of five youths having obesity.
- Lack of exercise or physical activity, poor nutrition, use of tobacco, and excessive alcohol use contribute to the growing prevalence of chronic diseases and resulting disability. Tobacco remains the leading cause of six million preventable deaths per year globally. Although cigarette smoking among U.S. youths has declined steadily over the past two decades, the recent introduction of electronic nicotine delivery systems (ENDS) has resulted in increased exposure of youth to nicotine, considered an epidemic by the U.S. Surgeon General's office.
- Americans living in rural communities are more likely to have chronic disease, such as high blood pressure, heart disease, and diabetes, than those living in nonrural areas.
- Eighty-six percent of all health care spending is related in general to chronic disease.
- People with chronic disease may have other health problems that may or may not be related to the primary chronic disease; these include alcohol abuse and substance use or addiction disorders, mental illness, dementia or other cognitive impairments, and developmental disabilities.

Adapted from AARP. (2017). Chronic conditions among older adults. Retrieved on 11/25/20 at: www.assets.aarp.org/rgcenter/health/beyond_50_hcr_conditions.pdf; Agency for Healthcare Research and Quality. (2018). *2017 National healthcare quality and disparities report*. Rockville, MD: Agency for Healthcare Research and Quality; American Heart Association. (2019). Cardiovascular diseases affect nearly half of American adults, statistics show. Retrieved on 7/19/2019 at: www.heart.org/en/news/2019/01/31/cardiovascular-diseases-affect-nearly-half-of-american-adults-statistics-show; Buttorff, C., Ruder, T., Bauman, M. (2017). Multiple chronic conditions in the United States. Retrieved on 01/01/2018 at: www.rand.org/pubs/tools/TL221.html; Centers for Disease Control and Prevention (CDC), National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP). (2019a). At a glance.

Prevalence of chronic illnesses. Retrieved on 7/19/2019 at: www.cdc.gov/chronicdisease/resources/infographic/chronic-diseases.htm; Centers for Disease Control and Prevention (CDC), National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP). (2019b). Multiple chronic conditions. Retrieved on 7/19/2019 at: www.cdc.gov/chronicdisease/about/multiple-chronic.htm; Raghupathi, W., & Raghupathi, V. (2018). An empirical study of chronic diseases in the United States: A visual analytics approach to public health. *International Journal of Environmental Research and Public Health*, 15(3), 431–455.

Chart 7-8

Facts About Multiple Chronic Conditions (MCC)

- About half of all adults—117 million people—have one or more chronic health conditions. One of every four adults has two or more chronic health conditions.
- The occurrence of MCC increases with age. Three in every four Americans 65 years of age and older have MCC.
- The number of people with MCC is predicted to increase substantially over the next decade, adding to the pressures on the health care system to deliver high quality of care, at optimal cost, while improving the health of this complex population.
- Women are more likely than men to have MCC.
- Non-Hispanic White adults, non-Hispanic Black adults, and non-Hispanic adults of other races have a high prevalence of MCC.
- As the number of chronic conditions a person has increases, the greater the risk of dying prematurely, being hospitalized, and having poor day-to-day functioning.
- Many patients with MCC have mobility limitations and require assistance with dressing, bathing, or preparing meals.
- People with MCC account for the majority of health care visits, prescriptions, home health visits, and hospital stays in the United States.

Adapted from Buttorff, C., Ruder, T., & Bauman, M. (2017). Multiple chronic conditions in the United States. Retrieved on 11/25/20 at: www.rand.org/pubs/tools/TL221.html; Centers for Disease Control and Prevention (CDC), National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP). (2019b). Multiple chronic conditions. Retrieved on 11/25/20 at: www.cdc.gov/chronicdisease/about/multiple-chronic.htm

Health Disparities and Chronic Disease

Although chronic disease occurs in all socioeconomic groups, people from low-income and disadvantaged backgrounds are more likely to report poor health. Factors such as poverty and inadequate health insurance decrease the likelihood that people with chronic illness or disability receive health care and preventive health-screening measures such as mammography, cholesterol testing, and routine checkups (National Academies of Sciences, Engineering, and Medicine [NASEM], 2017; Raghupathi & Raghupathi, 2018). In addition, chronic conditions can lead to poverty for the patient and the family. There also are implications for society or the nation as a whole, because chronic conditions or subsequent premature deaths occur most commonly during the most productive years for people with chronic conditions.

Disparities in health and health outcomes are associated with social, economic, and environmental disadvantages. Although the gap between health outcomes in African Americans and Caucasians has decreased in some areas, in others (e.g., mortality due to breast cancer) the gaps have increased. Disparities in health and health outcomes are associated with higher incidence and prevalence, earlier onset, faster progression, and poorer outcomes of disease and conditions (NASEM, 2017; Raghupathi & Raghupathi, 2018).

Some chronic conditions have little effect on quality of life, whereas others have a major effect because they result in disability. However, not all disabilities are a result of chronic illness, and not all chronic illnesses cause disability. Unlike the term *acute*, which implies a curable and relatively short disease course, the term *chronic* describes a long disease course that may be incurable. This often makes managing chronic conditions difficult for those who live with them. Yet nurses can and do make a difference in the experience of chronic illness by providing quality nursing care in the absence of a cure (Larsen, 2019).

Psychological and emotional reactions of patients to acute and chronic conditions and changes in their health status are described in [Chapter 5](#). People who develop chronic conditions or disabilities may react with shock, disbelief, anger, resentment, or other emotions. How people react to and cope with chronic illness is usually similar to how they react to other events in their lives, depending, in part, on their understanding of the condition and their perceptions of its potential impact on their own and their family's lives. Adjustment to chronic illness (and disability) is affected by various factors:

- Suddenness, extent, and duration of lifestyle changes necessitated by the illness
- Uncertainty related to the course and outcome of chronic illnesses
- Family and individual resources for dealing with stress
- Availability of support from family, friends, and the community
- Stages of individual/family life cycle
- Previous experience with illness and crises

- Underlying personality characteristics
- Unresolved anger or grief from the past

Psychological, emotional, and cognitive reactions to chronic conditions are likely to occur at their onset and to recur if symptoms worsen or return after a period of remission. Symptoms associated with chronic health conditions are often unpredictable and may be perceived as crisis events by patients and their families, who must contend with both the uncertainty of chronic illness and the changes it brings to their lives. The possible effects of chronic conditions can guide nursing assessment and interventions for the patient who has a chronic illness.

Definitions of Chronic Diseases or Conditions

Chronic diseases or conditions are often defined as medical conditions or health problems with associated symptoms or disabilities that require long-term management. Chronic diseases are those that persist for months or years rather than days or weeks (Larson, 2019). The National Center for Health Statistics defines chronic disease as a condition lasting 3 or more months; the CDC's National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) (CDC, 2019a) defines it as a condition that lasts for a year or more and that can usually be controlled but not cured. Definitions of chronic disease or chronic illness share the characteristics of being irreversible, having a prolonged course, and remaining unlikely to resolve spontaneously (Larsen, 2019). The specific chronic condition may be a result of illness, genetic factors, or injury; it may be a consequence of conditions or unhealthy behaviors that began during childhood and young adulthood.

The social determinants of health (SDOH) provide a useful framework to identify factors that affect a person's or a population's health, including the prevalence of chronic disease, its management, the quality of health care that is available, and the outcomes of chronic disease. The main SDOH that have been identified include income and social status, employment and working conditions, education and literacy, childhood experiences, physical environment, social supports and coping skills, healthy behaviors, access to health services, biology and genetic makeup, gender, culture, race and ethnicity (Office of Disease Prevention and Health Promotion, 2019).

The effect of SDOH is illustrated by large discrepancies in life expectancy, up to a 48-year difference among countries and 20 years or more within countries. Deaths due to chronic disease are expected to increase globally, from 41 million deaths reported in 2016 (many of which were premature) to 52 million per year by 2030 (Raghupathi & Raghupathi, 2018; WHO, 2018c, 2019).

Management of chronic conditions includes learning to live with symptoms or resulting disabilities and coming to terms with identity changes resulting

from having a chronic condition. Management also consists of carrying out the lifestyle changes and regimens designed to control symptoms and prevent complications. Although some people assume what might be called a “sick role” identity, most people with chronic conditions do not consider themselves to be sick or ill and try to live as normal a life as possible. Only when complications develop or symptoms interfere with ADLs do most people with chronic health conditions think of themselves as being sick or having a disability.

Prevalence and Causes of Chronic Conditions

Chronic conditions occur in people of every age group, socioeconomic level, race, and culture. Six in 10 adults in the United States have a chronic disease. Chronic diseases are the most common causes of death in the United States; the most frequently occurring chronic diseases account for 7 of the 10 leading causes of death, with cancer and heart disease together accounting for nearly half of all deaths. Globally, chronic diseases are responsible for more than two thirds of deaths. Chronic diseases include cancers, cardiovascular disease, diabetes, and chronic lung diseases (CDC, 2019a).

Chronic diseases or disorders are one of the major health and development challenges of this century because of their global impact on human, social, and financial well-being and status. Although chronic diseases affect all countries, their impact is more severe in low- and middle-income countries, with devastating consequences in poor and vulnerable populations. Chronic diseases cause more deaths than all other causes combined, and lifespan is shortened by chronic illnesses in those countries.

It is predicted that by the year 2030, about half the population will have a chronic disease or disorder. One fifth of those with chronic disease also have an activity limitation. As the incidence of chronic diseases increases, the costs associated with these chronic conditions (e.g., hospital costs, equipment, medications, supportive services) also increase. These costs represent four of every five health care dollars expended. In the United States, chronic diseases are also leading drivers of the nation’s \$3.5 trillion in annual health care costs (NCCDPHP, 2020; Raghupathi & Raghupathi, 2018).

Although some chronic diseases are associated with nonmodifiable factors, including genetic and physiologic factors, many are the result of unhealthy lifestyles. Most chronic diseases are caused by four major behaviors: use of tobacco, electronic nicotine delivery systems (ENDS), and exposure to secondhand smoke; poor nutrition (diets high in sodium and saturated fats and low in fruits and vegetables); lack of physical activity; and excessive consumption of alcohol (CDC, 2019a; WHO, 2018c). Because these behaviors are modifiable, nurses have a major role in the prevention of chronic disorders.

associated with these behaviors (for more detailed information, see later discussion in section on Prevention of Chronic Disease).

Some chronic health conditions cause little or no inconvenience; others are severe enough to cause major activity limitations that may prevent people from meeting their needs for health care and personal services. For example, they may be unable to carry out their therapeutic regimens or have their prescriptions filled on time, may miss appointments and office visits with their health care providers, and may be unable to manage ADLs.

Chronic diseases are a global issue that affects both rich and poor nations. The total number of people dying from chronic disease is twice that of patients dying from infectious (including human immunodeficiency virus infection), maternal, and perinatal conditions, and nutritional deficiencies combined (WHO, 2019). Most of these chronic diseases and complications of chronic illness are preventable, emphasizing the importance of health promotion across the globe. Although chronic diseases or illnesses are common, people have many myths or misunderstandings about them ([Table 7-1](#)).

Causes of the increasing number of people with chronic conditions include the following:

- A decrease in mortality from infectious diseases (e.g., smallpox, diphtheria, acquired immune deficiency syndrome [AIDS]-related infections) because of immunizations and new drug development and from acute conditions (e.g., myocardial infarction, trauma) because of prompt and aggressive management.
- Lifestyle factors such as smoking, chronic stress, poor nutrition, and sedentary lifestyle that increase the risk of chronic health problems such as respiratory disease, hypertension, cardiovascular disease, and obesity. Although signs and symptoms of chronic illness often first appear during older age, risks typically begin earlier in life, even during fetal development.
-  Obesity, often due to lifestyle issues, has become a major health issue across the lifespan and across the globe with about 2.1 billion people overweight and one third of them having obesity. Obesity is no longer limited to high-income countries but increasingly occurs in low- and middle-income countries. The proportion of adults with a body mass index (BMI) of 25 or greater increased between 1980 and 2013 from about 29% to 37% in men and about 30% to 38% in women (Kushner & Kahan, 2018). It is estimated that unless this trend is reversed, almost half of the world's population will be overweight or have obesity by 2030. Approximately 5% of deaths worldwide are due to obesity (Tremmel, Gerdtham, Nilsson, et al., 2017). The increasing prevalence of obesity has increased the incidence of heart disease, strokes, diabetes,

and hypertension. Obesity also affects one's self-esteem, achievement, and emotional state. In 2015, high BMI contributed to four million deaths globally, which was over 7% of deaths from any cause (Kushner & Kahan, 2018).

TABLE 7-1 Myths and Truths About Chronic Disease

Common Misconceptions About Chronic Disease	The Reality About Chronic Disease
1. Everyone dies of something.	Chronic illnesses typically do not result in sudden death but often result in progressive illness and disability. People with chronic disease often die slowly, painfully, and prematurely.
2. People can live to old age even if they lead unhealthy lives (smoke, have obesity).	While there are exceptions (some people who live unhealthy lives live to old age, and some people who live healthy lives develop chronic illnesses), most chronic illnesses can be traced to modifiable risk factors and can be prevented by eliminating these risks.
3. Solutions for chronic disease prevention and control are expensive and not feasible for low- and middle-income countries.	A full range of chronic disease interventions are very cost-effective for all regions of the world, including the poorest. Many of these interventions are inexpensive to implement.
4. Nothing can be done to prevent chronic diseases.	The major causes of chronic diseases are known, and if these risk factors were eliminated, at least more than 80% of heart disease, stroke, and type 2 diabetes and more than 40% of cancers would be prevented.
5. If individuals develop chronic disease as a result of unhealthy “lifestyles,” they have only themselves to blame.	Individual responsibility can have its full effect only if individuals have equal access to a healthy life and are supported to make healthy choices. People who are poor often have limited choices about the food they eat, their living conditions, and access to education and health care.
6. Certain chronic diseases primarily affect men.	Chronic diseases, including heart disease, affect women and men almost equally. Almost half of all deaths attributed to chronic illness occur in women.
7. Chronic diseases primarily affect people who are old.	Almost half of chronic disease deaths occur prematurely in people younger than 70 years of age.
8. Chronic diseases mainly affect people who are rich (affluent).	People who are poor are much more likely than those who are wealthy to develop chronic diseases and as a result are more likely to die prematurely. Chronic diseases cause substantial financial burden and result in extreme poverty.
9. The priority of low- and middle-income countries should be on control of infectious diseases.	Although infectious diseases are an issue, low- and middle-income countries are experiencing a dramatic increase in chronic disease risk factors and deaths, especially in urban settings.
10. Chronic diseases affect mostly high-income countries.	Eighty percent of deaths attributed to chronic disease are in low- and middle-income countries. The prevalence of chronic diseases in low- and middle-income countries is rapidly growing.

Adapted from World Health Organization (WHO). (2005). Face the facts #2: Widespread misunderstandings about chronic disease—and the reality. Retrieved on 7/15/2019 at: www.who.int/chp/chronic_disease_report/media/Factsheet2.pdf

- Longer lifespans because of advances in technology and pharmacology, improved nutrition, safer working conditions, and greater access (for some people) to health care.
- Improved screening and diagnostic procedures enabled early detection and treatment of diseases, resulting in improved outcomes of management of cancer and other disorders.

Physiologic changes in the body often occur before the appearance of symptoms of chronic disease. Therefore, the goal of emphasizing healthy lifestyles early in life is to improve overall health status and slow the development of such disorders. In addition, serious psychiatric or mental illness disorders puts people at greater risk for chronic illness than the general population and leads to higher morbidity and mortality rates of chronic diseases (National Prevention Council, 2016).

Prevention of Chronic Disease

The CDC (2019a) has identified risk factors for common chronic diseases and pointed out that most American adults have more than one of the following risk factors:

- Hypertension (high blood pressure)
- Tobacco and ENDS use or exposure to secondhand smoke
- Overweight or obesity (high BMI)
- Lack of physical activity
- Excessive alcohol use
- Consumption of diets low in fruits and vegetables
- Consumption of food high in sodium and saturated fats

The WHO (2005, 2013) has identified high-impact, cost-effective interventions to prevent premature death due to chronic disease or chronic conditions that can be implemented even in settings with limited resources. These interventions, summarized in [Chart 7-9](#), are consistent with the risk factors for chronic disease identified by the CDC.

Patient education to prevent chronic disease or reduce its severity or effects is another important component of the nurse's role in working with patients to identify risks for chronic disease and to identify strategies to reduce those risks. Health promotion and patient education are discussed in detail in [Chapter 3](#) in this book.

Characteristics of Chronic Conditions

Sometimes it is difficult for people who are disease free to understand the profound effect that chronic illness often has on the lives of patients and their families. It is easy for health professionals to focus on the illness or disability itself while overlooking the person who has the disorder. In all illnesses, but even more so with chronic conditions, the illness cannot be separated from the person. People with chronic illness must contend with it daily (Larsen, 2019). To properly manage their chronic condition, individuals often have to find the time, as well as the social and financial resources, to participate in physically and psychologically beneficial activities, work with health care professionals to follow treatment guidelines, monitor their health and make decisions about their health and lifestyle and those of their family, and manage the effects of the illness on their physical, psychological, and social well-being. To relate to what people must cope with or to plan effective interventions, nurses must understand the multiple characteristics of a chronic illness.

Chart 7-9

Interventions According to Risk Factors

Tobacco

- Reduce affordability of tobacco and electronic nicotine delivery systems (ENDS) including e-cigarettes, e-pens, e-pipes, e-hookah, and e-cigars by increasing their costs.
- Legally mandate smoke-free environments in all indoor workplaces, public places, and public transport.
- Disseminate warnings about dangers of tobacco, tobacco smoke, and ENDS through mass media campaigns and ban all forms of tobacco advertising, promotion, and sponsorship.

Harmful Use of Alcohol

- Reduce affordability of alcohol by increasing its costs.
- Limit availability of alcohol.
- Ban all forms of alcohol advertising and promotions.

Diet and Physical Activity

- Promote reduction of dietary salt intake and replacement of trans fats with unsaturated fats.
- Implement public awareness programs on diet and physical activity.
- Promote and protect breast-feeding (reduces risk of obesity later in life).

Cardiovascular Disease and Diabetes

- Promote glycemic control for diabetes and control of hypertension using medication therapy.
- Counsel individuals who have had a heart attack or stroke and those people at high risk of a fatal and nonfatal cardiovascular event in the next 10 years.
- Initiate acetylsalicylic acid (aspirin) use for acute myocardial infarction.

Cancer

- Promote hepatitis B immunization to prevent liver cancer.
- Promote screening, immunization with the HPV vaccine, and early treatment of precancerous lesions to prevent cervical cancer.

Adapted from World Health Organization (WHO). (2013). Global action plan for the prevention and control of noncommunicable diseases, 2013–2020. Geneva, Switzerland: Author.

- Psychological and social issues: Managing chronic illness involves more than treating medical problems. Associated psychological and social issues must also be addressed, because living for long periods

with illness symptoms and disability can threaten identity, bring about role changes, alter body image, and disrupt lifestyles, work, and family life. These changes require continuous adaptation and accommodation, depending on the patient's age and situation in life. Each change or decline in functional ability requires physical, emotional, and social adaptation for patients and their families (Corbin, 2003; Larsen, 2019).

- Course of chronic disease: Chronic health conditions usually involve many different phases over the course of a person's lifetime. There can be acute periods, stable and unstable periods, flare-ups, and remissions. Each phase brings its own set of physical, psychological, and social problems, and each requires its own regimens and types of management. Individuals with chronic illnesses may experience high levels of stress or anxiety with each change in the course of their illness.
- Progression of chronic disease: The rate of progression of chronic diseases can vary from a rapid downhill course leading quickly to disability and death within a few months of onset to those with a slow downhill progression over years. Others may be characterized by disappearance of signs and symptoms with a return to "normal" with later return of symptoms, or relapses.
- Therapeutic regimens: Keeping chronic conditions under control requires persistent adherence to therapeutic regimens that may be complex and may interfere with usual activities or even life goals. Failing to adhere to a treatment plan or to do so consistently increases the risks of developing complications and accelerating the disease process. However, the realities of daily life, including the impact of culture, values, and socioeconomic factors, affect the degree to which people adhere to a treatment regimen. Managing a chronic illness takes time, requires knowledge and often planning, and can be uncomfortable and inconvenient. It is not unusual for patients to stop taking medications or alter dosages because of side effects that are more disturbing or disruptive than symptoms of the illness, or to cut back on regimens they consider overly time-consuming, fatiguing, or costly (Corbin, 2003; Larsen, 2019).
- Development of other chronic conditions: One chronic disease can lead to the development of other chronic conditions. Diabetes, for example, can lead to neurologic and vascular changes that may result in visual, cardiac, and kidney diseases and erectile dysfunction. The presence of a chronic illness also contributes to a higher risk of morbidity and mortality in patients admitted to the intensive care unit with acute health conditions as well as greater utilization of clinical services during hospitalization.

- Family life: Chronic illness affects the entire family. Family life can be dramatically altered as a result of role reversals, unfilled roles, loss of income, time required to manage the illness, decreases in family socialization activities, and the costs of treatment. Family members often become caregivers for the person with chronic illness while trying to continue to work and keep the family intact. Over 16.6% of the U.S. adult population are considered caregivers for a family member with a chronic illness, or with a disability, or who is an older adult. Although many caregivers derive positive effects from providing care, many are employed and attempting to maintain as normal a life as possible for their families. Stress, depression, fatigue, and loss of sleep as well as missed days of work are not uncommon. Thus, the wellbeing of caregivers merits attention by nurses and other health care providers (Hopps, Iadeluca, & McDonald, 2017).
- Home life: The day-to-day management of illness is largely the responsibility of people with chronic disorders and their families. As a result, the home, rather than the hospital, is the center of care in chronic conditions. Hospitals, clinics, primary care providers' offices, nursing homes, nursing centers, and community agencies (home care services, social services, and disease-specific associations and societies) are considered adjuncts or backup services to daily home management.
- Self-management: The management of chronic conditions is a continual process. People can be taught how to manage their conditions. However, each patient must discover how his or her own body reacts under varying circumstances—for example, what it is like to be hypoglycemic, what activities are likely to bring on angina, and how these or other conditions can best be prevented and managed.
- Collaborative process: Managing chronic conditions must be a collaborative process that involves many different health care professionals working together with patients and their families to provide the services and supports that are often needed for management at home. The medical, social, and psychological aspects of chronic health problems are often complex, especially in severe conditions.
- Health care costs: The management of chronic conditions is expensive. Many expenses incurred by an individual patient (e.g., costs for hospital stays, diagnostic tests, equipment, medications, and supportive services) may be covered by health insurance and by federal and state agencies. The Patient Protection and Affordable Care Act (ACA), passed in 2010, the most significant change to health care policy in the United States since the establishment of

Medicare and Medicaid, has made available health insurance for many previously uninsured individuals who were unable to obtain health insurance. The ACA has ended lifetime and most annual limits on health care, provided patients with access to recommended preventive services, and banned the practice of denying coverage because of the presence of a preexisting health condition (Krahn et al., 2015).

- Lost income: Direct out-of-pocket expenses can represent a significant percent of income, especially in low- and middle-income families. These expenses include high copays and deductibles that must be paid out of pocket. Those with serious chronic disorders may have difficulty paying for care, resulting in bankruptcy or having to rely on family or friends to pay for health insurance or health care. People from low-income groups who do not receive adequate health care get sicker and die sooner from chronic diseases than those from groups with higher levels of education, greater financial resources, and access to care (WHO, 2017a). If a family's primary income earner becomes ill, chronic diseases can result in drastic loss in income with inadequate funds for food, education, and health care. Furthermore, affected families may become unstable and impoverished.
- Ethical issues: Chronic conditions raise difficult ethical issues for patients, families, health care professionals, and society. Issues include how to control costs, how to allocate scarce resources (e.g., organs for transplantation), what constitutes quality of life, and if and when life support should be withdrawn.
- Living with uncertainty: Having a chronic illness means living with uncertainty. Although health care providers may be aware of the usual progression of a chronic disease such as Parkinson's disease or multiple sclerosis, no one can predict with certainty the course of a person's illness. Even when a patient is in remission or symptom free, the person often fears that symptoms will reappear.

Implications of Managing Chronic Conditions

Chronic conditions have implications for everyday living and management for people and their families as well as for society at large (Larsen, 2019). Most importantly, individual efforts should be directed at preventing chronic conditions, because many—but not all—chronic illnesses or disorders are linked to unhealthy lifestyles or behaviors such as smoking and overeating. Therefore, changes in lifestyle can prevent some chronic disorders or at least delay onset until a later age. Because most people resist change, bringing about alterations in people's lifestyles is a major challenge for nurses.

Once a chronic condition has occurred, the focus shifts to managing symptoms, avoiding complications (e.g., eye complications in a person with diabetes), and preventing other acute illnesses (e.g., pneumonia in a person with chronic obstructive lung disease). Quality of life—often overlooked by health care professionals in their approach to people with chronic conditions—is also important. Health-promoting behaviors, such as exercise, are essential to quality of life even in people who have chronic illnesses or disabilities, because it helps maintain functional status (Larsen, 2019).

Although coworkers, extended family, and health care professionals are affected by chronic illnesses, the problems of living with chronic conditions are most acutely experienced by individuals and their immediate families. They experience the greatest impact, with lifestyle changes that directly affect quality of life. Nurses provide not only direct care, especially during acute episodes, but also education and they help secure the resources and other supports that enable people to integrate their illness into their lives and to have an acceptable quality of life despite their chronic condition. To understand essential nursing care, it is important to recognize and appreciate the issues that people with chronic illness and their families contend with and manage, often on a daily basis (Larsen, 2019). Ultimately the course of the chronic illness and its outcomes, including end-of-life decisions, are determined in large part by the patient and family.

Many people with chronic disease or chronic illness must face an additional challenge: the need to deal with more than one chronic condition at a time (CDC, 2019b; Raghupathi & Raghupathi, 2018). The symptoms or treatment of a second chronic condition may aggravate the first chronic condition. Patients need to be able to deal with their various chronic conditions separately as well as in combination and to coordinate the health care and directions they receive, often from more than one health care professional.

Often challenging for many people with chronic illness is the need to hire and oversee caregivers who come into their homes to assist with ADLs and IADLs, such as shopping for food, doing laundry, housekeeping, and handling financial matters. It is difficult for many people to be in a position of hiring, supervising, and sometimes firing people who may provide them with intimate physical care. The need to balance the role of recipient of care and oversight of the person providing care may lead to blurring of role boundaries.

The challenges of living with and managing a chronic illness are well known, and people with chronic illnesses often report receiving inadequate care, information, services, and counseling. This provides an opportunity for nurses to assume a more active role in addressing many of the issues experienced, coordinating care, and serving as advocates for patients who need additional assistance to manage their illness while maintaining a quality of life that is acceptable to them.



Veterans Considerations

Gulf War Illness (GWI) is a chronic illness or syndrome that has been reported in veterans who served in the U.S. military in the Gulf War following the September 11, 2001 (“911”) terrorist attacks (Baldwin, Rudquist, Lava-Parme, et al., 2019). Similar to GWI, the term chronic multisymptom illness (CMI) defines a set of nonspecific symptoms experienced by veterans who served in the Gulf War in 1990–1991 and report one or more symptom lasting more than 6 months in at least two of three categories: fatigue, depressed mood and altered cognition, and musculoskeletal pain. The term, CMI, may be employed when the symptoms are moderate to severe and have no other explanation. There is speculation that GWI and CMI may be a consequence of exposure of veterans to biologic and chemical toxins during their military service. Veterans with symptoms of both GWI and CMI want and need to be taken seriously by health care professionals.



Gerontologic Considerations

The U.S. demographic profile reflects an increased number of older adults with chronic illnesses and those with MCC. By 2060, the number of older adults is expected to more than double to 98.2 million; the number of people 85 years of age and older is expected to triple to 19.7 million. The ratio of women and men who are 65 years of age and older is 127 women for every 100 men. In 2014, there were 75.4 million baby boomers (people born between 1946 and 1964) accounting for almost one quarter of the population. Baby boomers began turning 65 years old in 2011, contributing to the increase in numbers of older adults. Most older adults have at least one chronic condition and three in every four older Americans have MCC (AARP, 2017; Raghupathi & Raghupathi, 2018). Some of the most frequently occurring conditions among older Americans are arthritis, cancer, cardiac disease, type 2 diabetes, and hypertension.

Treatment for older adults with chronic illness accounts for 66% of total U.S. health care expenditures (CDC, 2018). The cost of providing health care for a person 65 years of age or older is estimated to be three to five times higher than costs for someone younger than 65 years. Chronic conditions increase the risk for death due to influenza and pneumonia among older adults, although effective vaccines for them exist. The WHO (2017b) has issued guidelines for community-level interventions aimed at preventing declines in older people as they age.

In 2014, about 28% (12.6 million) of all older adults in the United States lived alone (8.8 million women, 3.8 million men). They represented 35% of older women and 19% of older men. Almost half of women aged 75 and older

live alone; many of them live below the poverty level (Administration for Community Living, 2018). The living arrangements of older adults with chronic illness have important nursing implications for preparing those who are hospitalized for discharge and for ensuring coordination of services.

Nursing Care of Patients with Chronic Conditions

Nursing care of patients with chronic conditions is varied and occurs in a variety of settings. Care may be direct or supportive. Direct care may be provided in the clinic or primary care provider's office, a nurse-managed center or clinic, a hospital, long-term care facility, or the patient's home. Direct care includes assessing the patient's physical status, providing wound care, managing and overseeing medication regimens, providing education to the patient and family, and performing technical tasks. The availability of this type of nursing care may allow the patient to remain at home and return to a more normal life after an acute episode of illness.

Because much of the day-to-day responsibility for managing chronic conditions rests with the patient and the family, nurses often provide supportive care at home. Supportive care may include ongoing monitoring, education, counseling, serving as an advocate for the patient, making referrals, and case management. Giving supportive care is just as important as giving direct physical care. For example, through ongoing monitoring either in the home or in a clinic, a nurse might detect early signs of impending complications and make a referral (e.g., contact the primary health care clinician or consult the medical protocol in a clinic) for medical evaluation, thereby preventing a lengthy and costly hospitalization.

Keeping in mind the many facets and implications of chronic health conditions and their potential impact on patients and families will enable the nurse to provide direct physical care to the patient when warranted, to address the emotional and psychological needs of the patient and family, and to prepare and assist patients and family caregivers to assume management of the condition. By doing so, the nurse can help patients and families maintain as normal a life as possible and as they desire.

Working with people with chronic illness requires not only dealing with the medical aspects of their disorder but also working with the whole person—physically, emotionally, and socially. This holistic approach to care requires nurses to draw on their knowledge and skills, including knowledge from the social sciences and psychology, in particular. People often respond to illness, health education, and regimens in ways that differ from the expectations of health care providers. Although quality of life is usually affected by chronic illness, especially if the illness is severe, patients' perceptions of what constitutes quality of life often drive their management behaviors or affect how

they view advice about health care. Nurses and other health care professionals need to recognize this, even though it may be difficult to see patients make unwise choices and decisions about lifestyles and disease management. People have the right to receive care without fearing ridicule or refusal of treatment, even if their behaviors (e.g., smoking, substance abuse, overeating, failure to follow health care providers' recommendations) may have contributed to their chronic disorder.

Home, Community-Based, and Transitional Care



Educating Patients About Self-Care

Because chronic conditions are so costly to people, families, and society, two of the major goals of nursing are the prevention of chronic conditions and the care of people with them. This requires promoting healthy lifestyles and encouraging the use of safety and disease prevention measures, such as wearing seat belts and obtaining immunizations. Prevention should also begin early in life and continue throughout life. Education on self-care may need to address interactions among the patient's chronic conditions as well as skills necessary to manage the individual diseases and their interactive effects.

Patient and family education is an important nursing role that may make the difference in the ability of the patient and the family to adapt to chronic conditions. Well-informed, educated patients are more likely than uninformed patients to be concerned about their health and do what is necessary to maintain it. They are also more likely to manage symptoms, recognize the onset of complications, and seek health care early. Knowledge is the key to making informed choices and decisions during all phases of the chronic illness trajectory.

Despite the importance of educating the patient and the family, the nurse must recognize that patients recently diagnosed with serious chronic conditions and their families may need time to understand the significance of their condition and its effect on their lives. Education must be planned carefully so that it is not acute. Furthermore, it is important to assess the impact of a new diagnosis of chronic illness on a patient's life and the meaning of self-management to the patient.

The nurse who cares for patients with chronic conditions in the hospital, clinic, home, or any other setting should assess patient's knowledge about their illness and its management; the nurse cannot assume that patients with a long-standing chronic condition have the knowledge necessary to manage the condition. Patients' learning needs change as the chronic condition changes and their personal situations change. The nurse must also recognize that patients may know how their body responds under certain conditions and how

best to manage their symptoms. Contact with patients in any setting offers nurses the ideal opportunity to reassess patients' learning needs and provide additional education about a chronic condition and its management.

Educational strategies and materials should be adapted to the individual patient so that the patient and the family can understand and follow recommendations from health care providers. For instance, educational materials should be tailored for people with low literacy levels and available in several languages and in various alternative formats (e.g., Braille, large print, audiotapes). It may be necessary to provide sign language interpreters.

Continuing and Transitional Care

Chronic illness management is a collaborative process between the patient, family, nurse, and other health care providers. Collaboration extends to all settings and throughout the illness trajectory. Keeping an illness stable over time requires careful monitoring of symptoms and attention to management regimens. Detecting problems early and helping patients develop appropriate management strategies can make a significant difference in outcomes.

Most chronic conditions are managed in the home. Therefore, care and education during hospitalization should focus on essential information about the condition so that management can continue once the patient is discharged home. Nurses in all settings should be aware of the resources and services available in a community and should make the arrangements (before hospital discharge, if the patient is hospitalized) to secure those resources and services. When appropriate, home care services are contacted directly. The home health nurse reassesses how the patient and the family are adapting to the chronic condition and its treatment and continues or revises the plan of care accordingly.

Because chronic conditions occur worldwide and the world is increasingly interconnected, nurses should think beyond the personal level to the community and global levels. In terms of illness prevention and health promotion, this entails wide-ranging efforts to assess people for risks of chronic illness (e.g., blood pressure and diabetes screening, stroke risk assessments) and group education related to illness prevention and management. In addition, nurses should remind patients with chronic illnesses or disabilities and their families about the need for ongoing health promotion and preventive health screening recommended for all people, because chronic illness and disability are often considered the main concern while other health-related issues are ignored (see [Chart 7-6](#)).

Telehealth or telehomecare (use of electronic data and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health, and health administration) has been used effectively to provide care for patients with chronic illness. It is particularly useful in monitoring patients with chronic conditions living in

rural areas (Health Resources & Services Administration, 2013). It has also been used to deliver select medical and nursing interventions (e.g., counseling) and provide ongoing education and support.

Transitional care, if available, should be considered and implemented when the patient has MCC, has impaired cognitive status as well as physical limitations, has complex therapies, or is frail or unstable prior to discharge from the hospital to home. Transitional care nurses serve as the primary coordinator of care. These nurses conduct assessments of the patient as well as the family caregivers' ability to assist in management of the patient in the home. Nurses in this role help the patient and the family set goals during hospitalization, identify the reasons for the patient's current health status, design a plan of care that addresses them, make home visits, provide telephone support, and coordinate various care providers and services (Naylor et al., 2017) (see [Chapter 2](#)).

Nursing Care for Special Populations with Chronic Illness

When providing care and education, the nurse must consider multiple factors (e.g., age; gender; culture and ethnicity; cognitive status; the presence of physical, sensory, and cognitive limitations; health literacy) that influence susceptibility to chronic illness and the ways patients respond to chronic disorders. Certain populations, for example, tend to be more susceptible to certain chronic conditions. Populations at high risk for specific conditions can be targeted for special education and monitoring programs; this includes those at risk because of their genetic profile (see [Chapter 6](#) for further discussion of genomics and genetics). People of different cultures and genders may respond to illness differently, and being aware of these differences is essential. For cultures in which patients rely heavily on the support of their families, the families must be involved and made part of the nursing plan of care. As the United States becomes more multicultural and ethnically diverse, and as the general population ages, nurses need to be aware of how a person's culture and age affect chronic illness management and be prepared to adapt their care accordingly.

It is important to consider the effect of a preexisting disability, or a disability associated with recurrence of a chronic condition, on the patient's ability to manage ADLs, self-care, and the therapeutic regimen. These issues were discussed earlier in this chapter.

CRITICAL THINKING EXERCISES

1  ebp A 70-year-old man is hospitalized for congestive heart failure. He has an above-the-knee amputation because of an injury that occurred 40 years ago as well as significant hearing loss due to exposure to loud noise in his work and lack of ear protection. In providing discharge planning for him, what evidence-based education is warranted to ensure that he is able to monitor his cardiac status? What evidence-based safety precautions are warranted? How would you modify education because of his hearing loss?

2  ipc A 28-year-old woman with paraplegia experienced since she was 14 years of age is hospitalized with a large sacral pressure injury due to her failure to relieve pressure points when in her wheelchair. She is scheduled for surgery to débride the pressure injury followed by placement of a graft to the area. She acknowledges that she has difficulty following medical advice and is eager to be discharged from the hospital as soon as possible to return home because she becomes depressed when she is away from her home and her boyfriend. What nursing and interprofessional assessments are indicated during your initial interactions with her? What interventions, including education, will you implement during her postoperative recovery? What other interprofessional services might you try to engage so she can make the best transition back to her home setting?

3  pq A 48-year-old woman with multiple sclerosis has experienced frequent relapses, increasing mobility limitations with each relapse, and mild cognitive impairment. She is now hospitalized with a diagnosis of possible pneumonia and a urinary tract infection. Her daughter has asked you, her mother's primary nurse, for assistance in making alternative living arrangements for her mother; the daughter tells you she is exhausted and frustrated by providing care for her mother and her own two children while trying to maintain her full-time job as an administrative assistant. How would you approach this situation? What is your priority in assessing the situation and taking action to assist this family?

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*Asterisk indicates nursing research.

**Double asterisk indicates classic reference.

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Resources

AbleData, www.abledata.com or

www.healthfinder.gov/FindServices/Organizations/Organization.aspx?code=HR2423

Advancing Care Excellence for Persons with Disabilities (ACE.D) (National League for Nursing), www.nln.org/professional-development-programs/teaching-resources/ace-d

Alliance for Disability in Health Care Education, Inc., www.ADHCE.org

American Academy of Developmental Medicine & Dentistry (AADMD), www.aadmd.org

American Association of the DeafBlind, www.aadb.org

American Association on Intellectual and Developmental Disabilities, www.aaidd.org

American Foundation® for the Blind, www.afb.org

American Speech-Language-Hearing Association, www.asha.org

Americans With Disabilities Act | National Network, www.adata.org

Arc of the United States, www.thearc.org

Association of Late-Deafened Adults, ALDA, Inc., www.alda.org

Center for Research on Women with Disabilities (CROWD), www.bcm.edu/crowd

Centers for Medicare & Medicaid Services (CMS), www.cms.gov

Developmental Disabilities Nurses Association (DDNA), www.ddna.org

Fact Sheet: The Affordable Care Act and The Disability Community, www.advocacymonitor.com/fact-sheet-the-affordable-care-act-and-the-disability-community

National Aphasia Association (NAA), www.aphasia.org

National Center for Learning Disabilities, www.nclld.org

National Organization for Rare Disorders (NORD), Through the Looking Glass, www.rarediseases.org/organizations/through-the-looking-glass

The Lurie Institute for Disability Policy | The Heller School for Social Policy and Management. Brandeis University, www.lurie.brandeis.edu

United Cerebral Palsy (UCP), www.ucp.org

United Spinal Association, www.unitedspinal.org

U.S. Department of Labor, Office of Disability Employment Policy,
www.dol.gov/odep/topics/disability.htm

8 Management of the Older Adult Patient

LEARNING OUTCOMES

On completion of this chapter, the learner will be able to:

1. Specify the demographic trends and the physiologic aspects of aging in the United States.
2. Describe the significance of preventive health care and health promotion for the older adult.
3. Compare and contrast the common physical and mental health problems of aging and their effects on the functioning of older adults and their families.
4. Identify the role of the nurse in meeting the health care needs of the older patient.
5. Examine common health issues of older adults and their families in the home and the community, in the acute care setting, and in the long-term care facility.

NURSING CONCEPTS

- Development
- Ethics and Legal Issues
- Family
- Health, Wellness, and Illness

GLOSSARY

activities of daily living (ADLs): personal care activities such as bathing, dressing, grooming, eating, toileting, and transferring

ageism: a bias that discriminates, stigmatizes, and disadvantages older adults based solely on their chronologic age

comorbidity: having more than one illness at the same time (e.g., diabetes, congestive heart failure)

depression: the most common affective (mood) disorder of old age; results from changes in reuptake of the neurochemical serotonin in response to chronic illness and emotional stresses

durable power of attorney: a formal, legally endorsed document that identifies a proxy decision maker who can make decisions if the signer becomes incapacitated

elder abuse: the physical, emotional, or financial harm to an older person by one or more of the person's children, caregivers, or others; includes neglect

geriatric syndromes: common conditions found in older adults that tend to be multifactorial and do not fall under discrete disease categories; these conditions include falls, delirium, frailty, dizziness, and urinary incontinence

geriatrics: a field of practice that focuses on the physiology, pathology, diagnosis, and management of the disorders and diseases of older adults

gerontologic/geriatric nursing: the field of nursing that relates to the assessment, planning, implementation, and evaluation of older adults in all environments, including acute, intermediate, and skilled care, as well as within the community

gerontology: the combined biologic, psychologic, and sociologic study of older adults within their environment

instrumental activities of daily living (IADLs): complex skills needed for independent living, such as shopping, cooking, housework, using the telephone, managing medications and finances, and being able to travel by car or public transportation

orientation: a person's ability to recognize who and where they are in a time continuum; used to evaluate one's basic cognitive status

polypharmacy: the use of multiple prescription and over-the-counter (OTC) medications

presbycusis: decreased ability to hear high-pitched tones that naturally begins in midlife as a result of irreversible inner ear changes

presbyopia: decrease in visual accommodation that occurs with advancing age

urinary incontinence: unplanned, involuntary, or uncontrolled loss of urine

Aging, the normal process of time-related change, begins with birth and continues throughout life. Americans are living longer than any previous generation. With the baby boomers turning 65 years of age beginning in 2010, older Americans are the most rapidly expanding portion of the population. In 2016, 3.5 million people celebrated their 65th birthdays. It is projected that 10,000 older adults will celebrate their 65th birthday each year until the year 2030 (Administration on Aging [AoA], 2020). Whenever nurses work with adults, they are likely to encounter older adult patients. This chapter presents demographics of aging, normal age-related changes, health problems associated with aging, and ways that nurses can influence the quality of life and address the health issues of older adults.

Overview of Aging

Demographics of Aging

The proportion of Americans 65 years of age and older has increased from 37 million in 2006 to 49.2 million in 2016 (a 33% increase). It is projected that by 2060, the older adult population will double to 98 million. Currently one in every seven persons is an older adult, or 15.2% of the population. As the older adult population increases, the number of people who live to a very old age is also dramatically increasing. The greatest growth in the older adult population is for those aged 85 years and older; this population is projected to more than double from 6.4 million in 2016 to 14.6 million in 2040, a 129% increase (AoA, 2020). Life expectancy—the average number of years that a person can expect to live—varies by gender and race, with women living longer than men and White women having the longest life expectancy. The difference in life expectancy between the genders is a full 5 years. Life expectancy has risen dramatically in the past 100 years. In 1900, average life expectancy was 47 years and by 2009, that figure had increased to 78.8 years. In 2016, life expectancy decreased by 0.2% to 78.6% (Xu, Murphy, Kochanek, et al., 2018).

The older adult population is becoming more diverse, reflecting changing demographics in the United States. Although this population will increase in number for all minority groups, the rate of growth is projected to be fastest in the Hispanic population, which is expected to increase by 112% between 2016 and 2030. Proportionally, there will be a significant decline in the percentage of the White non-Hispanic population, which is anticipated to increase only by 39% by 2030 (AoA, 2020).

Health Status of the Older Adult

Although many older adults enjoy good health, most have at least one chronic illness, and many have multiple health conditions. Chronic conditions, many of which are preventable or treatable, are the major cause of disability and pain among older adults (see [Fig. 8-1](#)).

Most deaths in the United States occur in people 65 years of age and older. However, improvements in the prevention, early detection, and treatment of diseases have impacted the health of people in this age group. In the past 60 years, there has been a significant decline in overall deaths—specifically, deaths from heart disease and cancer, the two leading causes of deaths. In addition, deaths from chronic lower respiratory diseases, stroke, influenza, pneumonia, and sepsis, have declined (Xu et al., 2018). Deaths from unintentional injuries and chronic lower pulmonary diseases exchanged places, making unintentional injuries the third leading cause of death. Deaths from Alzheimer's disease (AD) have risen and are projected to quadruple by the year 2050, affecting 14 million U.S. adults aged 65 years and older (Centers for Disease Control and Prevention [CDC], 2017).

Between the years 2012 and 2014, 78% of noninstitutionalized Americans aged 65 years and older rated their health as good, very good, or excellent (AoA, 2020). Men and women reported comparable levels of health; however, positive health reports declined with advancing age. Even at the age of 85 years and more, the majority of Americans reported good or better health. Blacks, Hispanics, and Latinos appeared less likely to report good health than their White counterparts. Most Americans 75 years of age and older remained functionally independent regardless of how they perceived their health. The proportion of older Americans reporting a limitation in activities declined from 49% in 1992 to 44% in 2013 (AoA, 2020). These declines in limitations may reflect trends in health promotion and disease prevention activities, such as improved nutrition, decreased smoking, increased exercise, and early detection and treatment of risk factors such as hypertension and elevated serum cholesterol levels.

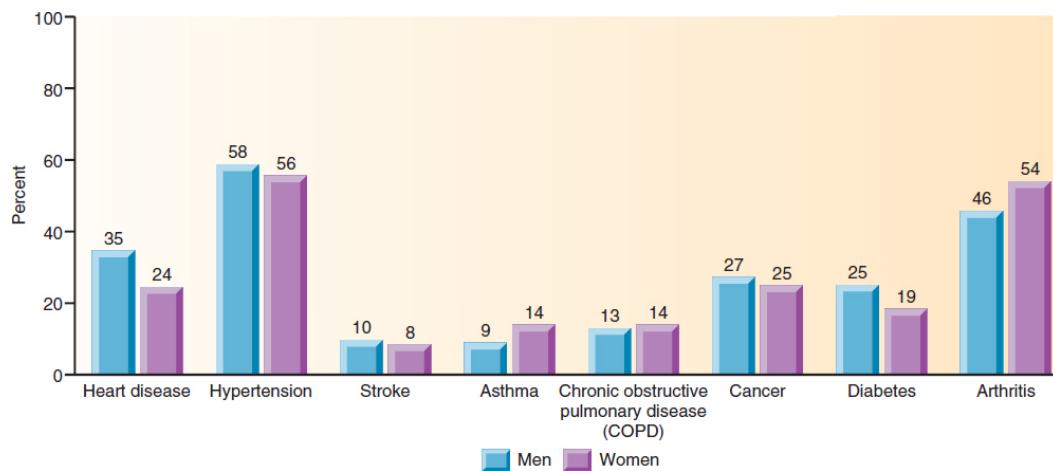


Figure 8-1 • Percentage of people 65 years of age and older who reported having selected chronic health conditions, by sex, 2018.

From National Center for Health Statistics. (2020). Older Americans 2020: Key indicators of well-being. Washington, DC: U.S. Government Printing Office. Retrieved 11/30/2020 at:

<https://www.agingstats.gov/data.html>

Many chronic conditions commonly found among older people can be managed, limited, and even prevented. Older people are more likely to maintain good health and functional independence if encouraged to do so and if appropriate community-based support services are available (Miller, 2019). Nurses need to promote positive lifelong health behaviors, because the impact of unhealthy behaviors and choices can result in chronic disease.

Nursing Care of the Older Adult

Gerontology, the study of the aging process, is a multidisciplinary field that draws from the biologic, psychologic, and sociologic sciences. **Geriatrics** is the practice (medical or nursing) that focuses on the physiology, pathology, diagnosis, and management of the disorders and diseases of older adults. Care for older adults should not be limited to one discipline but is best provided through a cooperative effort. An interdisciplinary approach to providing care combines expertise and resources to provide comprehensive geriatric assessment and intervention. Nurses collaborate with the team to obtain appropriate services for patients and provide a holistic approach to care.

Gerontologic/geriatric nursing is the field of nursing that specializes in the care of older adults. The Scope and Standards of Gerontological Nursing Practice was originally developed in 1969 by the American Nurses Association (ANA) and revised in 2010 (ANA, 2010). The nurse gerontologist can be either a specialist or a generalist providing comprehensive nursing care to older adults by combining the basic nursing process with a specialized

knowledge of aging. Gerontologic nursing is provided in acute care, skilled and assisted living, the community, and home settings. The goals of care include promoting and maintaining functional status as well as helping older adults identify and use their strengths to achieve optimal independence.

Nurses who are certified in geriatric nursing have specialized knowledge of the acute and chronic challenges specific to older adults. The use of advanced practice nurses who have been educated in geriatric nursing concepts has proved to be very effective when dealing with the complex care needs of an older patient. When best practices are used and current scientific knowledge applied to clinical problems, there is significantly less deterioration in the overall health of aging patients (ANA, 2010).

In addition to specialists, nurses who work in all areas of adult medical-surgical nursing encounter older adult patients. Nurses must be knowledgeable and skilled in meeting the complex needs of these patients. Nurses and caregivers who work with older patients must understand that aging is not synonymous with disease and that the effects of the aging process alone are not the only or even the primary contributors to disability and disease. Aging is a highly individualized and multifaceted process (Sommerlad, Sabia, Singh-Manoux, et al., 2019).

Functional assessment is a common framework for assessing older adults. Age-related changes, as well as additional risk factors such as disease and the effects of medications, can reduce function. Assessing the functional consequences of aging and proposing practical interventions helps to maintain and improve the health of older adults (Miller, 2019). The goal is to help older adults sustain maximum functional level and dignity despite physical, social, and psychological losses. Early intervention can prevent complications of many health problems and help maximize the quality of life.

Theories of Aging

Aging has been defined chronologically by the passing of time—subjectively, as in how a person feels, and functionally, as in changes in physical or mental capabilities. Many theories attempt to provide a framework in which to understand aging from different perspectives. Clinicians can use each theory to gain insight into different aspects of aging.

In addition to the biologic, developmental, and sociologic theories of aging, Miller (2019) developed the Functional Consequences Theory, which encourages nurses to consider the effects of normal age-related changes as well as the damage incurred through disease or environmental and behavioral risk factors when planning care. This theory suggests that nurses can alter the outcome for patients through nursing interventions that address the consequences of these changes. Age-related changes and risk factors may negatively interfere with patient outcomes and impair patient activity and

quality of life. For example, normal age-related changes in vision may increase sensitivity to glare. Alterations in the environment that reduce glare may enhance patient comfort and safety. In contrast, the development of cataracts, which is not a normal age-related change, also may increase sensitivity to glare. The nurse must differentiate between normal, irreversible age-related changes and modifiable risk factors. Doing so helps the nurse design appropriate nursing interventions that have a positive impact on outcomes for older patients—most importantly, for their quality of life.

Age-Related Changes

The well-being of older adults depends on physical, psychosocial, mental, social, economic, and environmental factors. A total assessment includes an evaluation of all major body systems, social and mental status, the person's ability to function independently, and their quality of life.

Physical Aspects of Aging

Intrinsic aging (from within the person) refers to those changes caused by the normal aging process that are genetically programmed and essentially universal within a species. Universality is the major criterion used to distinguish normal aging from pathologic changes associated with illness. However, people age quite differently and at different rates; thus, chronologic age is often less predictive of obvious age characteristics than other factors, such as one's genetics (see [Chart 8-1](#)) and lifestyle factors (Frishman, 2019; Seah, Kowitlawakul, Jiang, et al., 2019; Sommerlad et al., 2019).

Cellular and extracellular changes that occur with aging cause functional decline and measurable changes in physical appearance, including changes in shape and body makeup. Cellular aging and tissue deficits also diminish the body's ability to maintain homeostasis and prevent organ systems from functioning at full efficiency. As cells become less able to replace themselves, they accumulate a pigment known as lipofuscin. A degradation of elastin and collagen causes connective tissue to become stiffer and less elastic. These changes result in diminished capacity for organ function and increased vulnerability to disease and stress. Age-related changes in the hematopoietic system influence red blood cell production, leading to increased rates of anemia (Norris, 2019).

Chart 8-1



GENETICS IN NURSING PRACTICE

Genetics Concepts and the Older Adult

Genetic conditions in the older adult may occur from a specific gene mutation or arise as a result of a genetic predisposition combined with other factors (multifactorial). The following are examples of some adult-onset genetic conditions:

- Colon cancer
- Hemochromatosis
- Huntington disease
- Polycystic kidney disease
- Alzheimer's disease

The following are some examples of diseases with multifactorial components, which may include a genetic predisposition, in the older adult:

- Diabetes
- Emphysema
- Heart disease

Nursing Assessments

Refer to [Chapter 4, Chart 4-2: Genetics in Nursing Practice: Genetic Aspects of Health Assessment](#)

Family History Assessment Specific to the Older Adult

- Collect and assess family history on both maternal and paternal sides of the family for three generations.
- Determine whether genetic testing has occurred with other family members.
- Assess for individual and family perceptions and beliefs around topics related to genetics.

Patient Assessment Specific to the Older Adult and Genetic Illness

- Assess older adult patient's knowledge and understanding of genetics, genetic testing, and gene-based therapies.
- Assess the patient's understanding of genetic information and decipher health literacy needs.
- Perform cultural, social, and spiritual assessment.
- Assess patient's communication capacities so that communication strategies about genetics are tailored to their needs and abilities.
- Identify patient's support system.

Management Issues Specific to Genetics and the Older Adult

- Refer for further genetic counseling and evaluation as warranted so that family members can discuss inheritance, risk to other family members, and availability of genetic testing and gene-based interventions.

- Offer appropriate genetic information and resources that take into consideration older patient's literacy needs.
- Evaluate older patient's understanding before, during, and after the introduction of genetic information and services.
- Take the time to clearly explain the concepts of genetic testing to older patients and provide written information that reinforces the topic of discussion.
- Participate in the management and coordination of care of older patients with genetic conditions and individuals predisposed to develop or pass on a genetic condition.

Genetics Resources

See [Chapter 6, Chart 6-7: Components of Genetic Counseling](#) for additional resources.

Table 8-1 summarizes subjective and objective findings related to age-related changes in the body systems. More in-depth information about age-related changes can be found in the chapters pertaining to each organ system.

When assessing the physical aspects of aging, nurses should know that tactile sensation is reduced and changes in the ability to sense pressure, pain, and temperature all lead to a decreased ability to identify and attend to physical symptoms (Kennedy-Malone, Martin-Plank, & Duffy, 2019)

Cardiovascular System

Heart disease is the leading cause of death in older adults. Age-related changes reduce the efficiency of the heart and contribute to decreased compliance of the heart muscle. These changes include myocardial hypertrophy, which changes left ventricular strength and function; increased fibrosis and calcified tissues that infiltrate muscles and conductive tissues causing stenosis of the valves; and decreased pacemaker cells. As a result, the heart valves become thicker and stiffer, and the heart muscle and arteries lose their elasticity, resulting in a reduced stroke volume. Calcium and fat deposits accumulate within arterial walls, and veins become increasingly stiff and tortuous, increasing arterial resistance; this leads to hypertension and increases the workload of the heart (Capriotti & Frizzell, 2016).

It is difficult to differentiate between age- and disease-related changes in cardiovascular function because of the significant influence of behavioral factors on cardiovascular health. When cross-cultural studies are conducted, cardiovascular changes that in the past were thought to be age related do not consistently appear. For example, the higher blood pressure found in older adults in Western societies does not occur in less-developed societies and may be a result of different lifestyle behaviors rather than normal age-related changes (Miller, 2019). The cardiovascular system can adapt to many normal

age-related changes and often an older person is unaware of any significant decline in cardiovascular performance. However, when challenged, for instance, during exercise or stress, the cardiovascular system of an older person is less efficient and may be unable to respond sufficiently when life-sustaining activities are needed.

Careful assessment of older adults is necessary because they often present with different symptoms than those seen in younger patients. Older adults are more likely to have dyspnea or neurologic symptoms associated with heart disease, and they may experience mental status changes or report vague symptoms such as fatigue, nausea, and syncope. Rather than the typical substernal chest pain associated with myocardial ischemia, older patients may report burning or sharp pain or discomfort in an area of the upper body. Complicating the assessment is the fact that many older patients have more than one underlying disease. When a patient complains of symptoms related to digestion and breathing and upper extremity pain, cardiac disease must be considered. The absence of chest pain in an older patient is not a reliable indicator of the absence of heart disease.

TABLE 8-1

Age-Related Changes in Body Systems and Health
Promotion Strategies

Changes	Subjective and Objective Findings	Health Promotion Strategies
Cardiovascular System		
Decreased cardiac output; diminished ability to respond to stress; heart rate and stroke volume do not increase with maximum demand; slower heart recovery rate; increased blood pressure	Complaints of fatigue with increased activity Increased heart rate recovery time <i>Optimal blood pressure:</i> <130/80 mm Hg	Exercise regularly; pace activities; avoid smoking; eat a low-fat, low-salt diet; participate in stress-reduction activities; check blood pressure regularly; adherence to medications; weight control (body mass index <25 kg/m ²)
Respiratory System		
Increase in residual lung volume; decrease in muscle strength, endurance, and vital capacity; decreased gas exchange and diffusing capacity; decreased cough efficiency	Fatigue and breathlessness with sustained activity; decreased respiratory excursion and chest/lung expansion with less effective exhalation; difficulty coughing up secretions	Exercise regularly; avoid smoking; take adequate fluids to liquefy secretions; receive yearly influenza immunization and pneumonia vaccine at 65 years of age; avoid exposure to upper respiratory tract infections
Integumentary System		
Decreased subcutaneous fat, interstitial fluid, muscle tone, glandular activity, and sensory receptors, resulting in atrophy and decreased protection against trauma, sun exposure, and temperature extremes; diminished secretion of natural oils and perspiration; capillary fragility	Thin, wrinkled, and dry skin; increased fragility, more easily bruised, and sunburned; complaints of intolerance to heat; prominent bone structure	Limit sun exposure to 10–15 min daily for vitamin D (use protective clothing and sunscreen); dress appropriately for temperature; stay hydrated; maintain a safe indoor temperature; take shower rather than hot tub bath if possible; lubricate skin with lotions that contain petroleum or mineral oil
Reproductive System		
<i>Female:</i> Vaginal narrowing and decreased elasticity; decreased vaginal secretions <i>Male:</i> Gradual decline in fertility, less firm testes, and decreased sperm production <i>Male and female:</i> Slower sexual response	<i>Female:</i> Painful penile-vaginal intercourse; vaginal bleeding following intercourse; vaginal itching and irritation; delayed orgasm <i>Male:</i> Less firm erection and delayed erection and	<i>Female:</i> May require vaginal estrogen replacement; gynecology/urology follow-up; use a lubricant with sexual intercourse

		achievement of orgasm
Musculoskeletal System		
Loss of bone density; loss of muscle strength and size; degenerated joint cartilage	Height loss; prone to fractures; kyphosis; back pain; loss of strength, flexibility, and endurance; joint pain	Weight-bearing exercise regularly (3 times a week); recommend bone density screening; take calcium and vitamin D supplements as prescribed
Genitourinary System		
Decrease in detrusor muscle contractility, bladder capacity, flow rate, ability to withhold voiding; increase in residual urine <i>Male:</i> Benign prostatic hyperplasia <i>Female:</i> Relaxed perineal muscles; detrusor instability leads to urge incontinence; urethral dysfunction (stress urinary incontinence)	Urinary retention; irritative voiding symptoms including frequency, feeling of incomplete bladder emptying, multiple nighttime voiding Urgency/frequency syndrome; decreased “warning time”; drops of urine lost with cough, laugh, position change	Drink adequate fluids but limit drinking in evening; avoid bladder irritants (e.g., caffeinated beverages, alcohol, artificial sweeteners); do not wait long periods between voiding; empty bladder completely when voiding; wear easily manipulated clothing; consider urologic workup. Women: perform pelvic floor muscle exercises, preferably learned via biofeedback
Gastrointestinal System		
Decreased sense of thirst, smell, and taste; decreased salivation; difficulty swallowing food; delayed esophageal and gastric emptying; reduced gastrointestinal motility	Risk of dehydration, electrolyte imbalances, and poor nutritional intake; complaints of dry mouth; complaints of fullness, heartburn, and indigestion; constipation, flatulence, and abdominal discomfort; risk for aspiration	Use ice chips, mouthwash; brush, floss, and massage gums daily; receive regular dental care; eat small, frequent meals; sit up while and after eating and avoid heavy activity after eating; limit antacids; eat a high-fiber, low-fat diet; limit laxatives; toilet regularly; drink adequate fluids
Nervous System		
Decrease in brain volume and cerebral blood flow. Reduced speed in nerve conduction	Slower to respond and react; learning may take longer; increased vulnerability to delirium with illness, anesthesia, even changes in	Pace education; with hospitalization, encourage visitors; enhance sensory stimulation; with sudden confusion, look for cause; encourage slow rising from a resting position and practice fall prevention measures

		environmental cues such as a room change; increased risk of fainting and falls
Special Senses		
<i>Vision:</i> Presbyopia; diminished ability to focus on close objects; decreased ability to tolerate glare; pupils become more rigid and lenses more opaque; decreased contrast sensitivity; decrease in aqueous humor	Holds objects far away from face; complains of glare; poor night vision and “dry” eye; difficulty adjusting to changes in light intensity; decreased ability to distinguish colors	Wear eyeglasses and use sunglasses outdoors; avoid abrupt changes from dark to light; use adequate indoor lighting with area lights and nightlights; use large-print books; use magnifier for reading; avoid night driving; use contrasting colors for color coding; avoid glare of shiny surfaces and direct sunlight
<i>Hearing:</i> Presbycusis; decreased ability to hear high-frequency sounds; tympanic membrane thinning and loss of resiliency; difficulty with sound discrimination especially in noisy environment	Gives inappropriate responses; asks people to repeat words; strains forward to hear; can result in social isolation and increases vulnerability for delirium during hospitalization	Recommend a hearing examination; reduce background noise; face person; enunciate clearly; speak with a low-pitched voice; use nonverbal cues; rephrase questions
<i>Taste and smell:</i> Decreased ability to taste and smell	Decreased recognition of familiar smells including recognizing spoiled food or a gas stove left on; decreased enjoyment of food; uses excessive sugar and salt	Encourage use of lemon, spices, herbs; recommend smoking cessation

Adapted from Weber, J. R., & Kelley, J. H. (2019). *Health assessment in nursing* (6th ed.). Philadelphia, PA: Wolters Kluwer.

Orthostatic and postprandial hypotension may be a concern as well because of decreased baroreflex sensitivity and risk factors such as medications (Miller, 2019). Therefore, it is important to assess blood pressure in two positions. A patient experiencing hypotension should be counseled to rise slowly (from a lying, to a sitting, to a standing position), avoid straining when having a bowel movement, and consider having five or six small meals each day, rather than

three, to minimize the hypotension that can occur after a large meal. Extremes in temperature, including hot showers and whirlpool baths, should be avoided.

Respiratory System

The respiratory system compensates well for the functional changes of aging. In general, healthy, nonsmoking older adults show very little decline in respiratory function; however, there are substantial individual variations and aerobic capacity declines with each decade by about 10% from peak performance in the early to mid-20s (Capriotti & Frizzell, 2016). The age-related changes that do occur are subtle and gradual, and healthy older adults are able to compensate for these changes. Diminished respiratory efficiency and reduced maximal inspiratory and expiratory force may occur as a result of calcification and weakening of the muscles of the chest wall. Lung mass decreases and residual volume increases (Norris, 2019).

Conditions of stress, such as illness, may increase the demand for oxygen and affect the overall function of other systems. Like cardiovascular diseases, respiratory diseases manifest more subtly in older adults than in younger adults and do not necessarily follow the typical pattern of cough, chills, and fever. Older adults may exhibit fatigue, lethargy, anorexia, dehydration, and mental status changes (Miller, 2019).

Smoking is the most significant risk factor for respiratory diseases and older adults have a higher rate of smoking, about 20%, compared to the national average of 18% (Bowler, Hansel, Jacobson, et al., 2017). Therefore, a major focus of health promotion activities should be on smoking cessation and avoidance of environmental smoke. Despite marketing by manufacturers, e-cigarettes are not an effective smoking cessation aid nor do they promote health (Bowler et al., 2017).

Additional activities that help older adults maintain adequate respiratory function include regular exercise, appropriate fluid intake, pneumococcal vaccination, yearly influenza immunizations, and avoidance of people who are ill. Hospitalized older adults should be frequently reminded to cough and take deep breaths, particularly postoperatively, because their decreased lung capacity and decreased cough efficiency predispose them to atelectasis and respiratory infections.

Integumentary System

The functions of the skin include protection, temperature regulation, sensation, and excretion. Aging can interrupt all functions of the skin and affect appearance (Norris, 2019). Epidermal proliferation decreases, and the dermis becomes thinner. Elastic fibers are reduced in number and collagen becomes stiffer. Subcutaneous fat diminishes, particularly in the extremities, and less vasodilation renders the body less able to produce or conserve body heat.

These changes lead to lack of fever in circumstances in which fever would normally be present in younger individuals and reduced tolerance to temperature extremes, which increases the likelihood of hypothermia and hyperthermia (Capriotti & Frizzell, 2016). There is also a loss of resiliency with wrinkling and sagging of the skin. The skin becomes drier and more susceptible to burns, injury, and infection. Hair pigmentation may change and balding may occur; genetic factors strongly influence these changes. These changes in the integument reduce tolerance to temperature extremes and sun exposure.

Lifestyle practices have a large impact on skin changes. Strategies to promote healthy skin function include not smoking, limiting alcohol consumption, avoiding exposure to the sun, using a sun protection factor of 15 or higher, wearing protective clothing, using emollient skin cream containing petrolatum or mineral oil, avoiding hot soaks in the bathtub, and maintaining optimal nutrition and hydration (Farage, Miller, & Maibach, 2017). Older adults should be encouraged to have any changes in the skin examined, because early detection and treatment of precancerous or cancerous lesions are essential for the best outcome.

Reproductive System

An outdated perception is that older adults are asexual, but older adults report that a fairly stable and active sex life is an important quality of life issue. Sexual activity declines with the loss of a partner, primarily for women as a result of widowhood and for men as a result of poor health, poor sleep, erectile dysfunction, medications, and emotional factors. However, although good health is a predictor of sexual activity, older adults with chronic illnesses may be able to have a sexually active life as well. Because of the many factors that influence the ability to be sexually active, nurses and the older person need to understand the physiologic, psychologic, and social factors that affect reproductive and sexual functioning as aging progresses (Bozorgmehri, Fink, Parimi, et al., 2017; Kennedy-Malone et al., 2019; Miller, 2019).

Ovarian production of estrogen and progesterone declines with menopause. Changes that occur in the female reproductive system include thinning of the vaginal wall, along with a shortening of the vagina and a loss of elasticity; decreased vaginal secretions, resulting in vaginal dryness, itching, and decreased acidity; involution (atrophy) of the uterus and ovaries; and decreased pubococcygeal muscle tone, resulting in a relaxed vagina and perineum. Without the use of water-soluble lubricants, these changes may contribute to vaginal bleeding and painful penile-vaginal intercourse.

In older men, the testes become less firm but may continue to produce viable sperm up to 90 years of age. At about 50 years of age, production of testosterone begins to diminish (Mark, 2017). Decreased libido and erectile dysfunction may develop but are more likely to be associated with factors

other than age-related changes. These risk factors include obesity, smoking, cardiovascular disease, neurologic disorders, diabetes, respiratory disease, chronic pain, and many medications (i.e., vasodilators, antihypertensive agents, and tricyclic antidepressants) (Bozorgmehri et al., 2017; Miller, 2019).

In both older men and women, it may take longer to become sexually aroused, longer to complete sexual intercourse, and longer before sexual arousal can occur again. Although a less intense response to sexual stimulation and a decline in sexual activity occurs with increasing age, sexual desire does not disappear. Many couples are unaware of the causes of decreased libido or erectile dysfunction and are often reluctant to discuss decreased sexual function. Many nonpharmacologic, pharmacologic, and surgical methods are available to improve sexual relationships. Assessment and communication require sensitivity and expert knowledge in the field of sexual dysfunction. If sexual dysfunction is present, referral to a gynecologist, urologist, or sex therapist may be warranted.

Genitourinary System

The genitourinary system continues to function adequately in older adults, although kidney mass is decreased, primarily because of a loss of nephrons. However, the loss of nephrons does not typically become significant until about 90 years of age, and changes in kidney function vary widely; approximately one third of older adults show no decrease in renal function (Mark, 2017). Changes in renal function may be attributable to a combination of aging and pathologic conditions such as hypertension. The changes most commonly seen include a decreased filtration rate, diminished tubular function with less efficiency in reabsorbing and concentrating the urine, and a slower restoration of acid–base balance in response to stress. In addition, older adults who take medications may experience serious consequences owing to decline in renal function because of impaired absorption, decreased ability to maintain fluid and electrolyte balance, and decreased ability to concentrate urine.

Certain genitourinary disorders are more common in older adults than in the general population. In the United States, **urinary incontinence** (i.e., unplanned, involuntary, or uncontrolled loss of urine) affects women more than men at a ratio of 2:1 until after age 80, when both are equally affected. This condition should not be mistaken as a normal consequence of aging (Resnick, 2019). Costly and often embarrassing, it should be evaluated, because in many cases it is reversible or can be treated. When treatable, this condition needs to be addressed as the risk of mortality associated with urinary incontinence can be as high as 44% in patients living in long-term care facilities (Damián, Pator-Barriuso, García López, et al., 2017). See [Chapter 49](#) for further discussion of urinary incontinence. Benign prostatic hyperplasia (enlarged prostate gland), a common finding in older men, causes a gradual increase in urine retention and overflow incontinence. Changes in the urinary

tract increase the susceptibility to urinary tract infections (UTIs). Adequate consumption of fluids is an important nursing intervention that reduces the risk of bladder infections and also helps decrease urinary incontinence.

Gastrointestinal System

Digestion of food is less influenced by changes associated with aging than by the risk of poor nutrition. Older adults can adjust to changes in the gastrointestinal (GI) system but may have difficulty purchasing, preparing, and enjoying their meals. The sense of smell diminishes as a result of neurologic changes and environmental factors such as smoking, medications, and vitamin B₁₂ deficiencies. The ability to recognize sweet, sour, bitter, or salty foods diminishes over time, altering satisfaction with food. Salivary flow does not decrease in healthy adults; however, approximately one third of older adults may experience a dry mouth as a result of medications and diseases (Miller, 2019). Difficulties with chewing and swallowing are generally associated with lack of teeth and diseases.

Experts disagree on the extent of gastric changes that occur as a result of normal aging. However, gastric motility appears to slow modestly, which results in delayed emptying of stomach contents and early satiety (feeling of fullness). Diminished secretion of gastric acid and pepsin, seemingly the result of pathologic conditions rather than normal aging, reduces the absorption of iron, calcium, and vitamin B₁₂. Absorption of nutrients in the small intestine, particularly calcium and vitamin D, appears to diminish with age. Functions of the liver, gallbladder, and pancreas are generally maintained, although absorption and tolerance to fat may decrease. The incidence of gallstones and common bile duct stones increases progressively with advancing years.

Dysphagia, or difficulty swallowing, increases with age and is a major health care problem in older patients. Normal aging alters some aspects of the swallowing function. In addition, dysphagia is a frequent complication of stroke and a significant risk factor for the development of aspiration pneumonia that can be life-threatening. Dysphagia is caused by interruption or dysfunction of neural pathways. It may also result from dysfunction of the striated and smooth muscles of the GI tract in patients with Parkinson's disease. Aspiration of food or fluid is the most serious complication and can occur in the absence of coughing or choking.

Constipation is a common condition affecting many older adults; it is influenced by multiple risk factors rather than age-related changes alone. Symptoms of mild constipation are abdominal discomfort and flatulence; more serious constipation leads to fecal impaction that contributes to diarrhea around the impaction, fecal incontinence, and obstruction. Predisposing factors for constipation include lack of dietary bulk, prolonged use of laxatives, some medications, inactivity, insufficient fluid intake, and excessive dietary fat. Ignoring the urge to defecate may also be a contributing factor (Miller, 2019).

Practices that promote GI health include regular tooth brushing and flossing; receiving regular dental care; drinking sufficient fluids; eating small, frequent meals that are high in fiber and low in fat; avoiding heavy activity or lying flat after eating; and avoiding the use of laxatives and antacids. Understanding that there is a direct correlation between loss of smell and taste perception and food intake helps caregivers intervene to maintain the nutritional health of older patients.

Nutritional Health

The social, psychologic, and physiologic functions of eating influence the dietary habits of older adults. Increasing age alters nutrient requirements; older adults require fewer calories and a more nutrient-rich, healthy diet in response to alterations in body mass and a more sedentary lifestyle. Recommendations include reducing fat intake while consuming sufficient protein, vitamins, minerals, and dietary fiber for health and prevention of disease. Decreased physical activity and a slower metabolic rate reduce the number of calories needed by older adults to maintain an ideal weight. As stated previously, age-related changes that alter pleasure in eating include a decrease in taste and smell. Older adults are likely to require more sugar to achieve a sweet flavor due to blunted taste. They also may lose the ability to differentiate sour, salty, and bitter tastes. Apathy, immobility, depression, loneliness, poverty, inadequate knowledge, and poor oral health also contribute to suboptimal nutrient intake. Budgetary constraints and physical limitations may interfere with food shopping and meal preparation.

Health promotion for older adults is based on the person's physical, emotional, social, spiritual, and intellectual health. The main focus of health promotion is engaging the older adult in improving their health (Meiner & Yeager, 2019). The goals of nutrition therapy are to maintain or restore maximal independent functioning and health and to maintain the sense of dignity and quality of life by imposing as few restrictions as possible. Dietary changes should be incorporated into the older adult's existing food pattern as much as possible. [Figure 8-2](#) lists modified dietary guidelines for older adults.

Women older than 50 years and men older than 70 years should have a daily calcium intake of 1200 mg. To foster the absorption of calcium, adults should have 600 IU of vitamin D until 70 years of age and 800 IU after 70 years of age to maintain bone health (National Institutes of Health [NIH], 2018a).

Undernutrition, which can lead to malnutrition, may be a problem for older adults. Hospitalized older adults are at particular risk of malnutrition, especially those with cognitive impairment or dementia (Tatum, Talebreza, & Ross, 2018). A recent unintentional weight loss may be a result of an illness or other factors, such as depression, that may have serious consequences and affect a person's ability to maintain health and fight illness (Norris, 2019). Many people are unaware of dietary deficits. Nurses are in an ideal position to

identify nutritional problems among their patients and to work within the patient's own framework of knowledge of their health status to improve health behaviors. (See [Chapter 4](#) for more information on nutritional assessment.)

Sleep

Older adults have increased complaints about their sleep as they age, and as many as 50% of those living at home and 65% of those living in nursing homes complain of sleep disturbances (Devlin, Skrobik, Gelinas, et al., 2018; Štefan, Vrgoč, Rupčić, et al., 2018). Many factors affect sleep quality in older adults including respiratory problems during sleep, restless leg syndrome, nocturia, pain, osteoarthritis, heart failure, incontinence, prostatic hyperplasia, menopause-related problems, pruritus, allergies, AD, depression, dementia, social isolation, loneliness, being bedridden, experiences of loss, drug use, and living in nursing homes (e.g., inadequate lighting, keeping light on during the night, noises). Some of the consequences of poor sleep quality in older adults include cognitive decline, increased risk of falls, daytime fatigue, reduced physical and mental health and health-related quality-of-life status, and poor ICU outcomes (Devlin et al., 2018; Štefan et al., 2018).

The incidence of sleep apnea (a sleep disorder characterized by brief periods in which respirations are absent) increases with age. Having insomnia symptoms and a sleep-related disorder (snoring, choking, or pauses in breathing) is associated with significantly impaired daytime functioning and longer psychomotor reaction times compared with having either condition. Sleep apnea is discussed in more detail in [Chapter 18](#).

The nurse often observes patients while they are sleeping and can identify problems. Health education can be provided on sleep hygiene behaviors such as avoiding use of the bed for activities other than sleeping (or sex), maintaining a consistent bedtime routine, avoiding or limiting daytime napping, and limiting alcohol intake to one drink a day. Additional suggestions include avoiding stimulants such as caffeine and nicotine after noon; curbing the amount of liquids in the evening to avoid nocturia; and engaging in regular physical activity, preferably in bright outside light. Aromatherapy trials have reported that the use of lavender essential oil can improve the quality of sleep (Karadag, Samancioglu, Ozden, et al., 2017).

MyPlate for Older Adults

Fruits & Vegetables

Whole fruits and vegetables are rich in important nutrients and fiber. Choose fruits and vegetables with deeply colored flesh. Choose canned varieties that are packed in their own juices or low-sodium.

Healthy Oils

Liquid vegetable oils and soft margarines provide important fatty acids and some fat-soluble vitamins.

Herbs & Spices

Use a variety of herbs and spices to enhance flavor of foods and reduce the need to add salt.



Remember to Stay Active!

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NUTRITION RESEARCH
CENTER ON AGING

AARP Foundation

Figure 8-2 • MyPlate for older adults. Reprinted with permission from the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA) at Tufts University (2020). Retrieved from hnrcat.tufts.edu/myplate/

Musculoskeletal System

Intact musculoskeletal and neurologic systems are essential for the maintenance of safe mobility, performance of **activities of daily living (ADLs)** (basic personal care activities), and **instrumental activities of daily living (IADLs)** (complex skills such as shopping, cooking, housework, using the telephone, managing medications and finances, and being able to travel by car or public transportation), thus allowing older adults to remain safe and live independently in the community. Age-related changes that affect mobility include alterations in bone remodeling, leading to decreased bone density, loss of muscle mass, deterioration of muscle fibers and cell membranes, and degeneration in the function and efficiency of joints. These factors are discussed in detail in Unit 8.

Without exercise, a gradual, progressive decrease in bone mass begins before 40 years of age. The cartilage of joints also progressively deteriorates in middle age. Degenerative joint disease is found in most adults older than 70 years, and weight-bearing joint and back pain is a common complaint. Excessive loss of bone density results in osteoporosis, which leads to

potentially life-altering hip and vertebral fractures. Osteoporosis is preventable.

The axiom “use it or lose it” is very relevant to the physical capacity of older adults. Nurses play an important role by encouraging older adults to participate in a regular exercise program. The benefits of regular exercise cannot be overstated. Aerobic exercises are the foundation of programs of cardiovascular conditioning; however, resistance and strength training and flexibility exercises are essential components of an exercise program. Even late in life, in adults who may be frail, it is believed that exercise has benefits of increasing strength, aerobic capacity, flexibility, and balance. In addition, older adults who are hospitalized benefit from getting out of bed as soon as possible and in-hospital physical activity.

Nervous System

Homeostasis is difficult to maintain with aging, but older people have a tremendous ability to adapt and function adequately, retaining their cognitive and intellectual abilities in the absence of pathologic changes. However, normal aging changes in the nervous system can affect all parts of the body. The structure, chemistry, and function of the nervous system change with advanced age. Nerve cells in the brain decrease but the decrease is compensated for by other neurons; there is high variability among individuals and the quantity of neuronal loss varies in different parts of the brain. Overall, the decreases contribute to a small loss of brain mass (Capriotti & Frizzell, 2016). Chemical changes include a decrease in the synthesis and metabolism of the major neurotransmitters. Because nerve impulses are conducted more slowly, older people take longer to respond and react (Miller, 2019). The autonomic nervous system performs less efficiently, and orthostatic hypotension, discussed earlier, may occur. Neurologic changes can affect gait and balance, which may interfere with mobility and safety. Nurses must advise older adults to allow a longer time to respond to a stimulus and to move more deliberately. Adequate nutrition and absorption of vitamin B₁₂ is important for neurologic health. Nurses should advise older adults about proper nutrition and intake of vitamin B₁₂, especially for older adults who follow a vegetarian diet.

Slowed reaction time puts older adults at risk for falls and injuries, as well as driving errors. Although older adults spend less time driving than younger people, older adults are just as likely to be involved in motor vehicle crashes that result in serious injury or death. Older adults who are suspected of driving unsafely should receive a driving fitness evaluation (Miller, 2019). The evaluation is often performed by an occupational therapist in conjunction with a neuropsychologist, who conducts more detailed cognitive testing.

Mental function may be threatened by physical or emotional stresses. A sudden onset of confusion may be the first symptom of an infection or change

in physical condition (e.g., pneumonia, UTI, medication interactions, dehydration).

Sensory System

People interact with the world through their senses. Losses associated with old age affect all sensory organs, and it can be devastating not to be able to see to read or watch television, hear conversation well enough to communicate, or discriminate taste well enough to enjoy food. Nearly half of older men and one third of older women report difficulty hearing without a hearing aid. Most older adults have a decrease in visual acuity, a narrowing of the visual field, and may have trouble seeing at night. An uncompensated sensory loss negatively affects the functional ability and quality of life of the older adult. However, assistive devices such as visual and hearing aids can compensate for a sensory loss (Miller, 2019).

Sensory Loss Versus Sensory Deprivation

In contrast to sensory loss, sensory deprivation is the absence of stimuli in the environment or the inability to interpret existing stimuli (perhaps as a result of a sensory loss). Sensory deprivation can lead to boredom, confusion, irritability, disorientation, and anxiety. A decline in sensory input can mimic a decline in cognition that is in fact not present. Meaningful sensory stimulation provided to the older person is often helpful in correcting this problem. In some situations, one sense can substitute for another in observing and interpreting stimuli. Nurses can enhance sensory stimulation in the environment with colors, pictures, textures, tastes, smells, and sounds. The stimuli are most meaningful if they are appropriate for older adults and the stimuli are changed often. Cognitively impaired people tend to respond well to touch and to familiar music.

Vision

As new cells form on the outside surface of the lens of the eye, the older central cells accumulate and become yellow, rigid, dense, and cloudy, leaving only the outer portion of the lens elastic enough to change shape (accommodate) and focus at near and far distances. As the lens becomes less flexible, the near point of focus gets farther away. This common condition—**presbyopia**—usually begins in the fifth decade of life and requires the person to wear reading glasses to magnify objects (Miller, 2019). In addition, the yellowing, cloudy lens causes light to scatter and is sensitive to glare. The ability to distinguish colors decreases, particularly blue from green. The pupil dilates slowly and less completely because of increased stiffness of the muscles of the iris, thus the older person takes more time to adjust when going to and from light and dark settings and needs brighter light for close vision. Pathologic visual conditions are not a part of normal aging; however, the

incidence of eye disease (most commonly cataracts, glaucoma, diabetic retinopathy, and age-related macular degeneration) increases in older adults.

Age-related macular degeneration (AMD) is the leading cause of vision loss and blindness in older adults 65 and older. It is predicted that cases of AMD will double from 48 million to 88 million people by 2050 (CDC, 2017). Macular degeneration does not affect peripheral vision, which means that it does not cause blindness. However, it affects central vision, color perception, and fine detail, greatly affecting common visual skills such as reading, driving, and seeing faces. Risk factors include sunlight exposure, cigarette smoking, and heredity. People with fair skin and blue eyes may be at increased risk. Sunglasses and hats with visors provide some protection, and stopping smoking is paramount in preventing the disease. Although there is no definitive treatment and no cure that restores vision, several treatment options are available, depending on factors such as the location of the abnormal blood vessels. Laser photocoagulation and photodynamic therapy are commonly used (CDC, 2017). The earlier this condition is diagnosed, the greater the chances of preserving sight. See [Chapter 58](#) for more information on altered vision.

Hearing

Auditory changes begin to be noticed at about 40 years of age. Environmental factors, such as exposure to noise, medications, and infections, as well as genetics, may contribute to hearing loss as much as age-related changes. **Presbycusis** is a gradual sensorineural loss that progresses from the loss of the ability to hear high-frequency tones to a generalized loss of hearing. It is attributed to irreversible inner ear changes. Older adults often cannot follow conversation because tones of high-frequency consonants (the sounds *f, s, th, ch, sh, b, t, p*) all sound alike. Hearing loss may cause older adults to respond inappropriately, misunderstand conversation, and avoid social interaction. This behavior may be erroneously interpreted as confusion. Wax buildup or other correctable problems may also be responsible for hearing difficulties. A systematic review reported the prevalence of under detection of hearing loss and the under use of hearing aids in long-term care facilities (Punch & Horstmanshof, 2019). A properly prescribed and fitted hearing aid may be useful in reducing some types of hearing deficits and increasing quality of life (Punch & Horstmanshof, 2019). See [Chapter 59](#) for discussion of alterations in hearing.

Taste and Smell

The senses of taste and smell are reduced in older adults. Of the four basic tastes (sweet, sour, salty, and bitter), sweet tastes are particularly dulled in older adults. Blunted taste may contribute to the preference for salty, highly

seasoned foods, but herbs, onions, garlic, and lemon can be used as substitutes for salt to flavor food.

Changes in the sense of smell, generally greater than the loss of taste, are related to cell loss in the nasal passages and in the olfactory bulb in the brain (Norris, 2019). Environmental factors such as long-term exposure to toxins (e.g., dust, pollen, smoke) contribute to the cellular damage.

Psychosocial Aspects of Aging

Successful psychological aging is reflected in the ability of older adults to adapt to physical, social, and emotional losses and to achieve life satisfaction. Because changes in life patterns are inevitable over a lifetime, older adults need resiliency and coping skills when confronting stresses and change. A positive self-image enhances risk taking and participation in new, untested roles.

Although attitudes toward older adults differ in ethnic subcultures, a subtle theme of **ageism**—prejudice or discrimination against older adults—predominates in society, and many myths surround aging. Ageism is based on stereotypes—simplified and often untrue beliefs that reinforce society’s negative image of older adults. Although older adults make up an extremely heterogeneous and increasingly a racially and ethnically diverse group, these negative stereotypes are sometimes attributed to all older adults.

Fear of aging and the inability of many to confront their own aging process may trigger ageist beliefs. Retirement and perceived nonproductivity are also responsible for negative feelings, because a younger working person may falsely see older people as not contributing to society, as draining economic resources, and may actually feel that they are in competition with children for resources. Concern about the large numbers of older people leaving the workforce (baby boomers began to turn 65 years of age in 2010) is fueling this debate.

Negative images are so common in society that older adults themselves often believe and perpetuate them. An understanding of the aging process and respect for each person as an individual can dispel the myths of aging. Nurses can facilitate successful aging by recommending health promotion strategies such as anticipatory planning for retirement, including ensuring adequate income, developing routines not associated with work, replacing work-related friends with new acquaintances, and relying on other people and groups in addition to spouse to fill leisure time (Meiner & Yeager, 2019).

Stress and Coping in the Older Adult

Coping patterns and the ability to adapt to stress develop over the course of a lifetime and remain consistent later in life. Experiencing success in younger adulthood helps a person develop a positive self-image that remains solid

through old age. A person's abilities to adapt to change, make decisions, and respond predictably are also determined by past experiences. A flexible, well-functioning person will probably continue as such. However, losses may accumulate within a short period of time and become acute. The older person often has fewer choices and diminished resources to deal with stressful events. Common stressors of old age include normal aging changes that impair physical function, activities, and appearance; disability from injury or chronic illness; social and environmental losses related to loss of income and decreased ability to perform previous roles and activities; and the deaths of significant others. Many older adults rely strongly on their families and spiritual beliefs for comfort during stressful times.

An additional aspect of coping that nurse researchers have examined is self-efficacy, which is the confidence to perform well at a particular task or life domain (Hladek, Gill, Bandeen-Roche, et al., 2019). [Chart 8-2](#) is a Nursing Research Profile about the associations between coping self-efficacy and frailty in a group of community-dwelling older adults.

Living Arrangements

Many older adults have more than adequate financial resources and good health even until very late in life; therefore, they have many housing options. In 2017, 93% of older adults lived in the community, with a relatively small percentage (2.3%) residing in nursing homes and a comparable percentage living in some type of senior housing. Seventy-six percent of those older than 65 years own their homes. In 2018, 28% of noninstitutionalized older people lived alone, and widowed women predominated. In 2018, 70% of men older than 65 years were married compared with 40% of women in the same age group. This difference in marital status increases with age and is a result of several factors: Women have a longer life expectancy than men; women tend to marry older men; and women tend to remain widowed, whereas men often remarry (AoA, 2020).

Many older adults relocate in response to changes in their lives such as retirement or widowhood, a significant deterioration in health, or disability. The type of housing they choose depends on their reason for moving. With increasing disability and illness, older adults may move to retirement facilities or assisted living communities that provide some support such as meals, transportation, and housekeeping but otherwise allow them to live somewhat independently. If they develop a serious illness or disability and can no longer live independently or semi-independently, they may need to move to a setting where additional support is available, such as a relative's home or a long-term care or assisted living facility. Often they will seek a location near an adult child's home.

Living at Home or With Family

Most older adults want to remain in their own homes; in fact, they function best in their own environment. The family home and familiar community may have strong emotional significance for them, and this should not be ignored. However, with advanced age and increasing disability, adjustments to the environment may be required to allow older adults to remain in their own homes or apartments. Additional family support or more formal support may be necessary to compensate for declining function and mobility. Many services and organizations can assist older adults to successfully “age in place” in their own homes or in assisted living facilities (see Resources at the end of this chapter).

Chart 8-2  **NURSING RESEARCH PROFILE**

The Association Between Coping Self-efficacy and Frailty in Community-Dwelling Older Adults

Hladek, M.D., Gill, J., Bandeen-Roche, K., et al. (2019). High coping self-efficacy associated with lower odds of pre-frailty/ frailty in older adults with chronic disease. *Aging & Mental Health.* doi.org/10.1080/13607863.2019.1639136

Purpose

Self-efficacy is the confidence to perform well at a particular task or life domain while frailty is a state of decreased physiologic reserve and vulnerability to negative health outcomes. The purpose of this study was to evaluate associations between self-efficacy and frailty in a group of community-dwelling older adults.

Design

This quantitative study used a cross-sectional design to study 146 older adults who lived in retirement communities. Instruments included the five-item Fatigue, Resistance, Ambulation, Illness, and Loss of weight (FRAIL) scale as well as two self-efficacy instruments that measured confidence in one's ability to problem solve, emotionally regulate, and ask for support when problems in life occur. Additional variables measured included illness intrusiveness, depressive symptoms, financial strain, life events, social support, heart rate, tobacco use, and body mass index (BMI). Logistic regression was used for model development.

Findings

Approximately half of the participants were in the frail or pre-frail range on the FRAIL scale. High coping self-efficacy was associated with a 92% reduction in the odds of participants being in the frail or pre-frail range on the FRAIL scale after adjusting for age, race, comorbidities, heart rate, life events count, and BMI. This relationship remained a significant finding even after the inclusion of illness intrusiveness and depressive symptoms (OR: 0.10, *p*-value = 0.014). Higher age, number of comorbidities, heart rate, and BMI were also significantly associated with participants being in the frail or pre-frail range on the FRAIL scale.

Nursing Implications

When working with older adults, nurses should keep in mind the association of high self-efficacy with healthy aging. Nurses can be instrumental in developing interventions to help older adults increase self-efficacy, as measured by their confidence in their ability to problem solve, emotionally regulate, and ask for support when problems in life occur.

Sometimes older adults or couples move in with adult children. This can be a rewarding experience as the children, their parents, and the grandchildren

interact and share household responsibilities (see Fig. 8-3). It can also be stressful, depending on family dynamics. Adult children and their older parents may choose to pool their financial resources by moving into a house that has an attached “in-law suite.” This arrangement provides security for the older adult and privacy for both families. Many older adults and their adult children make housing decisions in times of crisis, such as during a serious illness or after the death of a spouse. Caring for an older adult may also be stressful; older adults and their families often are unaware of the emotional and physical demands of shared housing and assuming care for an increasingly dependent person, especially given the uncertain and extended length of time that may be associated with caring for a person with a chronic illness. Families can be helped by anticipatory guidance and long-term planning before a crisis occurs. Older adults should participate in decisions that affect them as much as possible.

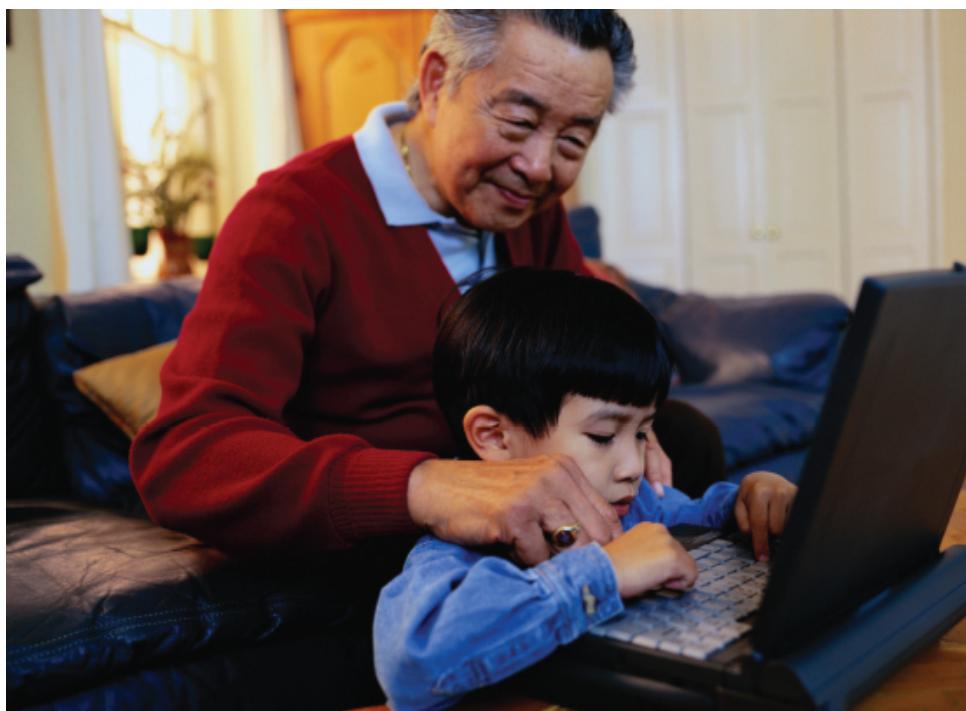


Figure 8-3 • Families are an important source of psychosocial and physical support for all people. Caring interaction among grandchildren, grandparents, and other family members typically contributes to the health of all.

Continuing Care Retirement Communities

Continuing care retirement communities (CCRCs) offer three levels of living arrangements and care that provide for aging in place (Miller, 2019). CCRCs consist of independent single-dwelling houses or apartments for people who can manage their day-to-day needs, assisted living apartments for those who

need limited assistance with their daily living needs, and skilled nursing services when continuous nursing assistance is required. CCRCs usually contract for a large down payment before the resident moves into the community. This payment gives a person or couple the option of residing in the same community from the time of total independence through the need for assisted or skilled nursing care. Decisions about living arrangements and health care can be made before any decline in health status occurs. CCRCs also provide continuity at a time in an older adult's life when many other factors, such as health status, income, and availability of friends and family members, may be changing.

Assisted Living Facilities

Assisted living facilities are an option when an older person's physical or cognitive changes necessitate at least minimal supervision or assistance. Assisted living allows for a degree of independence while providing minimal nursing assistance with administration of medication, assistance with ADLs, or other chronic health care needs. Other services, such as laundry, cleaning, and meals, may also be included. Both assisted living and CCRCs are costly and primarily paid out-of-pocket.

Long-Term Care Facilities

Many types of nursing homes, nursing facilities, or long-term care facilities offer continuous nursing care. Contrary to the myth of family abandonment and the fear of "ending up in a nursing home," the actual percentage of older adults residing in long-term care facilities has declined, from 5.4% in 1985 to 2.3% in 2018 (AoA, 2020). However, the actual number of older people who reside in long-term care facilities has risen owing to the large increase in the population of older adults and the use of nursing homes for short-term rehabilitation.

Short-term nursing facility care is often reimbursed by Medicare if the patient is recovering from an acute illness such as a stroke, myocardial infarction (MI), or cancer and requires skilled nursing care or therapy for recuperation. Usually, if an older adult suffers a major health event and is hospitalized and then goes to a nursing facility, Medicare covers the cost of the first 30 to 90 days in a skilled nursing facility as long as ongoing therapy is needed. The requirement for continued Medicare coverage during this time is documentation of persistent improvement in the condition that requires therapy, most often physical therapy, occupational therapy, respiratory therapy, or cognitive therapy. Some adults choose to have long-term care insurance as a means of paying, at least in part, for the cost of these services should they become necessary. Costs of long-term care for older adults who are living in nursing homes and are medically stable, despite having multiple chronic and debilitating health issues, are primarily paid out-of-pocket by the patient.

When a person's financial resources become exhausted as a result of prolonged nursing home care, the patient, the institution, or both may apply for Medicare and Medicaid reimbursement depending on the situation. Family members are not responsible for nursing home costs.

An increasing number of skilled nursing facilities offer subacute care. This area of the facility offers a high level of nursing care that may either avoid the need for a resident to be transferred to a hospital from the nursing home or allow a hospitalized patient to be transferred back to the nursing facility sooner.

The Role of the Family

Planning for care and understanding the psychosocial issues confronting older adults must be accomplished within the context of the family. If dependency needs occur, the spouse often assumes the role of primary caregiver. In the absence of a surviving spouse, an adult child may assume caregiver responsibilities and need help in providing or arranging for care and support.

Two common myths in American society are that adult children and their aged parents are socially alienated, and that adult children abandon their parents when health and other dependency problems arise. In reality, the family has been and continues to be an important source of support for older adults; similarly, older family members provide a great deal of support to younger family members.

Although adult children are not financially responsible for their older parents, social attitudes and cultural values often dictate that adult children should provide services and assume the burden of care if their aged parents cannot care for themselves. It is estimated that in 2018, informal caregivers provided 18.5 billion hours of unpaid care (Alzheimer's Association, 2019). Caregiving, which may continue for many years, can become a source of family stress and is a well-known risk for psychiatric and physical morbidity. Evidence-based interventions to reduce distress and enhance well-being in caregivers have been identified. Three broad types of effective programs include psychoeducational skill building, cognitive behavioral therapy, and using a combination of at least two approaches such as education, family meetings, and skill building sessions (Bakas, McCarthy, & Miller, 2018). Researchers have reported that web-based interventions are effective, efficient, and a better fit for the hectic lives of families and caregivers (Wasilewski, Stinson, & Cameron, 2017).

Cognitive Aspects of Aging

Cognition can be affected by many variables, including sensory impairment, physiologic health, environment, sleep, and psychosocial influences. Older adults may experience temporary changes in cognitive function (i.e., delirium)

when hospitalized or admitted to skilled nursing facilities, rehabilitation centers, or long-term care facilities. These changes are related to differences in the environment or in medical therapy or to alteration in role performance. A commonly used assessment tool is the Mini-Mental State Examination (MMSE) (see [Chart 8-3](#)).

Good sleep hygiene can improve cognition, as can treatment of depression and anxiety. Several researchers are evaluating memory enhancement programs for older adults. In addition, researchers have found that eating a healthy balanced diet, being physically active for at least 30 minutes each day, and getting plenty of sleep can assist in preventing chronic illnesses as well as improving cognitive function (McDougall, 2017).

When intelligence test scores from people of all ages are compared, test scores for older adults show a progressive decline beginning in midlife. However, research has shown that environment and health have a considerable influence on scores, and that certain types of intelligence (e.g., spatial perceptions and retention of nonintellectual information) decline, whereas others (e.g., problem-solving ability based on past experiences, verbal comprehension, mathematical ability) do not. Cardiovascular health, a stimulating environment, and high levels of education, occupational status, and income all appear to have a positive effect on intelligence scores in later life.

Chart 8-3 ASSESSMENT

Assessing Mental Status: Mini-Mental State Examination Sample Items

Orientation to Time

“What is the date?”

Naming

“What is this?” (Point to a pencil or pen.)

Reading

“Please read this and do what it says.” (Show examinee the words on the stimulus form.) CLOSE YOUR EYES.

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Significant age-related declines in intelligence, learning, and memory are not inevitable. Many factors affect the ability of older adults to learn and remember and to perform well in testing situations. Older adults who have higher levels of education, good sensory function, good nutrition, and jobs that require complex problem-solving skills continue to demonstrate intelligence, memory, and the capacity for learning. Part of the challenge in testing older adults is determining what is actually being tested (e.g., speed of response) and whether the test results are indicative of a normal age-related change, a sensory deficit, or poor health. However, age differences continue to emerge even with untimed tests and when the tests are controlled for variations in motor and sensory function. In general, fluid intelligence—the biologically determined intelligence used for flexibility in thinking and problem solving—declines. Preventing or managing circulatory and nervous system disorders may positively affect the decline in fluid intelligence. Crystallized intelligence—gained through education and lifelong experiences (e.g., verbal skills)—remains intact. These differences exemplify the classic aging pattern of intelligence. Despite these slight declines, many older adults continue to learn and participate in varied educational experiences. Good health and motivation are important influences on learning (see [Chart 8-4](#)).

Pharmacologic Aspects of Aging

Because an increasing number of chronic conditions affect older adults, they use more medications than any other age group. Although medications improve health and well-being by relieving pain and discomfort, treating chronic illnesses, and curing infectious processes, adverse drug reactions are common because of medication interactions, multiple medication effects, incorrect dosages, and the use of multiple medications.

Chart 8-4 HEALTH PROMOTION

Nursing Strategies for Promoting Cognitive Function

Nurses can support the processes by which older adults learn by using the following strategies:

- Supply mnemonics to enhance recall of related data.
- Encourage ongoing learning.
- Link new information with familiar information.
- Use visual, auditory, and other sensory cues.
- Encourage learners to wear prescription glasses and hearing aids.
- Provide glare-free lighting.
- Provide a quiet, nondistracting environment.
- Set short-term goals with input from the learner.
- Prioritize the most important information and focus on the priority information.
- Keep education periods short.
- Pace learning tasks according to the endurance of the learner.
- Encourage verbal participation by learners.
- Reinforce successful learning in a positive manner.

Drug Interactions and Adverse Effects

Polypharmacy is the use of multiple prescription or over-the-counter (OTC) medications. Over or incorrect prescribing occurs commonly in older adults (Miller, 2019). The potential for drug–drug interactions increases with increased medication use and with multiple coexisting diseases (**comorbidity**) that affect the absorption, distribution, metabolism, and elimination of the medications. Such interactions are responsible for numerous emergency department and primary provider visits, which cost billions of dollars annually.

Any medication is capable of altering nutritional status, and the nutritional health of an older adult may already be compromised by a marginal diet or by chronic disease and its treatment. Medications can affect the appetite, cause nausea and vomiting, irritate the stomach, cause constipation or diarrhea, and decrease absorption of nutrients. In addition, these medications may alter electrolyte balance as well as carbohydrate and fat metabolism. For example, antacids may cause thiamine deficiency; laxatives diminish absorption; antibiotics and phenytoin reduce utilization of folic acid; and phenothiazines, estrogens, and corticosteroids increase appetite and cause weight gain.

Combining multiple medications with alcohol, as well as with OTC and herbal medications, further complicates GI problems. For example, St. John’s wort, a common herbal supplement effective for mild depression, decreases the anticoagulant effect of warfarin and interacts with many other medications metabolized in the liver (Miller, 2019).

Tools such as the American Geriatrics Society (AGS) Beers Criteria® are available to evaluate the patterns of drug use in older adults (Fick, Selma, Steinman, et al., 2019). The criteria rate the evidence for potentially harmful medications according to body systems. They are updated every 4 years in an attempt to improve the care of older adults by limiting their exposure to potentially inappropriate medications.

Altered Pharmacokinetics

Alterations in absorption, metabolism, distribution, and excretion occur as a result of normal aging and may also result from drug and food interactions (Comerford & Durkin, 2020). Absorption may be affected by changes in gastric pH and a decrease in GI motility. Drug distribution may be altered as a result of decrease in body water and increase in body fat. Normal age-related changes and diseases that alter blood flow, liver and renal function, or cardiac output (CO) may affect distribution and metabolism (see [Table 8-2](#)).

Nursing Implications

Principles that have been identified as appropriate for older patients include starting with a low dose, going slowly, keeping the medication regimen as simple as possible, and reconciling new and previous medication regimens at the time of discharge from an acute hospital stay (Comerford & Durkin, 2020; Fick et al., 2019). A comprehensive assessment that begins with a thorough medication history, including use of alcohol, recreational drugs, and OTC and herbal medications, is essential. It is best to ask the patient or reliable informants to provide all medications for review. Assessing the patient's understanding of when and how to take each prescription and OTC medication, as well as the purpose of each medication, allows the nurse to assess the patient's health literacy and adherence to the medication regimen. The patient's beliefs and concerns about the medications should be identified, including beliefs on whether a given medication is helpful.

TABLE 8-2 Altered Drug Responses in Older Adults

Age-Related Changes	Effect of Age-Related Changes	Applicable Medications
Absorption		
Reduced gastric acid; increased pH (less acid)	Rate of drug absorption—possibly delayed	Vitamins
Reduced gastrointestinal motility; prolonged gastric emptying	Extent of drug absorption—not affected	Calcium
Distribution		
Decreased circulating plasma proteins and total body water	Serious alterations in drug binding to plasma proteins (the unbound drug gives the pharmacologic response); highly protein-bound medications have fewer binding sites, leading to increased effects and accelerated metabolism and excretion	<p><i>Select highly protein-binding medications:</i></p> <p>Oral anticoagulants (warfarin)</p> <p>Oral hypoglycemic agents (sulfonylureas)</p> <p>Barbiturates</p> <p>Calcium channel blockers</p> <p>Furosemide</p> <p>Nonsteroidal anti-inflammatory drugs (NSAIDs)</p> <p>Sulfonamides</p> <p>Quinidine</p> <p>Phenytoin</p>
Reduced cardiac output	Decreased perfusion of many bodily organs	
Impaired peripheral blood flow	Decreased perfusion	
Increased or decreased percentage of body fat	Proportion of body fat increases with age, resulting in increased ability to store fat-soluble medications; this causes drug accumulation, prolonged storage, and delayed excretion	<p><i>Select fat-soluble medications:</i></p> <p>Barbiturates</p> <p>Diazepam</p> <p>Lidocaine</p> <p>Phenothiazines (antipsychotics)</p> <p>Ethanol</p>

		Morphine
Decreased lean body mass	Decreased body volume allows higher peak levels of medications	
Metabolism		
Decreased cardiac output; decreased size of the liver; diminished intestinal and portal vein blood flow	Decreased metabolism and delay of breakdown of medications, resulting in prolonged duration of action, accumulation, and drug toxicity	All medications metabolized by the liver
Excretion		
Decreased renal blood flow; loss of functioning nephrons; decreased renal efficiency	Decreased rates of elimination and increased duration of action; danger of accumulation and drug toxicity	<p><i>Select medications with prolonged action:</i></p> <p>Aminoglycoside antibiotics Cimetidine Chlorpropamide Digoxin Lithium Procainamide</p>

Adapted from Comerford, K. C., & Durkin, M. T. (2020). *Nursing 2020 drug handbook*. Philadelphia, PA: Wolters Kluwer.

Nonadherence with medication regimens can lead to significant morbidity and mortality among older adults. The many contributing factors include the number of medications prescribed, the complexity of the regimen, difficulty opening containers, inadequate patient education, financial cost, and the disease or medication interfering with the patient's life. Visual and hearing problems may make it difficult to read or to hear directions. Multifaceted interventions tailored to the individual patient are the most effective strategies in improving adherence. Allowing enough time for the older adult to learn new skills, particularly when technology is involved, is essential (see [Chart 8-5](#)).

Mental Health Problems in the Older Adult

Severe mood swings, uncontrolled laughing or crying, changes in cognitive ability, and excessive forgetfulness are not a part of normal aging. These symptoms should not be dismissed as age-related changes; a thorough assessment may reveal a treatable, reversible condition. Changes in mental status can be related to many factors, such as alterations in diet and fluid and electrolyte balance, fever, or low oxygen levels associated with many

cardiovascular and pulmonary diseases. Older adults are less likely than younger people to acknowledge or seek treatment for mental health symptoms. Changes may be reversible when the underlying condition is identified and treated. Nurses must recognize, assess, refer, collaborate, treat, and support older adults who exhibit signs and symptoms of depression, substance abuse, delirium, or dementia.

Chart 8-5

Nursing Strategies for Improving Medication Management and Adherence

The following strategies can help patients manage their medications and improve adherence:

- Assess self-management abilities, psychomotor skills, and current medication knowledge.
- Destroy or remove old, unused medications.
- Encourage the use of standard containers without safety lids (if there are no children in the household).
- Encourage the patient to inform the primary provider about the use of OTC medications and herbal agents, alcohol, and recreational drugs.
- Encourage the patient to keep a current list of all medications, including OTC and herbal medications, in their purse or wallet to share with the primary provider at each visit and in case of an emergency.
- Explain the purpose, adverse effects, and dosage of each medication, particularly those that are newly prescribed.
- If the patient's competence is doubtful, identify a reliable family member or friend who might assist the patient with adherence.
- Provide the medication schedule in writing.
- Reconcile medication schedule upon discharge from hospital or rehabilitation facility.
- Recommend using one supplier for prescriptions; pharmacies frequently track patients and are likely to notice a prescription problem such as duplication or contraindications in the medication regimen.
- Suggest the use of a multiple-day, multiple-dose medication dispenser to help the patient adhere to the medication schedule.

OTC, over-the-counter.

Adapted from Eliopoulos, C. (2018). *Gerontological nursing* (9th ed). Philadelphia, PA: Wolters Kluwer.

Depression

Depression is the most common affective or mood disorder of old age (Eliopoulos, 2018). The percentage of older adults with depressive symptoms

varies widely depending upon the measures used and the population studied. Estimates range from 15% to 25% in community-dwelling older adults, and up to 25% of those living in long-term care facilities (Eliopoulos, 2018). Depression among older adults can follow a major precipitating event or loss and is often related to chronic illness or pain. It may also be secondary to a medication interaction or an undiagnosed physical condition. Rather than obvious sadness, an older person may exhibit more subtle signs of depression such as fatigue, diminished memory and concentration, feelings of worthlessness, sleep disturbances, appetite disturbances with excessive weight loss or gain, restlessness, impaired attention span, and suicidal ideation. Mild depression with symptoms that do not meet the criteria for a major depression is often underrecognized and undertreated, which results in reduced quality of life and function (Eliopoulos, 2018).

The risk of suicide is increased in older adults. There is a need for routine assessment of patients for depression and risk for suicide. Geriatric depression may be confused with dementia. However, the cognitive impairment resulting from depression is related to apathy rather than decline in brain function. When depression and medical illnesses coexist, as they often do, neglect of the depression can impede physical recovery. Assessing the patient's mental status, including depression, is vital and must not be overlooked. A commonly used assessment tool is the Geriatric Depression Scale (GDS) (Yesavage, Brink, Rose, et al., 1983). (See [Chart 8-6](#).)

Older adults with depression can respond appropriately to treatment. Initial management involves evaluation of the patient's medication regimen and eliminating or changing any medications that contribute to depression. Furthermore, treatment of underlying medical conditions that may produce depressive symptoms may alleviate the depression. For mild depression, nonpharmacologic measures such as exercise, bright lighting, increasing interpersonal interactions, cognitive therapy, and reminiscence therapy are effective. However, for major depression, antidepressants and short-term psychotherapy, particularly in combination, are effective in older adults. Antidepressants, such as bupropion hydrobromide, venlafaxine hydrochloride, and mirtazapine, as well as selective serotonin reuptake inhibitors, such as paroxetine hydrochloride, can be effective (Comerford & Durkin, 2020). Tricyclic antidepressants can be useful for treating major depression in some patients. Electroconvulsive therapy is highly effective when antidepressant medications are not tolerated, not effective, or pose a significant medical risk (Miller, 2019).

Most antidepressant medications have anticholinergic, cardiac, and orthostatic adverse effects (Comerford & Durkin, 2020). They also interact with other medications and, therefore, should be used with care to avoid medication toxicity, hypotensive events, and falls. Older patients prescribed antidepressants should be carefully monitored for side effects. Good patient

education is needed to make sure older adults understand that it may take even longer than the typical 4 to 6 weeks for symptoms to diminish. During this period, nurses should offer support, encouragement, and strategies to maintain safety, such as changing positions slowly and maintaining adequate hydration (Miller, 2019).

Substance Use Disorder

Substance use disorders caused by misuse of alcohol and drugs may be related to depression. A national survey indicated that between 7% and 14% of adults age 65 and older reported alcohol abuse, dependence, binge drinking, or were at least at risk for alcohol dependence (Miller, 2019). Approximately 50% of adults age 65 and older drink alcohol on a regular basis (Kennedy-Malone et al., 2019). Moderate alcohol consumption has shown to have positive health benefits, such as lowering the risks for cardiovascular disease. Alcohol abuse is especially dangerous in older adults because of age-related changes in renal and liver function as well as the high risk of interactions with prescription medications and the resultant adverse effects. Alcohol and drug misuse in older adults often remains hidden because many older adults deny their habit when questioned. Using screening tools may help provide a rapid, sensitive, and inexpensive method for screening alcohol misuse. Alcohol use should be addressed during routine physical examinations (Resnick, 2019). See [Chapter 4](#) for more information and specific assessment tools.

Chart 8-6

Geriatic Depression Scale

Choose the best answer for how you felt this past week.

1. Are you basically satisfied with your life?	YES NO
2. Have you dropped many of your activities and interests?	YES NO
3. Do you feel that your life is empty?	YES NO
4. Do you often get bored?	YES NO
5. Are you hopeful about the future?	YES NO
6. Are you bothered by thoughts you can't get out of your head?	YES NO
7. Are you in good spirits most of the time?	YES NO
8. Are you afraid that something bad is going to happen to you?	YES NO
9. Do you feel happy most of the time?	YES NO
10. Do you often feel helpless?	YES NO
11. Do you often get restless and fidgety?	YES NO
12. Do you prefer to stay at home, rather than going out and doing new things?	YES NO
13. Do you frequently worry about the future?	YES NO
14. Do you feel you have more problems with memory than most?	YES NO
15. Do you think it is wonderful to be alive now?	YES NO
16. Do you often feel downhearted and blue?	YES NO
17. Do you feel pretty worthless the way you are now?	YES NO
18. Do you worry a lot about the past?	YES NO
19. Do you find life very exciting?	YES NO
20. Is it hard for you to get started on new projects?	YES NO
21. Do you feel full of energy?	YES NO
22. Do you feel that your situation is hopeless?	YES NO
23. Do you think that most people are better off than you are?	YES NO
24. Do you frequently get upset over little things?	YES NO
25. Do you frequently feel like crying?	YES NO
26. Do you have trouble concentrating?	YES NO
27. Do you enjoy getting up in the morning?	YES NO
28. Do you prefer to avoid social gatherings?	YES NO
29. Is it easy for you to make decisions?	YES NO
30. Is your mind as clear as it used to be?	YES NO

Score: _____ (*Number of "depressed" answers*)

Norms

Normal: 5 ± 4

Mildly depressed: 15 ± 6

Very depressed: 23 ± 5

^aAppropriate (nondepressed) answers = yes; all others = no.

From Yesavage, J., Brink, T. L., Rose, T. L., et al. (1983). Development and validation of a geriatric screening scale: A preliminary report. *Journal of Psychiatric Research*, 17(1), 37–49.

Delirium

Delirium occurs secondary to numerous causes, including physical illness, surgery, medication or alcohol toxicity, dehydration, fecal impaction, malnutrition, infection, head trauma, lack of environmental cues, and sensory deprivation or overload. Older adults are particularly vulnerable to acute confusion because of their decreased biologic reserve and the large number of medications they may take. Nurses must recognize the symptoms of delirium and report them immediately. The Confusion Assessment Method (CAM) is a commonly used screening tool (Inouye, van Dyck, Alessi, et al., 1990). (See [Chart 8-7](#).) Because of the acute and unexpected onset of symptoms and the unknown underlying cause, delirium is a medical emergency. If the delirium goes unrecognized and the underlying cause is not treated, permanent, irreversible brain damage or death can follow.

Alzheimer's Disease

AD is the sixth leading cause of death in the United States. For adults 65 years of age and older it is the fifth leading cause of death. AD is a progressive, irreversible, degenerative neurologic disease that begins insidiously and is characterized by gradual losses of cognitive function and disturbances in behavior and affect. AD can occur in people as young as 40 years of age but is less common before 65 years of age. Although the prevalence of AD increases dramatically with increasing age, affecting as many as half of those 85 years and older, AD is not a normal part of aging. Without a cure or any preventive measures, it is estimated that 13.8 million Americans will have this disease by 2050 (Alzheimer's Association, 2019).

There are numerous theories about the cause of age-related cognitive decline. Although the greatest risk factor for AD is increasing age, many environmental, dietary, and inflammatory factors also may determine whether a person suffers from this cognitive disease. AD is a complex brain disorder caused by a combination of various factors that may include genetics, neurotransmitter changes, vascular abnormalities, stress hormones, circadian changes, head trauma, and the presence of seizure disorders.

AD can be classified into two types: familial or early-onset AD and sporadic or late-onset AD (see [Chapter 6, Table 6-5](#)). Familial AD is rare, accounting for less than 2% of all cases, and is frequently associated with genetic mutations. It can occur in middle-aged adults. If family members have at least two other relatives with AD, then there is a familial component, which may include both environmental triggers and genetic determinants (NIH, 2017).

Chart 8-7  **ASSESSMENT**

Confusion Assessment Method (CAM)

Acute Onset

1. Is there evidence of an acute change in mental status from the patient's baseline?

Inattention^a

2. A. Did the patient have difficulty focusing attention, for example, being easily distractible, or having difficulty keeping track of:

What was being said?

Not present at any time during interview.

Present at some time during interview but in mild form.

Present at some time during interview, in marked form.

Uncertain.

- B. (If present or abnormal) Did this behavior fluctuate during the interview, that is, tend to come and go or increase and decrease in severity?

Yes.

No.

Uncertain.

Not applicable.

- C. (If present or abnormal) Please describe this behavior:

Disorganized Thinking

3. Was the patient's thinking disorganized or incoherent, such as rambling or irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject?

Altered Level of Consciousness

4. Overall, how would you rate this patient's level of consciousness?

Alert (normal).

Vigilant (hyperalert, overly sensitive to environmental stimuli, startled very easily).

Lethargic (drowsy, easily aroused).

Stupor (difficult to arouse).

Coma (unarousable).

Uncertain.

Disorientation

5. Was the patient disoriented at any time during the interview, such as thinking that they were somewhere other than the hospital, using the wrong bed, or misjudging the time of day?

Memory Impairment

- 6.** Did the patient demonstrate any memory problems during the interview, such as inability to remember events in the hospital or difficulty remembering instructions?

Perceptual Disturbances

- 7.** Did the patient have any evidence of perceptual disturbances, for example, hallucinations, illusions, or misinterpretations (such as thinking something was moving when it was not)?

Psychomotor Agitation

- 8. Part 1.**

At any time during the interview, did the patient have an unusually increased level of motor activity, such as restlessness, picking at bedclothes, tapping fingers, or making frequent sudden changes of position?

Psychomotor Retardation

- 8. Part 2.**

At any time during the interview, did the patient have an unusually decreased level of motor activity, such as sluggishness, staring into space, staying in one position for a long time, or moving very slowly?

Altered Sleep–Wake Cycle

- 9.** Did the patient have evidence of disturbance of the sleep–wake cycle, such as excessive daytime sleepiness with insomnia at night?

^aThe questions listed under this topic were repeated for each topic where applicable.

From Inouye, S. K., van Dyck, C. H., Alessi, C. A., et al. (1990). Clarifying confusion: The confusion assessment method. *Annals of Internal Medicine*, 113(12), 941–948. Used with permission.

Pathophysiology

The pathogenesis of AD is uncertain but the disease includes specific neuropathologic and biochemical changes that interfere with neurotransmission. These changes consist of neurofibrillary tangles (tangled masses of nonfunctioning neurons) and senile or neuritic plaques (deposits of amyloid protein, part of a larger protein called *amyloid precursor protein* in the brain). The neuronal damage occurs primarily in the cerebral cortex and results in decreased brain size. Similar changes are found in the normal brain tissue of nonsymptomatic older adults, although to a lesser extent. Cells that use the neurotransmitter acetylcholine are principally affected by AD. At the biochemical level, the enzyme active in producing acetylcholine, which is specifically involved in memory processing, is decreased.

Scientists have been studying complex neurodegenerative diseases such as AD and have focused on two key issues: whether a gene might influence a person's overall risk of developing the disease, and whether a gene might influence some particular aspect of a person's risk, such as the age at which the disease begins (age at onset). There are genetic differences in early- and late-onset forms of AD (NIH, 2017). Researchers are investigating what predisposes people to develop the plaques and neurofibrillary tangles that can be seen at autopsy in the brains of patients with AD. Understanding the complex ways in which aging as well as genetic and nongenetic factors affect brain cells over time, eventually leading to AD, continues to increase.

Clinical Manifestations

In the early stages of AD, forgetfulness and subtle memory loss occur. Patients may experience small difficulties in work or social activities but have adequate cognitive function to compensate for the loss and continue to function independently. With further progression of AD, the deficits can no longer be concealed. Forgetfulness is manifested in many daily actions; patients may lose their ability to recognize familiar faces, places, and objects and they may become lost in a familiar environment. They may repeat the same stories or ask the same question repeatedly. Trying to reason with people with AD and using reality **orientation** (a person's ability to recognize who and where they are in a time continuum) only increase their anxiety without increasing function. Conversation becomes difficult, and word-finding difficulties occur. The ability to formulate concepts and think abstractly disappears—for example, a patient can interpret a proverb only in concrete terms. Patients are often unable to recognize the consequences of their actions and, therefore, exhibit impulsive behavior—for example, on a hot day a patient may decide to wade in the city fountain fully clothed. Patients have difficulty with everyday activities, such as operating simple appliances and handling money.

Personality changes are also usually evident. Patients may become depressed, suspicious, paranoid, hostile, and even combative. Progression of the disease intensifies the symptoms: Speaking skills deteriorate to nonsense syllables, agitation and physical activity increase, and patients may wander at night. Eventually, assistance is needed for most ADLs, including eating and toileting, because dysphagia and incontinence develop. The terminal stage, in which patients are usually immobile and require total care, may last months or years. Occasionally, patients may recognize family members or caregivers. Death occurs as a result of complications such as pneumonia, malnutrition, or dehydration.

Assessment and Diagnostic Findings

A definitive diagnosis of AD can be made only at autopsy; however, an accurate clinical diagnosis can be made in the majority of cases. The most important goal is to rule out other causes of dementia that are reversible, such as depression, delirium, alcohol or drug abuse, or inappropriate drug dosage or drug toxicity. AD is a diagnosis of exclusion; a diagnosis of probable AD is made when the medical history, physical examination, and laboratory tests have excluded all known causes of other dementias.

The health history—including medical history, family history, social and cultural history, and medication history—and the physical examination, including functional and mental health status, are essential to the diagnosis of probable AD. Diagnostic tests, including complete blood count, chemistry profile, and vitamin B₁₂ and thyroid hormone levels, as well as screening with electroencephalography, computed tomography (CT), magnetic resonance imaging (MRI), and examination of the cerebrospinal fluid (CSF), may all refute or support a diagnosis of probable AD.

Depression can closely mimic early-stage AD and coexists in many patients. Therefore, assessing the patient for underlying depression is important. The GDS is a useful tool to assess for depression (see [Chart 8-6](#)). Tools such as the MMSE (see [Chart 8-3](#)) are useful for assessing cognitive status and screening for AD. Both CT and MRI of the brain are useful for excluding hematoma, brain tumor, stroke, normal-pressure hydrocephalus, and atrophy but are not reliable in making a definitive diagnosis of AD. Infections and physiologic disturbances, such as hypothyroidism, Parkinson's disease, and vitamin B₁₂ deficiency, can cause cognitive impairment that may be misdiagnosed as AD. Biochemical abnormalities can be excluded through examination of the blood and CSF.

Medical Management

In AD, the primary goal is to help maintain mental function as well as manage the cognitive and behavioral symptoms, and slow down the symptoms of the disease. Although there is no cure, several medications slow the progression of the disease. Cholinesterase inhibitors such as donepezil hydrochloride and rivastigmine tartrate, for example, enhance acetylcholine uptake in the brain, thus maintaining memory skills for a period of time. Cognitive ability may improve within 6 to 12 months of therapy. Rivastigmine is indicated for severe AD and it is recommended that treatment continue as long as possible (NIH, 2018b).

Behavioral problems such as agitation and psychosis can be managed by behavioral and other interventions such as music therapy (Weise, Jakob, Töpfer, et al., 2018). Associated depression and behavioral problems can also be treated pharmacologically if other interventions fail. Because symptoms change over time, all patients with AD should be reevaluated routinely, and the

nurse should document and report both positive and negative responses to medications.

Nursing Management

Nurses play an important role in the recognition of AD, particularly in hospitalized older adults, by assessing for signs (e.g., repeating or asking the same thing over and over). Nursing interventions for AD are aimed at promoting patient function and independence for as long as possible. Other important goals include promoting the patient's physical safety, promoting independence in self-care activities, reducing anxiety and agitation, improving communication, providing for socialization and intimacy, promoting adequate nutrition, promoting balanced activity and rest, and supporting and educating family caregivers. These nursing interventions apply to all patients with AD, regardless of cause.

Supporting Cognitive Function

Because dementia of any type is degenerative and progressive, patients display a decline in cognitive function over time. In the early phase of dementia, minimal cuing and guidance may be all that are needed for the patient to function fairly independently for a number of years. However, as the patient's cognitive ability declines, family members must provide more and more assistance and supervision. A calm, predictable environment helps people with dementia interpret their surroundings and activities. Environmental stimuli are limited, and a regular routine is established. A quiet, pleasant manner of speaking, clear and simple explanations, and the use of memory aids and cues help minimize confusion and disorientation and give patients a sense of security. Prominently displayed clocks and calendars may enhance orientation to time. Color-coding the doorway may help patients who have difficulty locating their room. Active participation may help patients maintain cognitive, functional, and social interaction abilities for a longer period. Physical activity and communication have also been demonstrated to slow some of the cognitive decline of AD.

Promoting Physical Safety

A safe home and hospital environment allow the patient to move about as freely as possible and relieves the family of constant worry about safety. For the patient residing at home, in order to prevent falls and other injuries, all obvious hazards are removed and hand rails are installed. A hazard-free environment allows the patient maximum independence and a sense of autonomy. Adequate lighting, especially in halls, stairs, and bathrooms, is necessary. Nightlights are helpful, particularly if the patient has increased

confusion at night, sometimes referred to as sundowning. Driving is prohibited, and smoking is allowed only with supervision. The patient may have a short attention span and be forgetful; therefore, the nurse and the family must be patient, repeat instructions as needed, and use reminders (i.e., post-it notes, electronic reminders) for daily activities. Doors leading from the house must be secured. Outside the home, all activities must be supervised to protect the patient, and the patient should wear some type of identification in case of separation from the caregiver.

If the patient is hospitalized, additional precautionary measures should be taken. Wandering behavior, which may be worse in the hospital due to unfamiliar surroundings, can often be reduced by gentle persuasion, distraction, or by placing the patient close to the nursing station. Restraints should be avoided because they can increase agitation and lead to injury.

Promoting Independence in Self-Care Activities

Pathophysiologic changes in the brain make it difficult for people with AD to maintain physical independence. Patients should be assisted to remain functionally independent for as long as possible. One way to do this is to simplify daily activities by organizing them into short, achievable steps so that the patient experiences a sense of accomplishment. Frequently, occupational therapists can suggest ways to simplify tasks or recommend adaptive equipment. Direct patient supervision is sometimes necessary; however, maintaining personal dignity and autonomy is important for people with AD, who should be encouraged to make choices when appropriate and to participate in self-care activities as much as possible.

Reducing Anxiety and Agitation

Despite profound cognitive losses, patients are sometimes aware of their diminishing abilities. Patients need constant emotional support that reinforces a positive self-image. When loss of skills occurs, goals are adjusted to fit the patient's declining ability.

The environment should be kept familiar and noise free. Excitement and confusion can be upsetting and may precipitate a combative, agitated state known as a catastrophic reaction (overreaction to excessive stimulation). The patient may respond by screaming, crying, or becoming abusive (physically or verbally); this may be the patient's only way of expressing an inability to cope with the environment. When this occurs, it is important to remain calm and unhurried. Forcing the patient to proceed with the activity only increases the agitation. It is better to postpone the activity until later, even to another day. Frequently, the patient quickly forgets what triggered the reaction. Measures such as moving to a familiar environment, listening to music, stroking, rocking, or distraction may quiet the patient. Research suggests that the use of

activities and music therapy, both individualized and in groups, help decrease agitation (Zhang, Cai, An, et al., 2017). Becoming familiar with a particular patient's usual responses to certain stressors helps caregivers avoid stressful situations.

Improving Communication

To promote the patient's interpretation of messages, the nurse should remain unhurried and reduce noises and distractions. Use of clear, easy-to-understand sentences to convey messages is essential because patients frequently forget the meaning of words or have difficulty organizing and expressing thoughts. In the earlier stages of dementia, lists and simple written instructions that serve as reminders may be helpful. In later stages, the patient may be able to point to an object or use nonverbal language to communicate. Tactile stimuli, such as hugs or hand pats, are usually interpreted as signs of affection, concern, and security.

Providing for Socialization and Intimacy Needs

Because socialization with friends can be comforting, visits, letters, and phone calls are encouraged. Recreation is important, and people with dementia are encouraged to participate in simple activities. Realistic goals for activities that provide satisfaction are appropriate. Hobbies and activities such as walking, exercising, and socializing can improve quality of life. The nonjudgmental friendliness of a pet may provide stimulation, comfort, and contentment. Care of plants or a pet can also be satisfying and an outlet for energy.

AD does not eliminate the need for intimacy. Patients and their spouses may continue to enjoy sexual activity. Spouses should be encouraged to talk about any sexual concerns, and sexual counseling may be necessary. Simple expressions of love, such as touching and holding, are often meaningful.

Promoting Adequate Nutrition

Mealtime can be a pleasant social occasion or a time of upset and distress, and it should be kept simple and calm, without confrontations. Patients prefer familiar foods that look appetizing and taste good. Cueing may be necessary to encourage adequate nutrition and hydration. Food is cut into small pieces to prevent choking. Liquids may be easier to swallow if they are thickened. Hot food and beverages are served warm, and the temperature of the foods should be checked to prevent burns.

When lack of coordination interferes with self-feeding, adaptive equipment is helpful (see Fig. 8-4). Some patients may do well eating with a spoon or with their fingers. If this is the case, an apron or a smock, rather than a bib, is used to protect clothing. As deficits progress, it may become necessary to feed the patient. Forgetfulness, disinterest, dental problems, lack of coordination,

overstimulation, and choking all serve as barriers to good nutrition and hydration.

Promoting Balanced Activity and Rest

Many patients with dementia exhibit sleep disturbances, wandering, and behaviors that may be considered inappropriate. These behaviors are most likely to occur when there are unmet underlying physical or psychological needs. Caregivers must identify the needs of patients who are exhibiting these behaviors because further health decline may occur if the source of the problem is not corrected. Adequate sleep and physical exercise are essential. If sleep is interrupted or the patient cannot fall asleep, music, warm milk, or a back rub may help the patient relax. During the day, patients should be encouraged to participate in exercise because a regular pattern of activity and rest enhances nighttime sleep. Long periods of daytime sleeping are discouraged.



Figure 8-4 • A. Assistive feeding devices make it easy for patients to grasp and get food on utensils. **B.** Assistive feeding devices may

be required for patients who are weak, fatigued, or paralyzed or have neuromuscular impairment.

Promoting Home, Community-Based, and Transitional Care

The emotional burden on the families of patients with all types of dementia is enormous. The physical health of the patient is often very stable and the decline gradual. Family members may cling to the hope that the diagnosis is incorrect and that their relative will improve with greater effort. Family members provide at least 83% of the home care that is required by patients with AD (Alzheimer's Association, 2019). They are faced with numerous difficult decisions (e.g., when the patient should stop driving, when to assume responsibility for the patient's financial affairs). Aggression and hostility exhibited by the patient are often misunderstood by caregivers, who may feel unappreciated, frustrated, and angry. Feelings of guilt, nervousness, and worry contribute to caregiver fatigue, depression, and family dysfunction. Researchers have identified that a Web-based intervention can be effective in helping with anxiety and stress, reducing depressive symptoms, and identifying care needs and planning interventions that promote balance and congruence in the lives of caregivers (Ploeg, Markle-Reid, Valaitis, et al., 2017).

Neglect or abuse of the patient can occur, and this has been documented in home situations as well as in institutions. If neglect or abuse of any kind—including physical, emotional, sexual, neglect, or financial abuse—is suspected, the local adult protective services agency must be notified. The responsibility of the nurse is to report the suspected abuse, not to prove it.

The Alzheimer's Association is a coalition of family members and professionals who share the goals of family support and service, education, research, and advocacy. Family support groups, respite (relief) care, and adult day care may be available through different community resources, such as the Area Agency on Aging, in which concerned volunteers are trained to provide structure to caregiver support groups (see Resources section at the end of chapter). Respite care is a commonly provided service in which caregivers can get away from the home for short periods while someone else tends to the needs of the patient.

Vascular Dementia

Vascular dementia is the second most common cause of dementia and is characterized by an uneven, stepwise downward decline in mental function (Norris, 2019). Multi-infarct dementia, the most common form of vascular dementia, has an unpredictable course and is characterized by variable impairment depending on the affected sites in the brain. The patient may present with a deficit in only one domain such as word retrieval whereas other

cognitive abilities may be intact. Diagnosis may be even more difficult if a patient has both vascular dementia and AD.

Because vascular dementia is associated with hypertension and cardiovascular disease, risk factors (e.g., hypercholesterolemia, smoking, heart disease, diabetes) are similar. Prevention and management are also similar (see [Chapter 27](#)). Measures to decrease blood pressure, control diabetes, and lower cholesterol levels may slow cognitive decline.

Additional Aspects of Health Care of the Older Adult

The nurse needs to consider other health issues of older adults. These include geriatric syndromes, elder neglect and abuse, as well as ethical and legal issues.

Geriatric Syndromes

Older adults tend to acquire multiple problems and illnesses as they age. The decline of physical function leads to a loss of independence and increasing frailty as well as to susceptibility to both acute and chronic health problems, which generally result from several factors rather than from a single cause. When combined with a decrease in host resistance, these factors can lead to illness or injury. Some problems commonly experienced by older adults are becoming recognized as **geriatric syndromes**. These conditions do not fit into discrete disease categories and require a multidisciplinary and comprehensive assessment to identify the underlying cause or causes. Examples include skin impairment (e.g., pressure injuries), poor nutrition, falls or functional decline, urinary incontinence, defecation incontinence, cognitive impairment (e.g., delirium), and sleep disturbances (Tang, Tang, Hu, et al., 2017). Although these conditions may develop slowly, the onset of symptoms is often acute. Furthermore, the presenting symptoms may appear in other body systems before becoming apparent in the affected system. For example, an older patient may present with confusion, and the underlying disease may be a UTI, dehydration, or a heart attack (van Seben, Reichardt, Aarden, et al., 2019).

The term *geriatric triad* includes changes in cognitive status, falls, and incontinence. This term is used to focus awareness on these three conditions, which need particular attention, and the implementation of prevention measures during the hospitalization of older patients.

Impaired Mobility

The causes of decreased mobility are many and varied. Common causes include strokes, Parkinson's disease, diabetic neuropathy, cardiovascular compromise, osteoarthritis, osteoporosis, and sensory deficits. To avoid

immobility, older people should be encouraged to stay as active as possible. During illness, bed rest should be kept to a minimum, even with hospitalized patients, because brief periods of bed rest quickly lead to deconditioning and, consequently, to a wide range of complications. When bed rest cannot be avoided, patients should perform active range-of-motion and strengthening exercises with the unaffected extremities, and nurses or family caregivers should perform passive range-of-motion exercises on the affected extremities. Frequent position changes help offset the hazards of immobility. Both the health care staff and the patient's family can assist in maintaining the current level of mobility.

Dizziness

Older adults frequently seek help for dizziness, which presents a particular challenge because there are numerous possible causes. For many, the problem is complicated by an inability to differentiate between true dizziness (a sensation of disorientation in relation to position) and vertigo (a spinning sensation). Other similar sensations include near-syncope and disequilibrium. The causes for these sensations range in severity from minor (e.g., buildup of ear wax) to severe (e.g., dysfunction of the cerebral cortex, cerebellum, brain stem, proprioceptive receptors, or vestibular system). Even a minor reversible cause, such as ear wax impaction, can result in a loss of balance and a subsequent fall and injury. Because dizziness has many predisposing factors, nurses should seek to identify any potentially treatable factors related to the condition.

Falls and Falling

Inadvertent injuries rank third as a cause of death for older people, and falls are the most common cause of nonfatal injuries and hospital admissions. The incidence of falls rises with increasing age.

Many older adults who fall do not sustain an injury; however, between 20% and 30% of older adults who fall sustain moderate to serious injury such as bruises, hip fractures, or head trauma. One out of five falls in older adults results in serious injury such as broken bones or a head injury (Heron, 2019). Overall, older women who fall sustain a greater degree of injury than do older men; however, men are more likely to die of a fall injury (World Health Organization [WHO], 2019). Hip fracture is a common type of fracture that can occur as a result of a fall. Fifty percent of adults who fall but cannot get up on their own and sustain a hip fracture are then unable to return to the same functional level after this type of injury. Causes of falls are multifactorial. Both extrinsic factors such as changes in the environment or poor lighting and intrinsic factors such as physical illness, neurologic changes, or sensory impairment play a role. Mobility difficulties, medication effects, foot problems

or unsafe footwear, orthostatic hypotension, visual problems, and tripping hazards are common and treatable causes. Polypharmacy, medication interactions, and the use of alcohol precipitate falls by causing drowsiness, decreased coordination, and orthostatic hypotension. Falls have physical dangers as well as serious psychological and social consequences. It is not uncommon for an older person who has experienced a fall to become fearful and lose self-confidence (Miller, 2019).

Nurses can encourage older adults and their families to make lifestyle and environmental changes to prevent falls. Adequate lighting with minimal glare and shadow can be achieved through the use of small area lamps, indirect lighting, sheer curtains to diffuse direct sunlight, dull rather than shiny surfaces, and nightlights. Sharply contrasting colors can be used to mark the edges of stairs. Grab bars by the bathtub, shower, and toilet are useful. Loose clothing, improperly fitting shoes, scatter rugs, small objects, and pets create hazards and increase the risk of falls. Older adults function best in familiar settings when the arrangement of furniture and objects remains unchanged.



Quality and Safety Nursing Alert

In hospitalized and institutionalized older adults, physical restraints (lap belts; geriatric chairs; side rails, vest, waist, and jacket restraints) and chemical restraints (medications) precipitate many of the injuries they were meant to prevent. Because of the acute negative consequences of restraint use, accrediting agencies of nursing homes and acute care facilities now maintain stringent guidelines for correct application and use.

Urinary Incontinence

Urinary incontinence may be acute, occurring during an illness, or may develop chronically over a period of years. Older patients often do not report this very common problem unless specifically asked. Transient causes may be attributed to *delirium* and *dehydration*; *restricted mobility*; *inflammation*, *infection*, and *impaction*; and *pharmaceuticals* and *polyuria* (the acronym *drip* may be used to remember them). Once identified, the causative factor can be eliminated.

Older patients with incontinence should be urged to seek help from appropriate health care providers because incontinence can be both emotionally devastating and physically debilitating. Nurses who specialize in behavioral approaches to urinary incontinence management can help patients regain full continence or significantly improve the level of continence. Although medications such as anticholinergics may decrease some of the symptoms of urge incontinence (detrusor instability), the adverse effects of

these medications (dry mouth, slowed GI motility, and confusion) may make them inappropriate choices for older adults (Fick et al., 2019). Various surgical procedures are also used to manage urinary incontinence, particularly stress urinary incontinence.

Detrusor hyperactivity with impaired contractility is a type of urge incontinence that is seen predominantly in the older adult population. In this variation of urge incontinence, patients have no warning that they are about to urinate. They often void only a small volume of urine or none at all and then experience a large volume of incontinence after leaving the bathroom. Nurses should be familiar with this form of incontinence and not show disapproval when it occurs. Many patients with dementia suffer from this type of incontinence, because both incontinence and dementia are a result of dysfunction in similar areas of the brain. Prompted, timed voiding can be of assistance in these patients, although clean intermittent catheterization may be necessary because of postvoid residual urine. See [Chapter 49](#) for information on management of urinary disorders.

Increased Susceptibility to Infection

Infectious diseases present a significant threat of morbidity and mortality to older adults, in part because of the blunted response of host defenses caused by a reduction in both cell-mediated and humoral immunity (see [Chapters 31](#) and [32](#)). Age-related loss of physiologic reserve and chronic illnesses also contribute to increased susceptibility. Pneumonia, UTIs, GI infections, and skin infections are some of the common infections in older adults.

Because of a weakened immune response, the effects of influenza and pneumococcal infections on older adults are significant. Vaccination can help prevent both infections. There is a national goal to increase vaccination rates among people 65 years of age and older. More than 71% of those 65 years of age and older reported receiving an influenza vaccination between January and June 2018 and 69% reported that they had received a pneumococcal vaccination (AoA, 2020).

Influenza and pneumococcal vaccinations lower the risks of hospitalization and death in older adults. The influenza vaccine, which is prepared yearly to adjust for the specific immunologic characteristics of the influenza viruses at that time, should be given annually in autumn. A systematic review and meta-analysis on the effectiveness of high-dose versus standard-dose influenza vaccine suggests that better protection is provided with the high-dose, trivalent, inactivated influenza vaccine versus the standard vaccine in older adults (Lee, Lam, Shin, et al., 2018). The pneumococcal vaccine should be administered as recommended (see [Chapter 3, Table 3-3](#)). Both of these injections can be received at the same time in separate injection sites. Nurses should urge older adults to be vaccinated. All health care providers working with older adults or high-risk chronically ill people should also be immunized.

AIDS occurs across the age spectrum. It is increasingly recognized that AIDS does not spare the older segment of society, and many who are living with HIV/AIDS are aging.

Atypical Responses

Many altered physical, emotional, and systemic reactions to disease are attributed to age-related changes in older adults. Physical indicators of illness that are useful and reliable in young and middle-aged people cannot be relied on for the diagnosis of potential life-threatening problems in older adults. The response to pain in older adults may be lessened because of reduced acuity of touch, alterations in neural pathways, and diminished processing of sensory data.

Older adults who are experiencing an MI may not have chest pain but present with confusion. Hiatal hernia or upper GI distress is often the cause of chest pain. Therefore, acute abdominal conditions may go unrecognized in older adults because of atypical signs and absence of pain.

The baseline body temperature for older adults is about 1°F lower than it is for younger people (Weber & Kelley, 2019). In the event of illness, the body temperature of an older person may not be high enough to qualify as a traditionally defined fever. A temperature of 37.8°C (100°F) in combination with systemic symptoms may signal infection. A temperature of 38.3°C (101°F) almost certainly indicates a serious infection that needs prompt attention. A blunted fever in the face of an infection often indicates a poor prognosis. Temperatures rarely exceed 39.5°C (103°F). Nurses must be alert to other subtle signs of infection, such as mental confusion, increased respirations, tachycardia, and a change in skin color.

Altered Emotional Impact

The emotional component of illness in older adults may differ from that in younger people. Many older adults equate good health with the ability to perform their daily activities and believe that “you are as old as you feel.” An illness that requires hospitalization or a change in lifestyle is an imminent threat to well-being. Older adults admitted to the hospital are at high risk for disorientation, confusion, change in level of consciousness, and other symptoms of delirium, as well as anxiety and fear. In addition, economic concerns and fear of becoming a burden to families often lead to high anxiety in older adults. Nurses must recognize the implications of fear, anxiety, and dependency in older patients. They should encourage autonomy, independent decision making, and early mobilization. A positive and confident demeanor in nurses and family members promotes a positive mental outlook in older patients.

Altered Systemic Response

In an older person, illness has far-reaching repercussions. The decline in organ function that occurs in every system of the aging body eventually depletes the body's ability to respond at full capacity. Illness places new demands on body systems that have little or no reserve to meet the crisis. Homeostasis is jeopardized. Older adults may be unable to respond effectively to an acute illness or, if a chronic health condition is present, they may be unable to sustain appropriate responses over a long period. Furthermore, their ability to respond to definitive treatment is impaired. The altered responses of older adults reinforce the need for nurses to monitor all body system functions closely, being alert to signs of impending systemic complication.

Elder Neglect and Abuse

Older adults are at risk for abuse and neglect both in the community setting and in nursing homes (Burnes, Pillemer, & Lachs, 2017). Because of different definitions and terminology and the pattern of underreporting, a clear picture of the incidence and prevalence of abuse among older adults is lacking. Furthermore, one of the major barriers to fully understanding elder abuse is that most professionals in all professions, including law enforcement, are not equipped to recognize and report this type of abuse. Often victims are reluctant to report the abuse and clinicians are unaware of the frequency of the problems.

Neglect is the most common type of abuse. Other forms of abuse include physical, psychological or emotional, sexual, abandonment, and financial exploitation or abuse. Burnes and colleagues (2017) reported factors associated with physical and emotional abuse included being separated or divorced, living in a low-income household, functional impairment, and younger age for community-dwelling older adults. Neglect was associated with poor health, living below the poverty level, being separated or divorced, and younger age. Neglect was lowest in Hispanic households (Burnes et al., 2017).

Physical abuse associated with staff misconduct in long-term care facilities has received much attention in the past decade. Braaten and Malmedal (2017) did a qualitative study to understand the perspective of staff regarding prevention of physical abuse of nursing home residents. Staff were asked what measures they considered useful to implement in their daily work to prevent abusive behaviors. Staff shared that there was a need for increased competence among staff about the concept of abuse, known risk factors, good communication skills, and trusting relationships, as well as a work environment/culture that promotes openness where ethical dilemmas can be discussed (Braaten & Malmedal, 2017). Factors associated with resident on resident abuse in a nursing home setting were reported as previous staff physical or emotional abuse; younger age; limitations in ADLs and IADLs; and the emotional closeness of the resident to their family (Braaten &

Malmedal, 2017). Older adults with disability of all types are at increased risk for abuse from family members, paid caregivers, and staff, whether they live in the community or a long-term care facility.

Nurses should be alert to possible **elder abuse** and neglect. During the health history, the older adult should be asked about abuse during a private portion of the interview. Most states require that care providers, including nurses, report suspected abuse. Preventive action should be taken when caregiver strain is evident—before elder abuse occurs. Early detection and intervention may provide sufficient resources to the family or the person at risk to ensure patient safety. Interdisciplinary team members, including the psychologist, social worker, or chaplain, can be enlisted to help the caregiver develop self-awareness, increased insight, and an understanding of the disease or aging process. Community resources such as caregiver support groups, respite services, and local offices of Area Agencies on Aging (AAAs) are useful for both the older adult and the caregiver.

Social Services

Many social programs exist for older Americans, including Medicare, Medicaid, the Older Americans Act, Supplemental Security Income, Social Security amendments, Section 202 housing, and Title XX social services legislation. These federal programs have increased health care options and financial support for older Americans. The Older Americans Act mandated creation of a federal aging network, resulting in the establishment of the AAAs, a national system of social services and networks providing many community services for older adults. Each state has an advisory network that is charged with overseeing statewide planning and advocacy for older adults throughout the state. Among the services provided by the AAAs are assessment of need, information and referral, case management, transportation, outreach, homemaker services, day care, nutritional education and congregate meals, legal services, respite care, senior centers, and part-time community work. The agencies target low-income, ethnic minority, rural living, and frail older adults who are at risk for institutionalization; however, the assessment and information services are available to all older adults. Similar services such as homemaker, home health aide, and chore services can be obtained at an hourly rate through these agencies or through local community nursing services if the family does not meet the low-income criteria. Informal sources of help, such as family, friends, mail carriers, church members, and neighbors, all keep an informal watch on community-dwelling senior citizens. (See Resources section at the end of the chapter.)

Other community support services are available to help older adults outside the home. Senior centers have social and health promotion activities, and some provide a nutritious noontime meal. Adult day care facilities offer daily

supervision and social opportunities for older adults who cannot be left alone. Adult day care services, although expensive, provide respite and enable family members to carry on daily activities while the older person is at the day care center.

Health Care Costs of Aging

Health care is a major expenditure for older adults, especially for those with chronic illness and limited financial resources. Older adults, who make up about 15% of the population, accounted for 38% of health care costs, particularly in the last year of life (Centers for Medicaid & Medicare Services [CMS], 2018).

The two major programs that finance health care in the United States are Medicare and Medicaid, both of which are overseen by the CMS. Both programs cover acute care needs such as inpatient hospitalization, primary provider care, outpatient care, home health services, and skilled nursing care in a nursing facility. Medicare is federally funded, whereas Medicaid is given by states; therefore, eligibility and reimbursements for Medicaid services vary from state to state. For older adults with limited incomes, even with the support of Medicare or Medicaid, paying out-of-pocket expenses can be a hardship. Out-of-pocket health care expenses represent 28% of the income of poor and near-poor older adults. Despite changes to the Medicare prescription benefit plan, out-of-pocket expenditures and prescription costs can be burdensome (AoA, 2020).

Home Health Care

The use of home care services and skilled nursing home care increases with age. Because of the rapidly growing older adult population and the availability of Medicare funding for acute care, home health care in the United States has rapidly expanded. (See [Chapter 2](#) for more information on home health care.)

Hospice Services

Hospice and palliative care have much in common. Both are for people with serious illnesses. Both follow treatment goals that aim to relieve pain, increase comfort, and improve quality of life for the patient and family. The goal of hospice is to improve the quality of life by focusing on symptom management, pain control, and emotional support. In most hospice cases, patients are not expected to live longer than 6 months. Hospice care focuses on quality of life, and by necessity, it usually includes realistic emotional, social, spiritual, and financial preparation for death. Palliative care is for people at any stage of a serious illness, and their condition does not have to be incurable. Palliative

care aims to relieve pain and other symptoms to maintain the highest quality of life for the longest period of time (Casey, 2019). Under Medicare and Medicaid, medical and nursing services are provided to keep patients as pain free and comfortable as possible. (For an in-depth discussion of palliative and end-of-life care, see [Chapter 13](#).)

Aging With a Disability

As the life expectancy of people with all types of physical, cognitive, and mental disability has increased, individuals must deal with the normal changes associated with aging in addition to their preexisting disability. There are still large gaps in our understanding of the interaction between disability and aging, including how this interaction varies depending on the type and degree of disability and other factors such as socioeconomic status and gender. For adults without disability, the changes associated with aging may be minor inconveniences. For adults with disorders such as spinal cord injuries, aging is associated with higher rates of secondary health conditions compared to those aging without a disability (Jorgensen, Iwarsson, & Lexell, 2019). Many people with disability are greatly concerned about what will happen to them as they age and whether assistance will be available when they need care.

It has been proposed that nurses view people with disability as capable, responsible individuals who are able to function effectively despite having a disability. Both the Interface and the Biopsychosocial models of disability can serve as a basis for the role of nurses as advocates for removal of barriers to health care. The use of such models would also encourage public policies that support full participation of all citizens through greater availability of personal assistants and affordable and accessible transportation. See [Chapter 7, Chart 7-2](#) for discussion of other disability models.

Today, children born with intellectual and physical disability and those who acquire them early in life are also living into middle and older age. Often, their care has been provided by the family, primarily by the parents. As parents age and can no longer provide the needed care, they seek additional help with the care or long-term care alternatives for their children. However, few services are available at present to support a smooth transition between caregiving by parents and then by others. Research and public policy must focus on supports and interventions that allow people with disability who are aging to increase or maintain function within their personal environment as well as in the outside community. Important questions include who will provide the care and how will it be financed. The National Institute on Aging has identified aging with a disability as a focus and is striving to provide streamlined information and access to those with a disability and their family caregivers.

Ethical and Legal Issues Affecting the Older Adult

Nurses play an important role in supporting and informing patients and families when making treatment decisions. This nursing role becomes even more important in the care of aging patients who are facing life-altering and possibly end-of-life decisions. Loss of rights, victimization, and other serious problems might occur if a patient has not made plans for personal and property management in the event of disability or death. As advocates, nurses should encourage end-of-life discussions and educate older adults to prepare advance directives before incapacitation (Miller, 2019).

An advance directive is a formal, legally endorsed document that provides instructions for care (living will) or names a proxy decision maker (**durable power of attorney**). It is to be implemented if the signer becomes incapacitated. This written document must be signed by the person and by two witnesses, and a copy should be given to the primary provider and placed in the medical record. The advance directive is not meant to be used only when certain (or all) types of medical treatment are withheld; rather, it allows for a description of health care preferences, including requesting full use of all available medical interventions. The health care proxy may have the authority to interpret the patient's wishes on the basis of medical circumstances and should be guided by the decisions or situations stated in the living will (see [Chart 8-8](#)).

When such serious decisions are made, possibilities exist for significant conflict of values among patients, family members, health care providers, and the legal representative. Autonomy and self-determination are Western concepts, and people from different cultures may view advance directives as a method for denial of care. Older adults from some cultures may be unwilling to consider the future, or they may wish to protect relatives and not want them to be informed about a serious illness. Nurses can facilitate the decision making process by being sensitive to the complexity of patients' values and respecting their decisions. Directives must be focused on the wishes of the patient, not those of the family or the designated proxy.

Chart 8-8 ETHICAL DILEMMA

Does Stopping of Eating and Drinking Violate the Principle of Nonmaleficence?

Case Scenario

You work as a staff nurse in a skilled nursing facility in the Alzheimer care unit. C.R. is an 82-year-old woman with advanced Alzheimer's disease who has been a resident in the facility for over a year. Her status has deteriorated significantly over the past 2 months. C.R.'s daughter has been visiting her mother at dinnertime most evenings, bringing her favorite foods and drinks to feed her by hand. One evening, C.R.'s son visits during dinnertime and finds his sister feeding their mother. This was the first time C.R.'s son has visited her in over 2 months. He reacts angrily, noting that C.R. had noted in her advance directive that she did not wish to receive nutrition and fluids if she became incapacitated. He admonishes his sister "Mom does not even recognize either one of us—she would not want to keep going on this way!" C.R.'s daughter notes that although their mother does not recognize anyone or understand what is happening, she opens her mouth and seems to enjoy the food and fluids that she is receiving. C.R.'s son is his mother's sole designated proxy; he was authorized by her with her power-of-attorney to make health care decisions during a time when she had the mental capacity to make that decision. He reminds you and C.R.'s daughter of this, and tells you that he wants his sister to stop giving food and fluids to his mother.

Discussion

Whether or not a patient may autonomously decide to forego artificial nutrition and hydration therapy (ANH) is not subject to much debate at present. Most bioethicists tend to agree that a patient with mental capacity may decide to forego ANH, even if doing so may hasten the patient's death. Advance directives for health care that specify no ANH written by patients before such time as they lose capacity is considered binding. Proxy decision makers for patients who lose capacity may also make the decision to withhold ANH.

However, decisions to voluntarily stop eating and drinking (VSED), or taking nutrition and fluids by the "natural" oral route, can be more complicated. While ANH may only be delivered using medical interventions (e.g., intravenous fluids, feeding tubes), taking food and fluids orally might not be considered "medical care." In these instances, whether or not a designated proxy or person vested with power-of-attorney for health care agrees that this type of feeding can continue may be inconsequential. The ANA (2017) declares that "VSED, with the intention of hastening death can only be made by those patients with decision making capacity, not by surrogates." (p.1). In that same position statement, however, the ANA (2017) also states that "the patient's decision regarding VSED remains binding, even if the patient subsequently loses capacity." (p.1). It is important for a person who wishes to VSED to specify that in an advance directive.

Analysis

- Describe the ethical principles that are in conflict in this case (see [Chapter 1, Chart 1-7](#)). Which principle do you believe should have preeminence as you proceed to work with C.R. and her adult children? Does VSED in a patient who now lacks capacity violate the principle of nonmaleficence?
- Is C.R.'s son authorized to specify that his sister may not hand feed their mother? What if C.R.'s advance directive specifically states that, should she lose capacity, she would not wish to receive *oral* food and fluids? C.R. opens her mouth and willingly accepts the foods and fluids given to her by her daughter; does this imply that she now consents to be hand fed?
- What resources might be available to you and the health care team to help C.R.'s adult children determine what is in her best interests?

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Resources

See [Chapter 1, Chart 1-10](#) for Steps of an Ethical Analysis and Ethics Resources.

If no advance arrangement has been made and the older person appears unable to make decisions, the court may be petitioned for a competency hearing. If the court rules that an older adult is incompetent, the judge appoints a guardian—a third party who is given powers by the court to assume responsibility for making financial or personal decisions for that person.

People with communication difficulties or mild dementia tend to be viewed as incapable of self-determination. However, people with mild dementia may have sufficient cognitive capability to make some, but perhaps not all, decisions. For example, a patient may be able to identify a proxy decision maker and yet be unable to select specific treatment options. People with mild dementia may be competent to understand the nature and significance of different options for care.

In 1990, the Patient Self-Determination Act (PSDA), a federal law, was enacted to require patient education about advance directives at the time of hospital admission, as well as documentation of this education. Nursing homes

are also mandated to enhance residents' autonomy by increasing their involvement in health care decision making. In both nursing homes and hospitals, the documentation and placement of advance directives in the medical record and the education of patients about advance directives vary considerably. Periodically, it is important to ensure that the directives reflect the current wishes of the patient and that all providers have a copy so that they are aware of the patient's wishes.

CRITICAL THINKING EXERCISES

1  You notice an increase in the number of older patients who are confused on the medical-surgical unit where you work. What do you suspect may be the cause of this increase in patients who are confused? What screening tool(s) would you recommend for these patients? Would you recommend that these tools be used for every older patient? Why? What is the strength of the evidence base guiding your assessment, actions, and recommendations?

2  A 90-year-old man has been admitted to your medical unit with urinary retention. What nursing and interprofessional assessments are indicated during your initial interactions with him? What other interprofessional services might you try to engage?

3  During a home visit, an 81-year-old woman with diabetes and a lower limb amputation admits to you that she has fallen three times in the past 6 months. Identify priorities and strategies that may help to prevent further falls for this patient.

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*Asterisk indicates nursing research.

**Double asterisk indicates classic reference.

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Resources

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