

UNIT 12 Reproductive Function

Case Study

IMPLEMENTING ALTERNATIVE, COMPLEMENTARY, AND SPIRITUAL PRACTICES



You work on an oncology unit and are caring for a 37-year-old woman from Brazil who reported a growing lump on her right breast after it became painful to touch. She is positive for metastatic breast cancer and is admitted for bilateral mastectomy.

She is married with two children, ages 6 and 10. The oncologist, radiologist, surgical oncologist, and oncology nurse meet with her to discuss the plan of care. She will need radiation and chemotherapy following the mastectomy. The patient states that she wants “everything done,” including the use of alternative and complementary therapies her family is sending from her home country. She also states that maintaining her spiritual practices is imperative as part of her healing process. The team discusses how to implement these requests into the plan of care.

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
<p>Integrate understanding of multiple dimensions of patient-centered care:</p> <ul style="list-style-type: none"> • patient/family/community preferences, values • coordination and integration of care • information, communication, and education • physical comfort and emotional support • involvement of family and friends • transition and continuity <p>Describe how diverse cultural, ethnic and social backgrounds function as sources of patient, family, and community values</p>	<p>Describe how you can integrate the patient's preferences and values into her treatment regimen for metastatic breast cancer.</p> <p>How does the involvement of the patient's family impact the plan of care?</p> <p>What are the cultural implications for a patient from Brazil in terms of traditional medicine, spirituality, and care?</p>
	Skills
<p>Elicit patient values, preferences and expressed needs as part of clinical interview, implementation of care plan and evaluation of care</p>	<p>Identify the skills needed by members of the health care team to incorporate patient-centered care and consideration for this patient.</p> <p>How can you be more culturally aware and sensitive to the patient's requests for alternative and complementary therapy?</p>
	Attitudes
<p>Respect and encourage individual expression of patient values, preferences, and expressed needs</p>	<p>Reflect on your attitudes toward use of alternative and complementary therapy by patients who have cancer. Do you feel that these alternative treatment methods are beneficial or harmful? How might your attitude encourage or discourage trust between you and</p>

your patients who are managing a serious disease process?

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

50 Assessment and Management of Patients with Female Physiologic Processes

LEARNING OUTCOMES

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

1. Describe the structures and functions of the female reproductive system as well as approaches to assessment of female physiologic processes.
2. Identify the diagnostic examinations and tests used to determine alterations in female reproductive function, and describe the nurse's role before, during, and after these examinations and procedures.
3. Compare and contrast the different methods of contraception and the causes of infertility; describe implications for nursing care and education for the patient who wishes to practice contraception or to conceive.
4. Use the nursing process as a framework for care of the patient with an ectopic pregnancy.
5. Develop an education plan for women who are approaching or have completed menopause.

NURSING CONCEPTS

Assessment
Comfort
Family
Infection
Nutrition
Patient Education
Reproduction
Safety
Sexuality
Violence

GLOSSARY

adnexa: the fallopian tubes and ovaries

amenorrhea: absence of menstrual flow

cervix: bottom (inferior) part of the uterus that is located in the vagina

corpus luteum: site within a follicle that changes after ovulation

cystocele: a bulge caused by the bladder protruding into the vagina

dysmenorrhea: painful menstruation

dyspareunia: difficult or painful penile-vaginal intercourse

endometrial ablation: procedure performed through a hysteroscope in which the lining of the uterus is burned away or ablated to treat abnormal uterine bleeding

endometrium: mucous membrane lining of the uterus

estrogens: several hormones produced in the ovaries that develop and maintain the female reproductive system

follicle-stimulating hormone (FSH): hormone released by the pituitary gland to stimulate estrogen production and ovulation

fornix: upper part of the vagina

fundus: the rounded upper portion of the uterus

graafian follicle: cystic structure that develops on the ovary as ovulation begins

hymen: tissue that covers the vaginal opening partially or completely before vaginal penetration

hysteroscopy: an endoscopic procedure performed using a long telescope like instrument inserted through the cervix to diagnose uterine problems

introitus: perineal opening to the vagina

luteal phase: stage in the menstrual cycle in which the endometrium becomes thicker and more vascular

luteinizing hormone (LH): hormone released by the pituitary gland that stimulates progesterone production

menarche: beginning of menstrual function

menopause: permanent cessation of menstruation resulting from the loss of ovarian follicular activity

menstruation: sloughing and discharge of the lining of the uterus if conception does not take place

ovaries: almond-shaped reproductive organs that produce eggs at ovulation and play a major role in hormone production

ovulation: discharge of a mature ovum from the ovary

perimenopause: the period around menopause

progesterone: hormone produced by the corpus luteum that prepares the uterus for receiving the fertilized ovum

proliferative phase: stage in the menstrual cycle before ovulation when the endometrium increases

rectocele: bulging of the rectum into the vagina

secretory phase: stage of the menstrual cycle in which the endometrium becomes thickened, becomes more vascular, and ovulation occurs

uterine prolapse: the cervix and uterus descend into the lower vagina

Nurses who work with women need an understanding of the physical, developmental, psychological, and sociocultural influences on women's health, as well as health practices. It is necessary to consider how medications and diseases specifically affect women. In addition, women's sexuality is complex and often affected by many factors, and related issues need careful evaluation and treatment.

CHALLENGES IN WOMEN'S HEALTH

Women face unique challenges in their roles, lifestyles, and family patterns. Furthermore, they encounter increasing environmental hazards and stress, prompting greater attention to health and health-promoting practices. As a result, many women are taking a greater interest in and responsibility for their own health and health care. Nurses encounter women with health care needs in all settings and they need a solid understanding of the unique issues related to women's health to provide optimal care. The Affordable Care Act (ACA) had made major changes to the health insurance market, and millions of women have gained coverage since its implementation (Kaiser Family Foundation, 2018).

The ACA expands coverage to the uninsured through a combination of Medicaid expansions, private insurance reforms, and tax credits (Kaiser Family Foundation, 2018). The affordability of health coverage and care is a problem that affects both sexes; however, women consistently are more likely than men to report cost-related barriers to care (Lee, Monuteaux, & Galbraith, 2019). Among the 97.4 million American women ages 19 to 64, most had some form of insurance coverage in 2017. However, gaps in private sector and publicly funded programs still leave almost one in ten women uninsured. Women with low incomes, women of color, and those who are immigrants are still at greater risk of being uninsured. Single mothers are much more likely to be uninsured (13%) than women in two-parent households (10%) (Kaiser Family Foundation, 2018).

The ACA set new standards for the scope of benefits offered in private plans. In addition to the broad categories of essential health benefits (EHBs)

offered by the state-based marketplace plans, the law also requires that new private plans cover preventive services without copayments or other cost sharing. This includes Pap tests, mammograms, bone density tests, as well as the human papilloma virus (HPV) vaccine. New plans are required to cover additional preventive services for women, including prescribed contraceptives, breast-feeding supplies, and resources such as breast pumps, screening for intimate partner violence, well woman visits, and several counseling and screening services (Kaiser Family Foundation, 2018; Lee et al., 2019).

ASSESSMENT OF THE FEMALE REPRODUCTIVE SYSTEM

Anatomic and Physiologic Overview

The female reproductive system is complex because it involves many external and internal structures that are under hormonal control.

Anatomy of the Female Reproductive System

The female reproductive system consists of external and internal pelvic structures. Other anatomic structures that affect the female reproductive system include the hypothalamus and pituitary gland of the endocrine system. The female breast is covered in [Chapter 52](#).

External Genitalia

The female external genitalia are composed of a variety of tissue types starting with the mons pubis, which is a thick pad of adipose tissue that covers the symphysis pubis and cushions it during penile-vaginal intercourse (see [Fig. 50-1](#)). Moving downward are two thick folds of connective tissue covered with pubic hair known as the labia majora, which extend from the mons pubis to the perineum. The labia majora cover the oval-shaped area known as the vestibule, where the labia minora originate. The labia minora are two narrow folds of hairless skin, beginning at the clitoris and extending to the fourchette. This area is highly vascular and rich in nerve supply and glands that lubricate the vulva, the collective name for the external genitalia. The labia minora join at the top to form the prepuce, a hoodlike structure that partially covers the clitoris. The clitoris, an erectile organ located beneath the pubic arch, consists of a shaft and glans. It secretes smegma, a pheromone (olfactory erotic stimulant), and is sensitive to touch and temperature. Below the clitoris is the urinary meatus, the external opening of the female urethra that has a slit

appearance. Below the meatus is the **introitus** (vaginal opening). On each side of the introitus are Bartholin glands, which secrete mucus through tiny ducts that lie within the labia minora and are external to the **hymen** (membrane that encircles the introitus). The vestibule is bounded by the clitoris, fourchette, and labia minora and contains the urethral meatus. Skene glands, located within the urethral meatus, produce mucus for lubrication (Ball, Dains, Flynn, et al., 2019). The Bartholin glands on either side of the entrance to the vagina also produce mucus for lubrication (Ball et al., 2019).

The hymen opening varies widely among women, and the size of the opening is an unreliable indicator of sexual experience (Ball et al., 2019). The fourchette is located in the midline below the vaginal opening where the labia majora and labia minora merge. The perineum is the area between the vagina and the rectum or anus; it is a skin-covered muscular tissue (Ball et al., 2019).

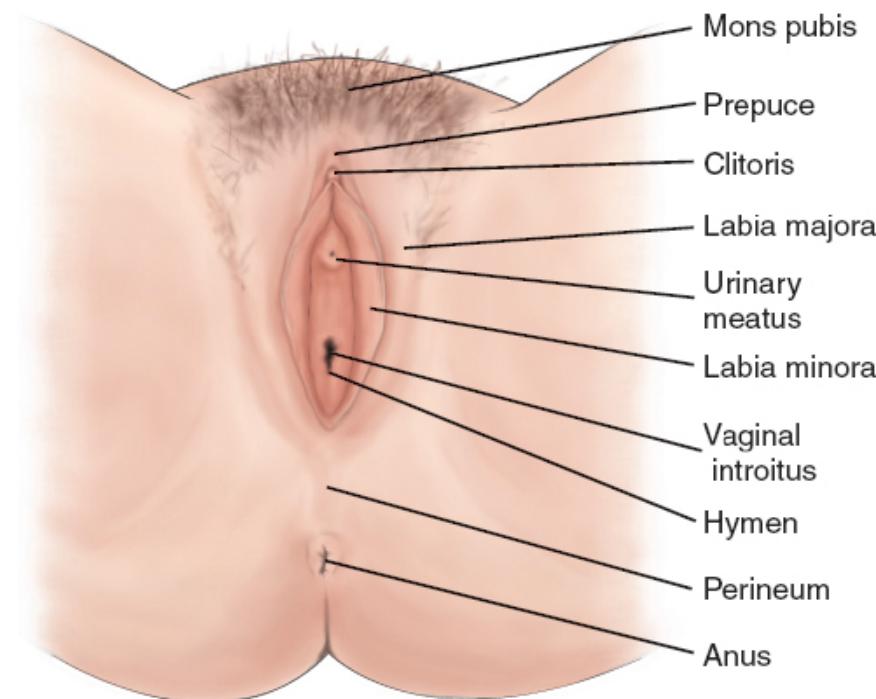


Figure 50-1 • External female genitalia.

A number of muscles support the external genitalia. Support for the pelvic organs is from the deep muscle layer known as the levator ani. This muscle, which forms most of the pelvic diaphragm, is composed of the iliococcygeus, pubococcygeus, and the puborectalis muscles. It supports the organs of reproduction and provides elasticity of the pelvic floor. When viewed from above, it looks like joined cupped hands. Its main function is to provide support to the organs of the pelvis when increased pressure from coughing and sneezing occurs. When this muscle group is contracted, the pelvic floor is lifted upward, supporting continence (Eickmeyer, 2017). Muscles that

contribute to the strength of the pelvic floor may be damaged during childbirth (Eickmeyer, 2017). The bulbocavernosus, ischiocavernosus, and transverse perineal muscles encircle and support the vagina and urethra as well as the anal sphincter.

Internal Reproductive Structures

The internal structures consist of the vagina, uterus, ovaries, and fallopian or uterine tubes (see Fig. 50-2).

Vagina

The vagina, a tubular-shaped canal lined with glandular mucous membrane, is 7.5 to 10 cm (3 to 4 inches) long and extends upward and backward from the vulva to the cervix. It is thin walled and can be distended during birth. It is highly vascular and has little sensation. Anterior to it are the bladder and the urethra, and posterior to it lies the rectum. The anterior and posterior walls of the vagina normally touch each other. The **fornix** (the upper part of the vagina) surrounds the **cervix** (the inferior part of the uterus) (Ball et al., 2019).

Uterus

The uterus, a pear-shaped, muscular organ, is about 7.5 cm (3 inches) long and 5 cm (2 inches) wide at its upper part. Its walls are about 1.25 cm (0.5 inch) thick. The size of the uterus varies, depending on parity (number of pregnancies), size of the infants, and uterine abnormalities (e.g., fibroids, which are a type of tumor that may distort the uterus). A woman who is nulliparous (one who has not completed a pregnancy to the stage of fetal viability) usually has a smaller uterus than a woman who is multiparous (one who has completed two or more pregnancies to the stage of fetal viability). The uterus lies posterior to the bladder and is held in position by several ligaments. The round ligaments extend anteriorly and laterally to the internal inguinal ring and down the inguinal canal, where they blend with the tissues of the labia majora. The broad ligaments are folds of peritoneum extending from the lateral pelvic walls and enveloping the fallopian tubes. The uterosacral ligaments extend posterior to the sacrum (Eickmeyer, 2017).

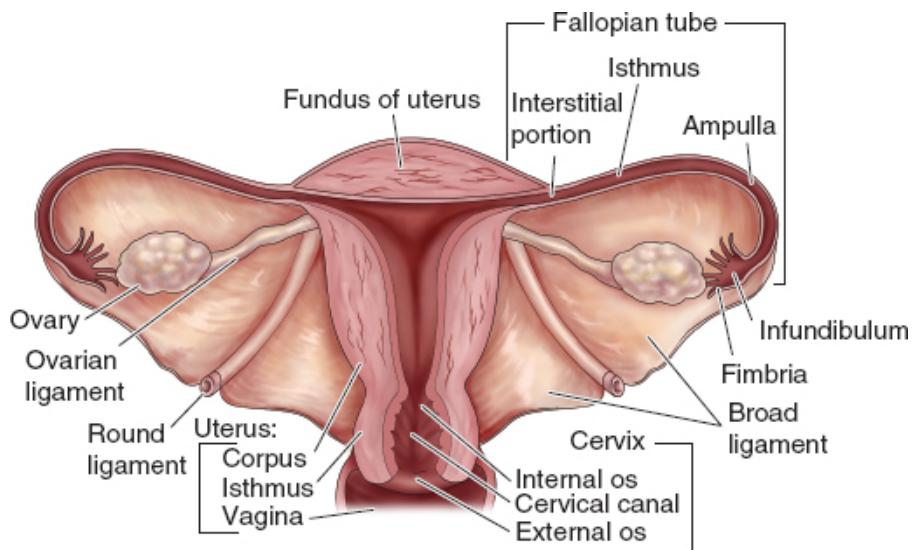


Figure 50-2 • Internal female reproductive structures.

The uterus has four parts: the cervix, fundus, corpus, and isthmus. The cervix is the opening to the uterus and projects into the vagina. A larger upper part, the **fundus**, is the rounded portion above the insertion of the fallopian tubes. The corpus or body is the main portion of the uterus located between the fundus and the isthmus. The isthmus is referred to as the lower uterine segment during pregnancy and joins the corpus to the cervix.

The cervix is divided into two portions. The portion above the site of attachment of the cervix to the vaginal vault is known as the supravaginal portion; the portion below the attachment site that protrudes into the vagina is known as the vaginal portion. The cervix is composed of fibrous connective tissue. The diameter varies from 2 to 5 cm depending on the childbearing history. The length is usually 2.5 to 3 cm in the woman who is not pregnant. The vaginal portion is smooth, firm, and doughnut shaped with a visible central opening referred to as the external os. The external os is round before the first birth and is often slitlike in shape after childbirth. The internal os is the opening in the cervix to the uterine cavity. In response to cyclic hormones, the cervix produces mucus, which is an important factor in fertility awareness. The vaginal surface of the cervix is covered with squamous epithelium, a rapid cellular growth site of cervical cancer and precancerous changes.

The uterine wall has three layers. The **endometrium**, the innermost layer, is highly vascular and responds to hormone stimulation to prepare to receive the developing ovum. It sloughs if pregnancy does not occur, resulting in menstruation; if pregnancy occurs, it sloughs after delivery. The myometrium, the middle layer, is made up of several smooth muscle layers. The outer layer of the myometrium is composed of longitudinal fibers, chiefly in the fundus, which provide the power to expel the fetus. The middle layer of the myometrium is composed of fibers interlaced with blood vessels in a figure-

eight pattern called a *living ligature* because it contracts after childbirth to help control blood loss (Eickmeyer, 2017). The inner layer of the myometrium is composed of circular fibers that are concentrated around the internal cervical os to help keep the cervix closed during pregnancy. The outer layer of the uterus is composed of parietal peritoneum, which covers most of the uterus. From here, the oviducts or fallopian (or uterine) tubes extend outward, and their lumina are internally continuous with the uterine cavity (Ball et al., 2019). The fallopian tubes or oviducts are the passageway for eggs from the ovary to the uterus. They curve around each ovary and are attached to the uterine fundus. Fallopian tubes are about 10 cm in length and are comprised of four parts. The infundibulum, the most distal portion, is covered in fimbriae, whose wavelike motion helps to pull the egg into the tube. The ampulla is usually the site of fertilization of the egg or ovum. The fallopian tube then narrows from its 0.6 cm diameter in the isthmus, ending in the narrowest part of the interstitial portion, which opens into the uterine cavity. The fallopian tube also secretes nutrients for growth and development of the ovum after fertilization while it passes down the tube to the uterus.

Ovaries

The **ovaries** lie behind the broad ligaments and behind and below the fallopian tubes. They are almond-shaped bodies about 3 cm (1.2 inches) long. At birth, they contain thousands of tiny egg cells, or ova. The ovaries and the fallopian tubes together are referred to as the **adnexa**.

Function of the Female Reproductive System

Ovulation

At puberty (usually between 11 and 13 years of age), the ova begin to mature and menstrual cycles begin. In the follicular phase, an ovum enlarges into a cystic structure called a **graafian follicle** until it reaches the surface of the ovary, where transport occurs. The ovum (or oocyte) is discharged into the peritoneal cavity. This periodic discharge of matured ovum is referred to as **ovulation**. The ovum usually finds its way into the fallopian tube, where it is carried to the uterus. If it is penetrated by a spermatozoon, the male reproductive cell, a union occurs, and conception takes place. After the discharge of the ovum, the cells of the graafian follicle undergo a rapid change. Gradually, they become yellow and produce **progesterone**, a hormone that prepares the uterus for receiving the fertilized ovum. Ovulation usually occurs 2 weeks prior to the next menstrual period (Casanova, Chuang, Goepfert, et al., 2019).

Menstrual Cycle

The menstrual cycle is a complex process involving the reproductive and endocrine systems. The ovaries produce steroid hormones, predominantly estrogens and progesterone. Several different estrogens are produced by the ovarian follicle, which consists of the developing ovum and its surrounding cells. The most potent of the ovarian estrogens is estradiol. **Estrogens** are responsible for developing and maintaining the female reproductive organs and the secondary sex characteristics associated with the adult female. Estrogens play an important role in breast development and in monthly cyclic changes in the uterus (Casanova et al., 2019).

Progesterone is also important in regulating the changes that occur in the uterus during the menstrual cycle. It is secreted by the **corpus luteum** (site within a follicle that changes after ovulation) or the ovarian follicle after the ovum has been released. Progesterone is the most important hormone for conditioning the endometrium (the mucous membrane lining of the uterus) in preparation for implantation of a fertilized ovum. If pregnancy occurs, the progesterone secretion becomes largely a function of the placenta and is essential for maintaining a normal pregnancy. In addition, progesterone, working with estrogen, prepares the breast for producing and secreting milk. Androgens are hormones produced by the ovaries and adrenal glands in small amounts. These hormones affect many aspects of female health, including follicle development, libido, oiliness of hair and skin, and hair growth (Casanova et al., 2019).

Two gonadotropic hormones are released by the pituitary gland: **follicle-stimulating hormone (FSH)** and **luteinizing hormone (LH)**. FSH is primarily responsible for stimulating the ovaries to secrete estrogen. LH is primarily responsible for stimulating progesterone production. Feedback mechanisms, in part, regulate FSH and LH secretion. For example, elevated estrogen levels in the blood inhibit FSH secretion but promote LH secretion, whereas elevated progesterone levels inhibit LH secretion. In addition, gonadotropin-releasing hormone (GnRH) from the hypothalamus affects the rate of FSH and LH release (Casanova et al., 2019).

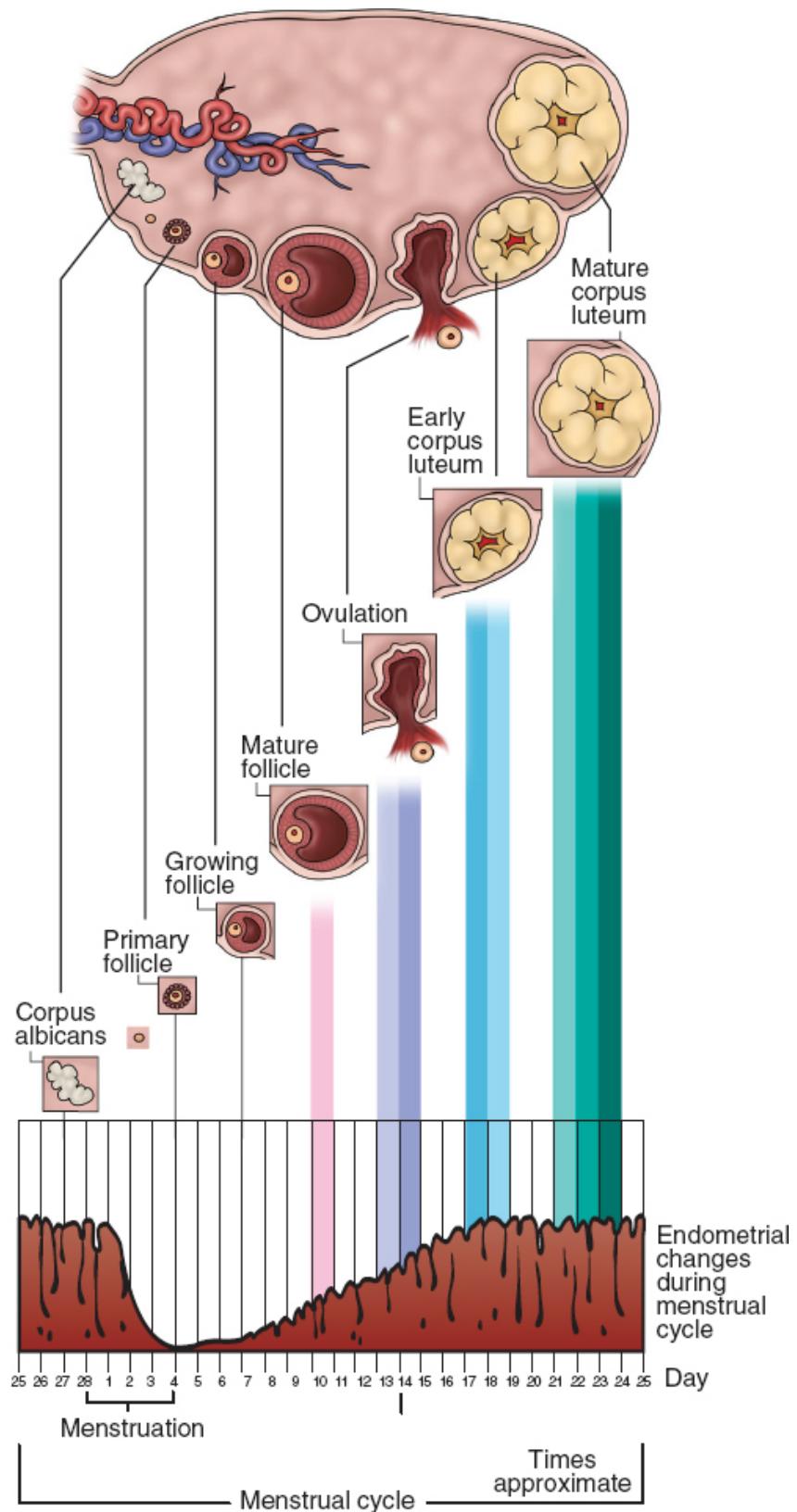


Figure 50-3 • The menstrual cycle and corresponding changes in the endometrium.

The secretion of ovarian hormones follows a cyclic pattern that results in changes in the uterine endometrium and in menstruation (see Fig. 50-3 and Table 50-1). This cycle is typically 28 days in length, but there are many normal variations (from 21 to 42 days). In the **proliferative phase** at the beginning of the cycle (just after menstruation), FSH output increases, and estrogen secretion is stimulated. This causes the endometrium to thicken and become more vascular. In the **secretory phase** near the middle portion of the cycle (day 14 in a 28-day cycle), LH output increases, and ovulation occurs. Under the combined stimulus of estrogen and progesterone, the endometrium reaches the peak **luteal phase**, in which the endometrium is thick and highly vascular. In the luteal phase, which begins after ovulation, progesterone is secreted by the corpus luteum.

TABLE 50-1 Hormonal Changes during the Menstrual Cycle

Times Approximate Phase	Menstrual	Follicular	Ovulation	Luteal	Premenstrual
Days	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
Ovary					
Degenerating corpus luteum; beginning follicular development		Growth and maturation of follicle	Ovulation	Active corpus luteum	Degenerating corpus luteum
Estrogen production					
Low		Increasing	High	Declining, then a secondary rise	Decreasing
Progesterone production					
None		Low	Low	Increasing	Decreasing
FSH production					
Increasing		High, then declining	Low	Low	Increasing
LH production					
Low		Low, then increasing	High	High	Decreasing
Endometrium					
Degeneration and shedding of superficial layer. Coiled arteries dilate, then constrict again.		Reorganization and proliferation of superficial layer	Continued growth	Active secretion and glandular dilation; highly vascular; edematous	Vasoconstriction of coiled arteries; beginning degeneration

FSH, follicle-stimulating hormone; LH, luteinizing hormone.

If the ovum is fertilized, estrogen and progesterone levels remain high, and the complex hormonal changes of pregnancy follow. If the ovum has not been fertilized, FSH and LH output diminishes; estrogen and progesterone secretion falls; the ovum disintegrates; and the endometrium, which has become thick and congested, becomes hemorrhagic. The product, menstrual flow, consisting of old blood, mucus, and endometrial tissue, is discharged through the cervix and into the vagina. After the menstrual flow stops, the cycle begins again; the endometrium proliferates and thickens from estrogenic stimulation, and ovulation recurs (Ball et al., 2019).

TABLE 50-2 Age-Related Changes in the Female Reproductive System

The age-related changes described below pertain to women ages 41 yrs and older.

Changes	Physiologic Effects	Signs and Symptoms
Cessation of ovarian function and decreased estrogen production	Decreased ovulation Onset of menopause Vasomotor instability and hormonal fluctuations Decreased bone formation	Decreased/loss of ability to conceive; increased infertility Irregular menses with eventual cessation of menses Hot flashes or flushing; night sweats, sleep disturbances; mood swings; fatigue Bone loss and increased risk for osteoporosis and osteoporotic fractures; loss of height
	Decreased vaginal lubrication	Dyspareunia, resulting in lack of interest in sex
	Thinning of urinary and genital tracts	Increased risk for urinary tract infection
	Increased pH of vagina	Increased incidence of inflammation (atrophic vaginitis) with discharge,
	Thinning of pubic hair and shrinking of labia	itching, and vulvar burning
Relaxation of pelvic musculature	Prolapse of uterus, cystocele, rectocele	Dyspareunia, incontinence, feelings of perineal pressure

Adapted from Casanova, R., Chuang, A., Goepfert, A. R., et al. (2019). *Beckman and Ling's obstetrics and gynecology* (8th ed.). Philadelphia. PA: Wolters Kluwer.

Menopausal Period

The menopausal period marks the end of a woman's reproductive capacity. It usually occurs between 41 and 59 years of age (Ball et al., 2019). Perimenopause precedes this and can begin as early as 35 years of age. Physical, emotional, and menstrual changes may occur, and this transition offers another opportunity for health promotion and disease prevention education and counseling. Menopause is a normal part of aging and maturation. Menstruation ceases, and because the ovaries are no longer active, the reproductive organs become smaller. No more ova mature; therefore, no ovarian hormones are produced. (An earlier menopause may occur if the ovaries are surgically removed or are destroyed by radiation or chemotherapy or because of an unknown etiology.) Multifaceted changes also occur throughout the woman's body. These changes are neuroendocrine,

biochemical, and metabolic and are related to normal maturation or aging (see Table 50-2).

Chart 50-1

Select Health Screening and Counseling Issues for Women

Ages 19–39 Years

Sexuality and Reproductive Issues

- Annual pelvic examination to begin at 21 years of age
- Annual clinical breast examination
- Contraceptive options
- High-risk sexual behaviors

Health and Risk Behaviors

- Hygiene
- Injury prevention
- Nutrition
- Exercise patterns
- Risk for abuse, maltreatment, and neglect
- Use of tobacco, drugs, and alcohol
- Life stresses
- Immunizations

Diagnostic Testing^a

- Cervical cytology (Pap smear) alone every 3 years from ages 21 to 29. From ages 30 to 64: cervical cytology alone every 3 years; or cytology and HPV testing every 5 years.
- Sexually transmitted infection screening as indicated

Ages 40–64 Years

Sexuality and Reproductive Issues

- Annual pelvic examination
- Annual clinical breast examination
- Contraceptive options
- High-risk sexual behaviors
- Menopausal concerns

Health and Risk Behaviors

- Hygiene
- Bone loss and injury prevention
- Nutrition
- Exercise patterns
- Risk for abuse, maltreatment, and neglect
- Use of tobacco, drugs, and alcohol
- Life stresses
- Immunizations

Diagnostic Testing^a

- Cervical cytology (Pap smear) every 3 years; or cytology and HPV testing every 5 years.

Annual mammography for women ages 45 to 54 years, women ages 40 to 44 years have the option to begin yearly screening.

- Women 55 and older may continue yearly screening or transition to every 2 years.
- Screening should continue as long as a woman is in good health and is expected to live 10 more years or longer.

Cholesterol and lipid profile

Colorectal cancer screening beginning at age 50 years

Bone mineral density testing

Thyroid-stimulating hormone testing

Hearing and eye examinations

Age 65 Years and Older

Sexuality and Reproductive Issues

Annual pelvic examination

Annual clinical breast examination

High-risk sexual behaviors

Health and Risk Behaviors

Hygiene

Injury prevention, falls

Nutrition

Exercise patterns

Risk for abuse, maltreatment, and neglect

Use of tobacco, drugs, and alcohol

Life stresses

Immunizations

Diagnostic Testing^a

No cervical cytology (Pap smear) following adequate negative prior screenings

Mammography

Cholesterol and lipid profile

Colorectal cancer screening

Bone mineral density testing

Thyroid-stimulating hormone testing

Hearing and eye examinations

HPV, human papilloma virus.

^a Each person's risks (family history, personal history) influence the need for specific assessments and their frequency.

Adapted from 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; Eliopoulos, C. (2018). *Gerontological nursing* (9th ed.). Philadelphia, PA: Lippincott Williams & Wilkins.

Assessment

A nurse who is obtaining information from a woman for the health history and performing physical assessment is in an ideal position to discuss the woman's general health issues, health promotion, and health-related concerns. Relevant topics include fitness, nutrition, cardiovascular risks, health screening, sexuality, menopause, abuse, health risk behaviors, emotional well-being, and immunizations. Select health screening and counseling issues are summarized in [Chart 50-1](#).

Health History

In addition to the general health history, the nurse asks about past illnesses and experiences specific to a woman's health. Data should be collected about the following:

- Menstrual history (including onset, length of cycles, duration and amount of flow, presence of cramps or pain, bleeding between periods or after penile-vaginal intercourse, bleeding after menopause)
- Pregnancies (number of pregnancies, outcomes of pregnancies)
- Exposure to medications (diethylstilbestrol, immunosuppressive agents, others)
- **Dysmenorrhea** (pain with menses), **dyspareunia** (pain with penile-vaginal intercourse), pelvic pain
- Symptoms of vaginitis (i.e., odor or itching)
- Problems with urinary function, including frequency, urgency, and incontinence
- Bowel problems
- Sexual history
- Sexually transmitted infections (STIs) and methods of treatment
- Current or previous sexual abuse or physical abuse
- Past surgery or other procedures on reproductive tract structures (including female genital mutilation [FGM] or female circumcision)
- Chronic illness or disability that may affect health status, reproductive health, need for health screening, or access to health care
- Presence or family history of a genetic disorder. [Chart 50-2](#) presents information about genetic reproductive disorders.

Chart 50-2



GENETICS IN NURSING PRACTICE

Female Reproductive Processes

Various female reproductive disorders are influenced by genetic factors. Some examples include:

- Hereditary breast or ovarian cancer syndromes
- Hereditary nonpolyposis colon cancer syndrome (risk for uterine cancer)
- Kallmann syndrome
- Müllerian aplasia
- 21-Hydroxylase deficiency (female masculinization)
- Turner syndrome (45, XO)

Nursing Assessments

Refer to [Chapter 4, Chart 4-2: Genetics in Nursing Practice: Genetic Aspects of Health Assessment](#)

Family History Assessment Specific to Female Reproductive Processes

- Assess family history for other family members with similar reproductive problems/abnormalities. If the female is a carrier of fragile X, she may be at risk for premature ovarian failure.
- Ask about age at the start and completion of puberty. Failure to complete puberty can lead to infertility.
- The absence of the sense of smell is noted with Kallmann syndrome which, if untreated, can lead to infertility.
- Inquire about ethnic background (e.g., Ashkenazi Jewish populations and hereditary breast/ovarian cancer mutations).
- Inquire about relatives with other cancers, including early-onset ovarian, uterine, renal, prostate cancers.
- Obtain family history that includes a thorough review of reproductive history which addresses spontaneous abortions (miscarriages), infant deaths, or difficulties during pregnancy.
- If possible, obtain ages of the parents during pregnancy.

Patient Assessment Specific to Female Reproductive Processes

- In females with delayed puberty or primary amenorrhea, assess for clinical features of Turner syndrome (short stature, webbing of the neck, widely spaced nipples).
- Assess for other congenital anomalies in females with Müllerian defect, including renal and vertebral anomalies.
- Assess for exposure to toxic chemicals, radiation, or medications during pregnancy.
- Obtain prior reproductive history.
- Inquire about use and frequency of alcohol or tobacco during pregnancy.

Genetics Resources

American Cancer Society, www.cancer.org

Association for X and Y Chromosome Variations, www.genetic.org

March of Dimes Birth Defects Foundation, www.marchofdimes.org

Turner Syndrome Society, www.turnersyndrome.org

See Chapter 6, Chart 6-7 for components of genetic counseling.

In collecting data related to reproductive health, the nurse can educate the patient about normal physiologic processes, such as menstruation and menopause, and assess possible abnormalities. Many problems experienced by young or middle-aged women can be corrected easily. However, if they are not treated, they may result in anxiety and health problems. Issues related to sexuality and sexual function are typically more often brought to the attention of the gynecologic or women's health care provider than other health care providers; however, nurses caring for all women should consider these issues part of routine health assessment.

Sexual History

A sexual assessment includes both subjective and objective data and should be included in care of people from adolescence through advanced age. Health and sexual histories, physical examination findings, and laboratory results are all part of the database. The purpose of a sexual history is to obtain information that provides a picture of a woman's sexuality and sexual practices and to promote sexual health. It may lead to discussion about sexually transmitted illnesses, unintended pregnancies, and ways of reducing high-risk sexual behaviors (Herbert, 2018). The sexual history may enable a patient to discuss sexual matters openly and to discuss sexual concerns with an informed health professional. Due to the sensitive nature of the subject matter, excellent communication skills are essential when taking a sexual history (Herbert, 2018). This information can be obtained after the gynecologic–obstetric or genitourinary history is completed. By incorporating the sexual history into the general health history, the nurse can move from areas of lesser sensitivity to areas of greater sensitivity after establishing initial rapport.

Taking the sexual history becomes a dynamic process reflecting an exchange of information between the patient and the nurse and provides the opportunity to clarify myths and explore areas of concern that the patient may not have felt comfortable discussing in the past. In obtaining a sexual history, the nurse must not assume the patient's sexual orientation until clarified. When asking about sexual health, the nurse also cannot assume that the patient is married or unmarried. Asking a patient to label herself as single, married, widowed, or divorced may be considered by some women as inappropriate. Asking about a partner or about current meaningful relationships may be a less offensive way to initiate a sexual history.

The PLISSIT (*permission, limited information, specific suggestions, intensive therapy*) model of sexual assessment and intervention may be used to provide a framework for nursing interventions (Annon, 1976). The assessment begins by introducing the topic and asking the woman for permission to discuss issues related to sexuality with her. See [Chapter 53](#) for further discussion of sexual history.

The nurse can begin by explaining the purpose of obtaining a sexual history (e.g., “I ask all my patients about their sexual health. May I ask you some questions about this?”). History taking continues by inquiring about gender identity and sexual orientation (see [Chapter 54](#), [Chart 54-1](#) for further discussion about how to assess for personal information), followed by inquiring about sexual activity (e.g., “Are you currently having sex? With a man, woman, both, or a gender questioning or nonconforming person?”). Inquiries about possible sexual dysfunction may include, “Are you having any problems related to your current sexual performance?” Such problems may be related to medication, life changes, disability, or the onset of physical or emotional illness. A patient can be asked about her thoughts on what is causing the current problem (Weber & Kelley, 2018).

Information about sexual function can be introduced during the health history (see [Chapter 4](#)). By initiating an assessment about sexual concerns, the nurse communicates to the patient that issues about changes or problems in sexual functioning are valid health issues, which provides a safe environment for discussing these sensitive topics. Young women may be apprehensive about having irregular periods, may be concerned about STIs, or may need contraception. They may want information about using tampons, emergency contraception, or issues related to pregnancy. Women who are perimenopausal may have concerns about irregular menses. Women who are menopausal may be concerned about vaginal dryness and discomfort with penile-vaginal intercourse. Women of any age may have concerns about relationships, sexual satisfaction, orgasm, or masturbation.

Risk of STIs can be assessed by asking about the number of sexual partners in the past year or in the patient’s lifetime. An open-ended question related to the patient’s need for further information should be included (e.g., “Do you have any questions or concerns about your sexual health?”). Women can be advised that sexual activity should never be painful; pain should be investigated by a care provider. They should also be encouraged to talk openly about their sexual feelings with their partner; in an intimate relationship, feelings are facts.

Female Genital Mutilation or Cutting

Female genital mutilation (FGM) comprises all procedures that involve partial or total removal of the external female genitalia, or other injuries to the female genital organs for nonmedical reasons. FGM is recognized internationally as a

violation of the human rights of girls and women. It reflects deep-rooted inequality between the sexes and constitutes an extreme form of discrimination against women. It is nearly always carried out on minors and is a violation of the rights of children. The practice also violates a person's rights to health, security and physical integrity, the right to be free from torture and cruel, inhuman or degrading treatment, and the right to life when the procedure results in death (World Health Organization [WHO], 2018).

Complications for patients who have undergone FGM can include infertility, childbirth complications, impaired bladder function, and urinary complications. The practice is most common in the western, eastern, and north-eastern regions of Africa, in some countries in Asia and the Middle East, and among migrants from these areas (WHO, 2018).

Nurses caring for patients who have undergone FGM need to be sensitive, empathetic, knowledgeable, culturally competent, and nonjudgmental. Respect for others' health beliefs, practices, and behaviors, as well as recognition of the complexity of issues involved, is crucial. The nurse should use terminology with which the woman is familiar; *cutting* is usually a more acceptable term than *mutilation*. Speculums are not used in some developing countries; the function of this instrument should be explained, and an appropriately sized speculum used to examine women who have experienced FGM.

Intimate Partner Violence

Intimate partner violence (IPV) is a preventable public health problem affecting more than 32 million Americans (Weil, 2019). IPV involves four main types of violence: physical violence, sexual violence, stalking, and psychological aggression (Centers for Disease Control and Prevention [CDC], 2019a).

Approximately one in four women in the United States has experienced one or more of the four forms of IPV, with lifetime costs of more than \$6.3 trillion (CDC, 2019a). Violence is rarely a one-time occurrence in a relationship; it usually continues and escalates in severity. This is an important point to emphasize when a woman states that her partner has hurt her but has promised to change. Perpetrators can change their behavior, although not without extensive counseling and motivation. Sixteen percent of homicide victims are killed by an intimate partner (CDC, 2019a). If a woman states that she is being hurt, sensitive care is required (see [Chart 50-3](#)).

By knowing about this major public health problem, being alert to abuse-related problems, and learning how to elicit information from women about abuse, maltreatment, and neglect in their lives, nurses can intervene to assist the patient in addressing a problem that might otherwise go undetected and thus save lives by making women safer through education and support. As part of a comprehensive assessment, the nurse should ensure a safe environment (i.e., a private room with the door closed) and ask each woman about violence

in her life. More information on family violence, abuse, and neglect, including sexual assault and rape, can be found in [Chapter 67](#).

No specific signs or symptoms are diagnostic of abuse; however, nurses may see an injury that does not fit the account of how it happened (e.g., a bruise on the side of the upper arm after “I walked into a door”). Manifestations of abuse, maltreatment, and neglect may involve suicide attempts, drug and alcohol abuse, frequent emergency department visits, vague pelvic pain, somatic complaints, and depression. However, there may be no obvious signs or symptoms. Women in abusive situations have higher levels of depression (CDC, 2019a) and often report that they “do not feel well,” possibly due to the stress or fear and anticipation of impending abuse.

Incest and Childhood Sexual Abuse

Nurses may encounter women who have been sexually traumatized. Female survivors of sexual abuse are reported to have more mental and physical health problems than women who were not victims of abuse (Hailes, Yu, Danese, et al., 2019). Victims of childhood sexual abuse are reported to experience more depression (Hailes et al., 2019), posttraumatic stress disorder, morbid obesity, marital instability, gastrointestinal problems, and headaches, as well as use health care services more frequently than people who were not victims. In women, chronic pelvic pain is often associated with physical violence, emotional neglect, and sexual abuse in childhood (Harris, Wieser, Vitonis, et al., 2018). Women who have experienced rape or sexual abuse may be very anxious about pelvic examinations, labor, pelvic or breast irradiation, or any treatment or examination that involves hands-on treatment or requires removal of clothing. Nurses should be prepared to offer support and referral to psychologists, community resources, and self-help groups.

Chart 50-3

Strategies for Providing Sensitive Care Following Intimate Partner Violence, Maltreatment, and Neglect

Strategy	Rationale
Reassure the woman that she is not alone	Women often believe that they are alone in experiencing abuse, maltreatment, and neglect at the hands of their partners.
Express your belief that no one should be hurt, that abuse is the fault of the batterer and is against the law.	Doing so lets the woman know that no one deserves to be abused and that she has not caused the abuse.
Assure the woman that her information is confidential, although it does become part of her medical record. <i>If children are suspected of being abused or are being abused, the law requires that this be reported to the authorities.</i> Some states require reporting of spousal or partner abuse. Domestic violence agencies and medical and nursing groups disagree with this policy and are trying to have it changed. Serious opposition is based on the fact that reporting does not and cannot currently guarantee a woman's safety and may place her in more danger. It may also interfere with a patient's willingness to discuss her personal life and concerns with health care providers. This places a serious barrier in the way of comprehensive nursing care. If nurses are in doubt about laws on reporting abuse, they need to check with their local or state domestic violence agency.	Women are often afraid that their information will be reported to the police or protective services and their children may be taken away.
Document the woman's statement of abuse and take photographs of any visible injuries if written formal consent has been obtained. (Emergency departments usually have a camera available if one is not on the nursing unit.)	Doing so provides documentation of injuries that may be needed for later legal or criminal proceedings.
<p>Provide education that includes the following:</p> <ul style="list-style-type: none"> • Inform the woman that shelters are available to ensure safety for her and her children. (Lengths of stay in shelters vary by state but are often up to 2 months. Staff often assists with housing, jobs, and the emotional distress that accompanies the breakup of the family.) Provide list of shelters. • Inform the woman that violence gets worse, not better. 	Options may be lifesaving for the woman and her children.

- If the woman chooses to go to a shelter, let her make the call.
- If the woman chooses to return to the abuser, remain nonjudgmental and provide information that will make her safer than she was before disclosing her situation.
- Make sure that the woman has a 24-hour hotline telephone number that provides information and support (Spanish translation and a device for the deaf are also available), police number, and 911.
- Assist her to set up a safety plan in case she decides to return home. (A safety plan is an organized plan for departure with packed bags and important papers hidden in a safe spot.)

Adapted from Centers for Disease Control and Prevention (CDC). (2019a). Understanding intimate partner violence fact sheet. Retrieved on 11/9/2019 at: www.cdc.gov/violenceprevention/intimatepartnerviolence/fastfact.html

Health Issues in Women with Disability

Approximately 20% of women have disability and encounter physical, architectural, and attitudinal barriers that may limit their full participation in society (Okoro, Hollis, Cyrus, et al., 2018). Women with disability may experience stereotyping and increased risk of abuse, maltreatment, and neglect. They have reported that others, including health care providers, often equate them with their disability. Studies have reported that women with disability receive less primary health care and preventive health screening than other women, often because of access problems and health care providers who focus on the causes of disability rather than on health issues that are of concern to all women (Horner-Johnson, 2019; Okoro et al., 2018). To address these issues, the health history must include questions about barriers to health care encountered by women with disability and the effect of their disability on their health status and health care.

The CDC and the Association of Maternal Child Health Programs partnered to develop a central resource tool made of existing resources for nurses, physicians, physician assistants, and nurse practitioners who work with women with disability. The Toolbox provides links to existing tools to help facilitate preventive services (such as routine physical examinations, teeth cleanings, hepatitis B vaccinations, cervical cancer and breast cancer screenings, and family planning services) to women with disability (CDC, 2019b). Other issues to be addressed regarding the care of women with disability are identified in [Chart 50-4](#).

Chart 50-4 ASSESSMENT

Assessing a Woman with a Disability

Health History

Address questions directly to the woman herself rather than to people accompanying her. Ask about:

- Self-care limitations resulting from her disability (ability to feed and dress self, the use of assistive devices, transportation requirements, other assistance needed)
- Sensory limitations (lack of sensation, low vision, deaf or hard of hearing)
- Accessibility issues (ability to get to health care provider, transfer to examination table, accessibility of office/clinic of health care provider, previous experiences with health care providers, health screening practices, her understanding of physical examination)
- Cognitive or developmental changes that affect understanding
- Limitations secondary to disability that affect general health issues and reproductive health and health care
- Sexual function and concerns (those of all women and those that may be affected by the presence of a disabling condition)
- Menstrual history and menstrual hygiene practices
- Physical, sexual, or psychological abuse (including abuse by care providers; abuse by neglect, withholding or withdrawing assistive devices or personal or health care) (see [Chart 50-3](#))
- Presence of secondary disability (i.e., those resulting from the patient's primary disability: pressure injuries, spasticity, osteoporosis, etc.)
- Health concerns related to aging with a disability

Physical Assessment

Provide instructions directly to the woman herself rather than to people accompanying her; provide written or audiotaped instructions.

Ask the woman what assistance she needs for the physical examination and provide assistance if needed:

- Undressing and dressing
- Providing a urine specimen
- Standing on scale to be weighed (provide alternative means of obtaining weight if she is unable to stand on scale)
- Moving on and off the examination table
- Assuming, changing, and maintaining positions

Consider the fatigue experienced by the woman during a lengthy examination and allow rest.

Provide assistive devices and other aids/methods needed to allow adequate communication with the patient (interpreters, signers, large-print written materials).

Complete examination that would be indicated for any other woman; having a disability is *never* justification for omitting parts of the physical examination, including the pelvic examination.

Adapted from Konig-Bachman, M., Zenzmaier, C., & Schildberger, B. (2019). Health professionals' views on maternity care for women with physical disabilities: A qualitative study. *BMC Health Services Research*, 19(1), 551.

People Who Identify as Lesbian, Gay, Bisexual, Transgender, or Queer (LGBTQ)

As the nature of family changes in our society, so must the health care providers' understanding of the people who make up the family unit (Gregg, 2018). Many health assessments presume a heterosexual orientation. Many health care providers are insufficiently prepared to meet the health needs of patients who identify as lesbian, gay, bisexual, transgender, or queer (LGBTQ) (see [Chapter 54](#)) (Wingo, Ingraham, & Roberts, 2018).

Those who identify themselves as LGBTQ may have concerns about disclosure and confidentiality, discriminatory attitudes, and treatment (Gregg, 2018; Wingo et al., 2018) (see [Chart 50-5](#)). Some research has reported that transgender people abuse alcohol and drugs to a greater degree than their nontransgender counterparts because their social venues may contribute to alcohol and drug use.

Youth who identify as LGBTQ are at higher risk of human immune deficiency virus (HIV) and STIs (Wingo et al., 2018). In addition, youth who self-identify as lesbian, gay, or bisexual or who lack support from parents and families may experience increased physical and mental health issues (e.g., depression, obesity) as well as isolation (Lapinski, Covas, Perkins, et al., 2018). Nurses need to understand the unique needs of this population and provide appropriate and sensitive care.

Chart 50-5

Health Care for Those Who Identify as LGBTQ

Nurses working with those who identify as LGBTQ should consider that these people:

- Are found in every ethnic group and socioeconomic class.
- Are seen in all age groups, including teens and seniors.
- Can be single, celibate, or divorced.
- Have often encountered insensitivity in health care encounters.
- Are typically offered contraception when asked if they are sexually active and respond affirmatively, as health care providers may assume incorrectly that they practice heterosexual intercourse.
- Have lower health screening rates than other women.
- Often feel invisible and underuse health care, similar to many other marginalized groups of women.

Nurses need to:

- Use gender-neutral questions and terms that are nonjudgmental and accepting.
- Recognize that lesbian teens are at risk for suicide and screen for those at risk.
- Recognize that many lesbians do participate in heterosexual activity but consider themselves at low risk for STIs. Because human papilloma virus, herpes infections, and other organisms implicated in STIs are transmitted by secretions and contact, lesbians may need information on STIs and contraception. If sex toys are used and not cleaned, pelvic infections can occur.

Women who identify as LGBTQ are at high risk for cancer, heart disease, depression, and alcohol abuse. They may have a higher body mass index, may bear fewer or no children, and often have fewer health preventive screenings than women who are heterosexual. These factors may increase the risk of colon, endometrial, ovarian, and breast cancer, as well as cardiovascular disease and diabetes. Adolescents are at risk for smoking and suicide/depression.

Adapted from Gregg, I. (2018). The health care experiences of lesbian women becoming mothers. *Nursing for Women's Health*, 22(1), 40–50; Wingo, E., Ingraham, N., & Roberts, S. (2018). Reproductive health care priorities and barriers to effective care for LGBTQ people assigned female at birth: A qualitative study. *Women's Health Issues*, 28(4), 350–357.



Gerontologic Considerations

Older women function at various levels across the health spectrum; some function at a high level in their jobs or families, whereas others may be very ill. Nurses need to be prepared to care for older women who may be bright,

energetic, and ambitious or who are coping with multiple family crises, including their own health issues, as well as for those who are experiencing a life-altering or life-threatening health problem. Older women are at risk for several conditions, including diabetes, dyslipidemia, hypertension, and thyroid disease, all of which have symptoms that may be dismissed as typical aging. Nurses can help prevent morbidity and mortality from these conditions by encouraging women to obtain regular health screenings (Eliopoulos, 2018). Knowledge about heart disease prevention, pharmacology, diet, signs of dementia or cognitive decline, fall prevention, osteoporosis prevention, gynecologic and breast cancers, and sexuality are important for providing high-level nursing care. Health disparities, cultural competency, and end-of-life issues also need to be considered.

Physical Assessment

Periodic examinations and routine cancer screening are important for all women (Bibbins-Domingo, 2017). Patients need understanding and support due to the emotional and physical considerations associated with gynecologic examinations. Women may be embarrassed by the usual questions asked by a gynecologist or women's health care provider. Because gynecologic conditions are of a personal and private nature to most women, such information is shared only with those directly involved in patient care.

The approach to the gynecologic examination needs to be systematic and thorough (Weber & Kelley, 2018). The nurse can alleviate feelings of anxiety with explanations and education (see [Chart 50-6](#)). It may be helpful to emphasize that a pelvic examination should not usually be uncomfortable. Before the examination begins, the patient is asked to empty her bladder and to provide a urine specimen if urine tests are part of the assessment. Voiding ensures patient comfort and eases the examination because a full bladder can make palpation of pelvic organs uncomfortable for the patient and difficult for the examiner.

Positioning

The supine lithotomy position is used most commonly (Weber & Kelley, 2018). If the patient chooses, alternative positions are sometimes used (Ball et al., 2019). The lithotomy position offers several advantages:

- It is more comfortable for some women.
- It allows better eye contact between patient and examiner.
- It may provide an easier means for the examiner to carry out the bimanual examination.
- It enables the woman to use a mirror to see her anatomy (if she chooses) to visualize any conditions that require treatment or to learn

about using certain contraceptive methods.

Chart 50-6 PATIENT EDUCATION

The Pelvic Examination

A pelvic examination includes assessment of the appearance of the vulva, vagina, and cervix and the size and shape of the uterus and ovaries to ensure reproductive health and absence of illness. Providing education for the patient should make the examination proceed more smoothly.

The nurse instructs the patient to:

- Expect to have a feeling of fullness or pressure during the examination, but you should not feel pain. It is important to relax, because if you are very tense, you may feel discomfort.
- Recognize that it is normal to feel uncomfortable and apprehensive.
- Be aware that a narrow, warmed speculum will be inserted to visualize the cervix and a Papanicolaou (Pap) smear will be obtained, if indicated, and should not be uncomfortable.
- Note that you may watch the examination with a mirror if you choose; the examination usually takes no longer than 5 minutes.
- Understand that draping will be used to minimize exposure and reduce embarrassment.

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

Inspection

After the patient is prepared, the examiner inspects the external genitalia by looking at the labia majora and minora, noting the epidermal tissue of the labia majora; the skin fades to the pink mucous membrane of the vaginal introitus. Lesions of any type (e.g., genital warts, pigmented lesions [melanoma]) are evaluated. In the woman who is nulliparous, the labia minora come together at the opening of the vagina. In a woman who has delivered children vaginally, the labia minora may gape and vaginal tissue may protrude.

Trauma to the anterior vaginal wall during childbirth may have resulted in incompetency of the musculature, and **cystocele** (a bulge caused by the bladder protruding into the submucosa of the anterior vaginal wall) may be seen. Childbirth trauma may also have affected the posterior vaginal wall, producing a **rectocele** (a bulge caused by rectal cavity protrusion). **Uterine prolapse**, in which the cervix and uterus descend under pressure through the vaginal canal and may be seen at the introitus, may also occur. To identify such protrusions, the examiner asks the patient to “bear down.”

The introitus should be free of superficial mucosal lesions. The labia minora may be separated by the fingers of the gloved hand and the lower part of the vagina palpated. In women who have not had penile-vaginal intercourse, a hymen of variable thickness may be felt circumferentially within the vaginal opening. The hymenal ring usually permits the insertion of one finger. Rarely, the hymen totally occludes the vaginal entrance (imperforate hymen).

Examination

Examination techniques include the speculum examination and several palpation methods.

Speculum Examination

The bivalve speculum, either metal or plastic, is available in many sizes (Ball et al., 2019). Metal specula are cleaned and sterilized between patients; plastic specula are for one-time use. Water-soluble lubricant or warm water is used to lubricate the speculum (Ball et al., 2019).

The speculum is gently inserted into the posterior portion of the introitus and slowly advanced to the top of the vagina; this should not be painful or uncomfortable for the woman. The speculum is then slowly opened. In the metal types, a setscrew of the thumb rest is tightened; in the plastic types, a clip is locked to hold the blades in place (Ball et al., 2019).

Inspecting the Cervix

The cervix is inspected for color, position, size, surface characteristics, discharge, and size and shape of the cervical os (Ball et al., 2019). In women who are nulliparous, the cervix usually is 2 to 3 cm wide and smooth. In women who have borne children, the cervix may have a laceration, usually transverse, giving the cervical os a “fishmouth” appearance. Epithelium from the endocervical canal may have grown onto the surface of the cervix, appearing as beefy-red surface epithelium circumferentially around the os. Occasionally, the cervix of a woman whose mother took diethylstilbestrol during pregnancy has a hooded appearance (a peaked aspect superiorly or a ridge of tissue surrounding it); this is evaluated by colposcopy when identified.

Malignant changes may not be obviously differentiated from the rest of the cervical mucosa. Small, benign cysts may appear on the cervical surface. Called *nabothian (retention) cysts*, these are usually bluish or white and are a normal finding after childbirth (Ball et al., 2019). A polyp of endocervical mucosa may protrude through the os and usually is dark red. Polyps can cause irregular bleeding; they are rarely malignant and usually are removed easily in an office or clinic setting. A carcinoma may appear as a cauliflowerlike growth (Ball et al., 2019). Bluish coloration of the cervix is a sign of early pregnancy (Chadwick sign).

Obtaining Pap Smears and Other Samples

A Papanicolaou (Pap) smear is a screening test for abnormal cells of the cervix. Usually, a Pap test is obtained using liquid-based cytology. A cytobrush collection device is rotated in the cervical os. The nurse or provider should be sure to follow the manufacturer's instructions to collect and preserve the specimen appropriately. The liquid sample is also used to test for the presence of HPV (Ball et al., 2019). Immediately after the Pap smear, DNA testing for organisms or a wet mount and potassium hydroxide procedures can be completed before the speculum is removed (Ball et al., 2019).

TABLE 50-3 Characteristics of Vaginal Discharge

Cause of Discharge	Symptoms	Odor	Consistency/Color
Physiologic	None	None	Mucus/white
<i>Candida</i> species infection	Itching, irritation	Yeast odor or none	Thin to thick, curdlike/white
Bacterial vaginosis	Odor	Fishy, often noticed after penile-vaginal intercourse	Thin/grayish or yellow
<i>Trichomonas</i> species infection	Irritation, odor	Malodorous	Copious, often frothy/yellow-green
Atrophic	Vulvar or vaginal dryness	Occasional mild malodor	Usually scant and mucoid/may be blood tinged



For the procedural guidelines for obtaining an optimal Pap

smear, go to thepoint.lww.com/Brunner15e.

A specimen of any purulent material appearing at the cervical os is obtained for culture. A sterile applicator is used to obtain the specimen, which is immediately placed in an appropriate medium for transfer to a laboratory. In a patient who has a high risk for infection, routine cultures for gonococcal and chlamydial organisms are recommended because of the high incidence of both diseases and the complications of pelvic infection, fallopian tube damage, and subsequent infertility (Ball et al., 2019).

Vaginal discharge, which may be normal or may result from vaginitis, may be present. Table 50-3 summarizes the characteristics of vaginal discharge found in different conditions.

Inspecting the Vagina

The vagina is inspected as the examiner withdraws the speculum. It is smooth in young girls and thickens after puberty, with many rugae (folds) and redundancy in the epithelium. In women who are menopausal, the vagina thins and has fewer rugae because of decreased estrogen.

Bimanual Palpation

To complete the pelvic examination, the examiner performs a bimanual examination. The examiner should inform the woman that she will be examined internally with the examiners' fingers. The gloved fingers are then advanced vertically along the vaginal canal, and the vaginal wall is palpated. Any firm part of the vaginal wall may represent old scar tissue from childbirth trauma but may also require further evaluation (Ball et al., 2019).

Cervical Palpation

The cervix is palpated and assessed for its consistency, mobility, size, and position. The normal cervix is uniformly firm but not hard. Softening of the cervix is a finding in early pregnancy. Hardness and immobility of the cervix may reflect invasion by a neoplasm. Pain on gentle movement of the cervix is called a *positive chandelier sign* (positive cervical motion tenderness; recorded as + CMT) and usually indicates a pelvic infection.

Uterine Palpation

To palpate the uterus, the examiner places the opposite hand on the abdominal wall halfway between the umbilicus and the pubis and presses firmly toward the vagina. Movement of the abdominal wall causes the body of the uterus to descend, and the organ becomes freely movable between the hand used to examine the abdomen and the fingers of the hand used to examine the pelvis. Uterine size, mobility, and contour can be estimated through palpation. Fixation of the uterus in the pelvis may be a sign of endometriosis or malignancy.

The body of the uterus is normally twice the diameter and twice the length of the cervix, curving anteriorly toward the abdominal wall. Some women have a retroverted or retroflexed uterus, which tips posteriorly toward the sacrum, whereas others have a uterus that is neither anterior nor posterior and is described as midline.

Adnexal Palpation

The right and left adnexal areas are palpated to evaluate the fallopian tubes and ovaries. The fingers of the hand examining the pelvis are moved first to one side, then to the other, while the hand palpating the abdominal area is moved correspondingly to either side of the abdomen and downward. The adnexa

(ovaries and fallopian tubes) are trapped between the two hands and palpated for an obvious mass, tenderness, and mobility. Commonly, the ovaries are slightly tender, and the patient is informed that slight discomfort on palpation is normal.

Vaginal and Rectal Palpation

Bimanual palpation of the vagina and cul-de-sac is accomplished by placing the index finger in the vagina and the middle finger in the rectum. To prevent cross-contamination between the vaginal and rectal orifices, the examiner puts on new gloves. A gentle movement of these fingers toward each other compresses the posterior vaginal wall and the anterior rectal wall and assists the examiner in identifying the integrity of these structures. During this procedure, the patient may sense an urge to defecate. The nurse assures the patient that this is unlikely to occur. Ongoing explanations are provided to reassure and educate the patient about the procedure.



Gerontologic Considerations

Yearly examinations aid early identification of reproductive system disorders in aging women (Eliopoulos, 2018). Nurses play an important role in encouraging all women to have an annual gynecologic examination. Women older than 65 years may stop cervical cancer screening if they have had a hysterectomy or have had three normal cytology tests and no abnormal test in the past 10 years (U.S. Preventive Services Task Force [USPSTF], 2018).

Perineal pruritus is abnormal in older women and should be evaluated because it may indicate a disease process (diabetes or malignancy). Vulvar dystrophy (a thickened or whitish discoloration of tissue) may be visible, and biopsy is needed to rule out abnormal cells. Topical cortisone and hormone creams may be prescribed for symptomatic relief.

With relaxing pelvic musculature, uterine prolapse and relaxation of the vaginal walls can occur (Eliopoulos, 2018). Appropriate evaluation and surgical repair can relieve the discomfort and pressure of the prolapse if the patient is a candidate for surgery. The patient should be informed that tissue repair and healing after surgery may require more time with aging. A pessary (rubber or plastic device that provides support) is often used before surgery to see if surgery can be avoided. It is fitted by a gynecologic health care provider and may reduce the patient's discomfort and pressure. Pessaries also are used if surgery is contraindicated. The use of a pessary requires the patient to have routine gynecologic examinations to monitor for irritation or infection. The patient must be assessed for allergy prior to insertion of a latex pessary. See [Chapter 51, Figure 51-4](#), for details about pessaries.

Diagnostic Evaluation

A wide range of diagnostic studies may be performed in the management of female physiologic processes. The nurse should educate the patient about the purpose, what to expect, and any possible side effects related to these examinations prior to testing. The nurse should be aware of contraindications, potential complications, and trends in results. Trends provide information about disease progression as well as the patient's response to therapy.

Cytologic Test for Cancer (Pap Smear)

The Pap smear is used to detect cervical cancer. Cervical secretions are gently removed from the cervical os and may be transferred to a glass slide and fixed immediately by spraying with a fixative or immersed in solution. If the Pap smear reveals atypical cells, the liquid method allows for HPV testing. See [Chapter 51](#) for further discussion of HPV.

Terminology used to describe findings includes the following categories:

- No abnormal or atypical cells
- Atypical squamous cells of undetermined significance
- Inflammatory reactions and microbes identified
- Positive deoxyribonucleic acid (DNA) test for HPV
- Precancerous and cancerous lesions of the cervix identified

The patient may incorrectly assume that an abnormal Pap smear signifies cancer. If the Pap smear (liquid immersion method) shows atypical cells and no high-risk HPV types, the next Pap smear is performed in 1 year. If a specific infection is causing inflammation, it is treated appropriately, and the Pap smear is repeated. If the repeat Pap smear reveals atypical squamous cells with high-risk HPV types, colposcopy may be indicated. Pap smears that indicate precancerous lesions should be repeated in 4 to 6 months and colposcopy performed if the lesion has not resolved. Patients with Pap smears that indicate cancerous lesions require prompt colposcopy (Casanova et al., 2019).

If the Pap smear results are abnormal, prompt notification, evaluation, and treatment are crucial. Notification of patients is often the responsibility of nurses in a women's health care practice or clinic. Pap smear follow-up is essential because it can provide early detection of cervical cancer. Interventions are tailored to meet the needs and health beliefs of the particular patient. Intensive telephone counseling, tracking systems, brochures, videos, and financial incentives have all been used to encourage follow-up. The nurse provides clear explanations and emotional support along with a carefully designed setting-specific follow-up protocol designed to meet the needs of the patient.

Colposcopy and Cervical Biopsy

If the cervical cytology screening result requires evaluation, a colposcopy is performed. The colposcope is an instrument with a magnifying lens that allows the examiner to visualize the cervix and obtain a sample of abnormal tissue for analysis (Casanova et al., 2019). Nurse practitioners and gynecologists require special training in this diagnostic technique.

After inserting a speculum and visualizing the cervix and vaginal walls, the examiner applies acetic acid to the cervix. Subsequent abnormal findings that indicate the need for biopsy include leukoplakia (white plaque visible before applying acetic acid), acetowhite tissue (white epithelium after applying acetic acid), punctuation (dilated capillaries occurring in a dotted or stippled pattern), mosaicism (a tilelike pattern), and atypical vascular patterns. If biopsy specimens show precancerous cells, the patient usually requires cryotherapy, laser therapy, or a cone biopsy (excision of an inverted tissue cone from the cervix).

Cryotherapy and Laser Therapy

Cryotherapy (freezing cervical tissue with nitrous oxide) and laser treatment are used in the outpatient setting. Cryotherapy may result in cramping and occasional feelings of faintness (vasovagal response). A watery discharge is normal for a few weeks after the procedure as the cervix heals; however, excessive bleeding, pain, or fever should be reported to the primary provider (Casanova et al., 2019).

Cone Biopsy and Loop Electrosurgical Excision Procedure

If endocervical curettage findings indicate abnormal changes or if the lesion extends into the canal, the patient may undergo a cone biopsy. This can be performed surgically or with a procedure called *loop electrosurgical excision procedure* (LEEP), which uses a laser beam (Casanova et al., 2019).

Usually performed in the outpatient setting, LEEP is associated with a high success rate in removal of abnormal cervical tissue. The gynecologist excises a small amount of cervical tissue, and the pathologist examines the borders of the specimen to determine if disease is present. A patient who has received anesthesia for a surgical cone biopsy is advised to rest for 24 hours after the procedure and to leave any vaginal packing in place until it is removed (usually the next day). The patient is instructed to report any excessive bleeding.

The nurse or primary provider provides guidelines regarding postoperative sexual activity, bathing, and other activities. Because open tissue may be

potentially exposed to HIV and other pathogens, the patient is cautioned to avoid penile-vaginal intercourse until healing is complete and verified at follow-up.

Endometrial (Aspiration) Biopsy

Endometrial biopsy, a method of obtaining endometrial tissue, is performed as an outpatient procedure. This procedure is usually indicated in cases of midlife irregular bleeding, postmenopausal bleeding, and irregular bleeding while taking hormone therapy or tamoxifen. A tissue sample obtained through biopsy permits diagnosis of cellular changes in the endometrium. The only absolute contraindication to an endometrial biopsy is the presence of a viable and desired pregnancy (Del Priore, 2019).

Women who undergo endometrial biopsy may experience slight discomfort. The examiner may apply a tenaculum (a clamplike instrument that stabilizes the uterus) after the pelvic examination and then inserts a thin, hollow, flexible suction tube (Pipelle or sampler) through the cervix into the uterus.

Findings on aspiration may include normal endometrial tissue, hyperplasia, or endometrial cancer. Simple hyperplasia is an overgrowth of the uterine lining and is usually treated with progesterone. Complex hyperplasia, which refers to overgrowth of cells with abnormal features, is a risk factor for uterine cancer and is treated with progesterone and careful follow-up. Women who are overweight, who are older than 45 years, who have a history of nulliparity and infertility, or who have a family history of colon cancer seem to be at higher risk for hyperplasia. See [Chapter 51](#) for discussion of endometrial cancer.

Dilation and Curettage

Dilation and curettage (D&C) may be diagnostic (identifies the cause of irregular bleeding) or therapeutic (often temporarily stops irregular bleeding). The cervical canal is widened with a dilator, and the uterine endometrium is scraped with a curette. The purpose of the procedure is to secure endometrial or endocervical tissue for cytologic examination, to control abnormal uterine bleeding, and as a therapeutic measure for incomplete abortion.

Because D&C is usually carried out under anesthesia and requires surgical asepsis, it is usually performed in the operating room (Casanova et al., 2019). However, it may take place in the outpatient setting with the patient receiving a local anesthetic supplemented with diazepam or midazolam.

The nurse explains the procedure, preparation, and expectations regarding postoperative discomfort and bleeding. The patient is instructed to void before the procedure. The patient is placed in the lithotomy position, the cervix is dilated with a dilating instrument, and endometrial scrapings are obtained by a curette. A perineal pad is placed over the perineum after the procedure, and

excessive bleeding is reported. No restrictions are placed on dietary intake. If pelvic discomfort or low back pain occurs, mild analgesic medications usually provide relief. The primary provider indicates when sexual activity may be safely resumed. To reduce the risk of infection and bleeding, most gynecologists advise no vaginal penetration or use of tampons for 2 weeks.

Endoscopic Examinations

Laparoscopy (Pelvic Peritoneoscopy)

A laparoscopy, minimally invasive surgery, involves inserting a laparoscope (a tube about 10 mm wide and similar to a small periscope) into the peritoneal cavity through a 2-cm (0.75-inch) incision below the umbilicus to allow visualization of the pelvic structures (see Fig. 50-4). Laparoscopy may be used for diagnostic purposes (e.g., in cases of pelvic pain when no cause can be found) or treatment. Laparoscopy facilitates many surgical procedures, such as tubal ligation, ovarian biopsy, myomectomy, hysterectomy, and lysis of adhesions (scar tissue that can cause pelvic discomfort) (Sharp, 2019). A surgical instrument (intrauterine sound or cannula) may be positioned inside the uterus to permit manipulation or movement during laparoscopy, affording better visualization. The pelvic organs can be visualized after the injection of carbon dioxide intraperitoneally into the cavity. Called *insufflation*, this technique separates the intestines from the pelvic organs (Sharp, 2019). If a patient is undergoing sterilization, the fallopian or uterine tubes may be electrocoagulated, sutured, or ligated and a segment removed for histologic verification (clips are an alternative device for occluding the tubes).

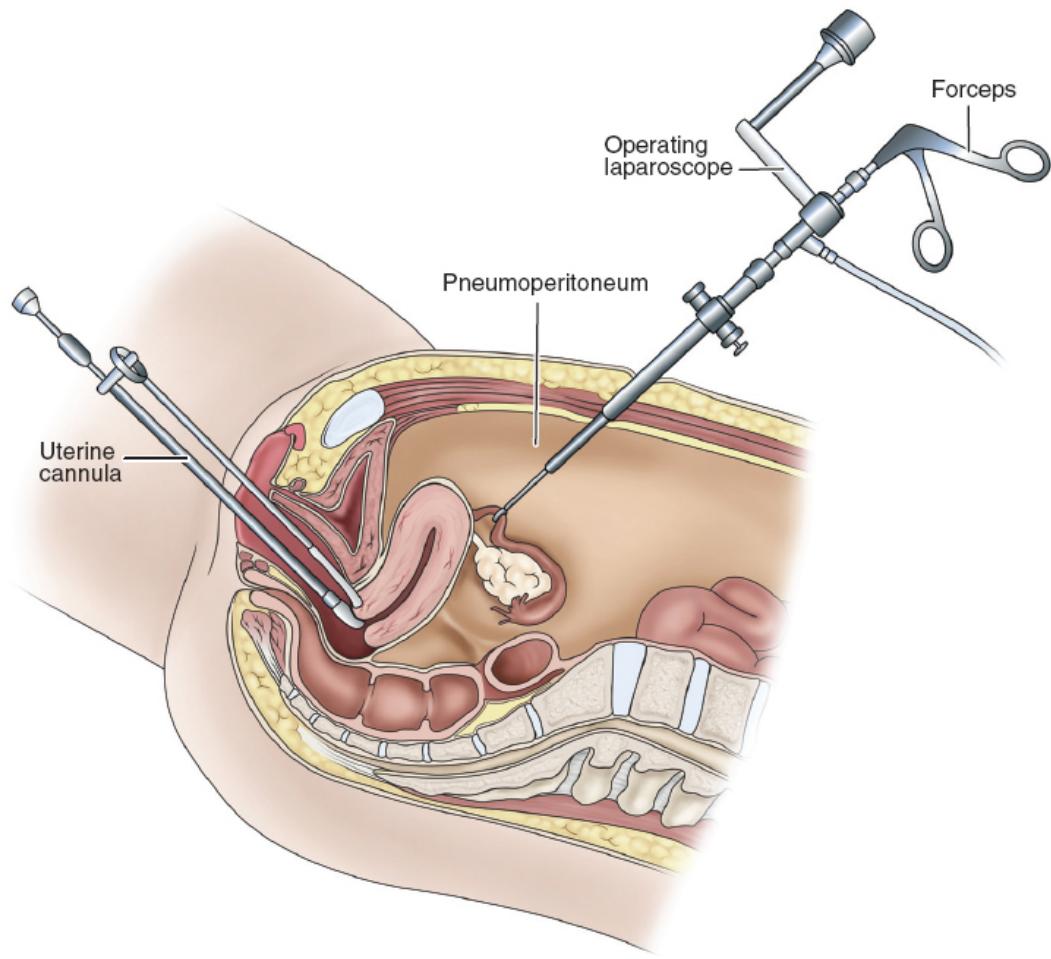


Figure 50-4 • Laparoscopy. The laparoscope (*right*) is inserted through a small incision in the abdomen. A forceps is inserted through the scope to grasp the fallopian tube. To improve the view, a uterine cannula (*left*) is inserted into the vagina to push the uterus upward. Insufflation of gas creates an air pocket (pneumoperitoneum), and the pelvis is elevated (note the angle), which forces the intestines higher in the abdomen.

After the laparoscopy is completed, the laparoscope is withdrawn, carbon dioxide is allowed to escape through the outer cannula, the small skin incision is closed with sutures or a clip, and the incision is covered with an adhesive bandage. The patient is carefully monitored for several hours to detect any untoward signs indicating bleeding (most commonly from vascular injury to the hypogastric vessels), bowel or bladder injury, or burns from the coagulator. These complications are rare, making laparoscopy a cost-effective and safe short-stay procedure. The patient may experience abdominal or shoulder pain related to the use of carbon dioxide gas (Casanova et al., 2019).

Hysteroscopy

Hysteroscopy (transcervical intrauterine endoscopy) allows direct visualization of all parts of the uterine cavity by means of a lighted optical instrument. The procedure is best performed about 5 days after menstruation ceases, in the estrogenic phase of the menstrual cycle. The vagina and vulva are cleansed, and a paracervical anesthetic block is performed or lidocaine spray is used. The instrument used for the procedure, a hysteroscope, is passed into the cervical canal and advanced 1 or 2 cm under direct vision. Uterine-distending fluid (normal saline solution or dextrose 5% in water) is infused through the instrument to dilate the uterine cavity and enhance visibility. Hysteroscopy, which has few complications, is useful for evaluating endometrial pathology or for evaluating and treating retained products of conception (Bradley, 2018).

Hysteroscopy may be indicated as an adjunct to a D&C and laparoscopy in cases of infertility, unexplained bleeding, retained intrauterine device (IUD), and recurrent early pregnancy loss (Bradley, 2018). Treatment for some conditions (e.g., fibroid tumors) can be accomplished during this procedure, and sterilization may also be performed. Hysteroscopy is contraindicated in patients with cervical or endometrial carcinoma or acute pelvic inflammation.

An **endometrial ablation** (destruction of the uterine lining) procedure is performed with a hysteroscope and resector (cutting loop), roller ball (a barrel-shaped electrode), or laser beam in cases of severe bleeding not responsive to other therapies. Completed in an outpatient setting under general, regional, or local anesthesia, this rapid procedure is an alternative to hysterectomy for some patients. Following uterine distention with fluid infusion, the lining of the uterus is destroyed. Hemorrhage, perforation, and burns can occur.

Other Diagnostic Procedures

Additional diagnostic procedures may be helpful in evaluating pelvic conditions; these include x-rays, barium enemas, gastrointestinal x-ray series, intravenous (IV) urography, and cystography studies. In addition, because the uterus, ovaries, and fallopian tubes are near the structures of the urinary tract, urologic diagnostic studies, such as x-ray study of the kidney, ureters, and bladder (KUB) and pyelography are used, as are angiography and radioisotope scanning, if needed. Other diagnostic procedures include hysterosalpingography (HSG) and computed tomography (CT) scanning.

Hysterosalpingography or Uterotubography

HSG is an x-ray study of the uterus and the fallopian tubes after injection of a contrast agent. The diagnostic procedure is performed to evaluate infertility or tubal patency and to detect any abnormal condition in the uterine cavity. Sometimes, the procedure is therapeutic because the flowing contrast agent flushes debris or loosens adhesions.

Prior to HSG, laxatives and an enema may be given to evacuate the intestinal tract so that gas shadows do not distort the x-ray findings. A mild sedative or an analgesic agent, such as ibuprofen, may be prescribed. The patient is placed in the lithotomy position and the cervix is exposed with a bivalve speculum. A cannula is inserted into the cervix, and the contrast agent is injected into the uterine cavity and the fallopian tubes. X-rays are taken to show the path and the distribution of the contrast agent.

Some patients experience nausea, vomiting, cramps, and faintness. After the test, the patient is advised to wear a perineal pad for several hours, because the radiopaque contrast agent may stain clothing.

Computed Tomography

CT scans have several advantages over ultrasonography, but they involve radiation exposure and are more costly. They are more effective than ultrasonography for patients with obesity or for patients with a distended bowel. CT scans can also demonstrate a tumor and any extension into the retroperitoneal lymph nodes and skeletal tissue, although they have limited value in diagnosing other gynecologic abnormalities (Casanova et al., 2019).

Ultrasonography

Ultrasonography (or ultrasound) is a useful adjunct to the physical examination, particularly in patients receiving obstetric care or in patients with abnormal pelvic examination findings. It is a simple procedure based on sound wave transmission that uses pulsed ultrasonic waves at frequencies exceeding 20,000 Hz (formerly cycles per second) by way of a transducer placed in contact with the abdomen (abdominal scan) or a vaginal probe (vaginal ultrasound). Mechanical energy is converted into electrical impulses, which in turn are amplified and recorded on an oscilloscope screen while a photograph or video recording of the patterns is taken. The entire procedure takes 15 to 30 minutes and involves no ionizing radiation and no discomfort other than a full bladder, which is necessary for good visualization during an abdominal scan. A vaginal ultrasound or sonogram does not require a full bladder; however, the vaginal probe may cause mild discomfort in some women (Casanova et al., 2019).

Magnetic Resonance Imaging

Magnetic resonance imaging (MRI) produces patterns that are finer and more definitive than other imaging procedures, and it does not expose patients to radiation. However, MRI is more costly.



Quality and Safety Nursing Alert

All metal devices, including medication skin patches with foil backing, must be removed before MRI is performed to avoid burns.

MANAGEMENT OF FEMALE PHYSIOLOGIC PROCESSES

Many health concerns of women are related to normal changes or abnormalities of the menstrual cycle and may result from women's lack of understanding of the menstrual cycle, developmental changes, and factors that may affect the pattern of the menstrual cycle. Educating women about the menstrual cycle and changes over time is an important aspect of the nurse's role in providing quality care to women. Education should begin early so that menstruation and the lifelong changes in the menstrual cycle can be anticipated and accepted as a normal part of life.

Menstruation

Menstruation, the sloughing and discharge of the lining of the uterus that takes place if conception does not occur, happens about every 28 days during the reproductive years, although normal cycles can vary from 25 to 35 days (Welt, 2019) (see Fig. 50-3). The flow usually lasts 4 to 5 days, during which time 50 to 60 mL of blood is lost.

A perineal pad or tampon is generally used to absorb menstrual discharge. Tampons are used extensively. There is no significant evidence of untoward effects from their use, provided that there is no difficulty in inserting them. However, a tampon should not be used for more than 4 to 8 hours, and the lowest absorbency should be used to prevent toxic shock syndrome (Mayo Clinic, 2017). If a tampon is difficult to remove or shreds when removed, less absorbent tampons should be used. If the string breaks or retracts, the woman should squat in a comfortable position, insert one finger into the vagina, try to locate the tampon, and remove it. If she feels uncomfortable attempting this maneuver or cannot remove the tampon, she should consult a gynecologic health care provider promptly.

Psychosocial Considerations

Girls who are approaching **menarche** (the onset of menstruation) should be educated about the normal process of the menstrual cycle before it occurs. Psychologically, it is much healthier and appropriate to refer to this event as a "period" rather than as "being sick." With adequate nutrition, rest, and

exercise, most women feel little discomfort, although some report breast tenderness and a feeling of fullness 1 or 2 days before menstruation begins. Others report fatigue and some discomfort in the lower back, legs, and pelvis on the first day and temperament or mood changes. Slight deviations from a usual pattern of daily living are considered normal, but excessive deviation may require evaluation. Regular exercise and a healthy diet have been found to decrease discomfort for some women. Heating pads or nonsteroidal anti-inflammatory drugs (NSAIDs) may be very effective for cramps. For women with excessive cramping or dysmenorrhea, referral to a women's health care provider is appropriate; following evaluation, providers may prescribe oral contraceptive agents.

Cultural Considerations

Cultural views and beliefs about menstruation differ. Some women believe that it is detrimental to change a pad or tampon too frequently; they think that allowing the discharge to accumulate increases the flow, which is considered desirable. Some women believe they are vulnerable to illness during menstruation. Others believe it is harmful to swim, shower, have their hair permed, have their teeth filled, or eat certain foods during menstruation. They may also avoid using contraception during menstruation.

In such situations, nurses are in a position to provide women with facts in an accepting and culturally sensitive manner. The objective is to be mindful of these unexpressed, deep-rooted beliefs and to provide the facts with care. Aspects of gynecologic problems cannot always be expressed easily. The nurse needs to convey confidence and openness and to offer facts to facilitate communication. Suggestions to improve care include overcoming language barriers, providing appropriate materials in the patient's language, asking about traditional beliefs and dietary practices, and asking about fears regarding care. Patience, sensitivity, and a desire to learn about other cultures and groups will enhance the nursing care of all women.

Menstrual Disorders

Menstrual disorders may include premenstrual syndrome (PMS); dysmenorrhea; amenorrhea; and excessive bleeding, irregular bleeding, or bleeding between cycles or unrelated to cycles. These disorders need to be discussed with a health care provider and managed individually.

Premenstrual Syndrome

PMS is a cluster of physical, emotional, and behavioral symptoms that are usually related to the luteal phase of the menstrual cycle. PMS is very common, affecting many women at some time in their lives (Gnanasambanthan & Datta, 2019) (see [Chart 50-7](#)).

Clinical Manifestations

Major symptoms of PMS include physical symptoms such as headache, fatigue, low back pain, painful breasts, and a feeling of abdominal fullness. Behavioral and emotional symptoms may include general irritability, mood swings, fear of losing control, binge eating, and crying spells. Symptoms vary widely from one woman to another and from one cycle to the next in the same woman. Great variability is found in the degree of symptoms. Many women are affected to some degree, but some are severely affected. Premenstrual dysphoric disorder (PMDD) is a severe form of PMS with significant severity of symptoms (Casper & Yonkers, 2019; Gnanasambanthan & Datta, 2019).

Chart 50-7

Causes, Manifestations, and Treatment of Premenstrual Syndrome

Cause

- Unknown; may be related to hormonal changes combined with other factors (diet, stress, and lack of exercise)
- Many women have some symptoms related to menses, but premenstrual syndrome affects 75% to 95% of women at some point and is a complex of symptoms that result in dysfunction.

Physical Symptoms

- Fluid retention (e.g., bloating, breast tenderness)
- Headache
- Low back pain

Affective Symptoms

- Depression
- Anger
- Irritability
- Anxiety
- Confusion
- Withdrawal
- Symptoms begin in the 5 days preceding menses, and relief occurs within 4 days of onset of menses. Dysfunction usually occurs in relationships, parenting, work, or school.

Treatment

- The use of social support and family resources
- Nutritious diet consisting of whole grains, fruits, and vegetables; increased water intake may help.
- Selective serotonin reuptake inhibitors
- Alprazolam has been effective, but risk of physical and psychological dependence is high
- Spironolactone, a diuretic agent, may be effective in treating fluid retention
- Initiation/maintenance of exercise program
- Stress reduction techniques

Adapted from Casper, R. F., & Yonkers, K. A. (2019). Treatment of premenstrual syndrome and premenstrual dysphoric disorder. *UpToDate*. Retrieved on 11/17/2019 at: www.uptodate.com/contents/treatment-of-premenstrual-syndrome-and-premenstrual-dysphoric-disorder; Gnanasambanthan, S., & Datta, S. (2019). Premenstrual syndrome. *Obstetrics, Gynaecology and Reproductive Medicine*, 29(10), 281–285.

Medical Management

Because there is no single treatment or known cure for PMS, it is helpful for women to keep a record of their symptoms so they can anticipate and therefore cope with them. Regular exercise may be helpful. Although women have been advised to avoid caffeine, high-fat foods, and refined sugars, little research demonstrates the efficacy of dietary changes. Alternative therapies that have been used include vitamins B₆ (pyridoxine) and E, calcium, magnesium, and oil of primrose capsules (Casper & Yonkers, 2019; Gnanasambanthan & Datta, 2019).

Pharmacologic treatments include selective serotonin reuptake inhibitors (e.g., fluoxetine), prostaglandin inhibitors (e.g., ibuprofen and naproxen), diuretic agents, antianxiety agents, and calcium supplements. Oral contraceptives containing drospirenone (a synthetic progestin) and extended regimens also may be effective (Gnanasambanthan & Datta, 2019).

Nursing Management

The nurse obtains a health history, noting the time when symptoms began and their nature and intensity. The nurse then determines whether symptoms occur before or shortly after the menstrual flow begins. In addition, the nurse can show the patient how to record the timing and intensity of symptoms. A nutritional history is also elicited to determine if the diet is high in salt, caffeine, or alcohol or low in essential nutrients.

The patient's goals may include reduction of anxiety, mood swings, crying, binge eating, fear of losing control, improved coping with day-to-day stressors, improved relationships with family and coworkers, and increased knowledge about PMS. Positive coping measures are promoted. This may involve encouraging the woman's partner to offer support and assistance with childcare. The patient can try to plan her working time to accommodate the days she is less productive because of PMS. The nurse encourages the patient to use exercise, meditation, imagery, and creative activities to reduce stress. The nurse also encourages the patient to take medications as prescribed and provides instructions about the desired effects of the medications. Contact details for PMS support services should also be provided.

If the patient has severe symptoms of PMS or PMDD, the nurse assesses her for suicidal, uncontrollable, and violent behavior. An immediate psychiatric evaluation is necessary for women with any suggestions of suicidal tendencies. In rare cases, uncontrollable behavior may lead to violence toward family members. If abuse, maltreatment, and neglect of any member of a patient's family are suspected, it is important to implement and follow reporting protocols.

Dysmenorrhea

Primary dysmenorrhea is painful menstruation, with no identifiable pelvic pathology. It occurs at the time of menarche or shortly thereafter. It is characterized by crampy pain that begins before or shortly after the onset of menstrual flow and continues for 48 to 72 hours. Pelvic examination findings are normal. Dysmenorrhea is thought to result from excessive production of prostaglandins, which causes painful contraction of the uterus. In secondary dysmenorrhea, pelvic pathology such as endometriosis, tumors such as leiomyomata or malignancies, polyps, or pelvic inflammatory disease (PID) contributes to symptoms. Patients frequently have pain that occurs several days before menses, with ovulation, and occasionally with penile-vaginal intercourse. It may be accompanied by nausea, diarrhea, dizziness, and backache (Kulkarni & Deb, 2019).

Assessment and Diagnostic Findings

A pelvic examination is performed to rule out possible disorders, such as endometriosis, PID, adenomyosis, and uterine fibroids. A laparoscopy may be performed to identify organic causes (see [Fig. 50-4](#)).

Management

In primary dysmenorrhea, the reason for the discomfort is explained, and the patient is assured that menstruation is a normal function of the reproductive system. If the patient is young and accompanied by her mother, the mother may also need reassurance. Many young women expect to have painful periods if their mothers did. The discomfort of cramps can be treated once anxiety and concern about its cause are dispelled by adequate explanation. Symptoms usually subside with appropriate medication. Useful medications include prostaglandin antagonists such as NSAIDs (e.g., ibuprofen, naproxen, and mefenamic acid, or aspirin). If one medication does not provide relief, another may be recommended. Usually, these medications are well tolerated, but some women experience gastrointestinal side effects. Contraindications include allergy, peptic ulcer history, sensitivity to aspirin-containing medications, asthma, and pregnancy. Low-dose oral contraceptives may be prescribed for women with dysmenorrhea who are sexually active but do not desire pregnancy (Kulkarni & Deb, 2019).

Continuous low-level local heat, such as a heating pad, may be effective in relieving primary dysmenorrhea. Heat therapy and medication have been found to work well in combination. The patient is encouraged to continue her usual activities and to increase physical exercise if possible because this

relieves discomfort for some women. Taking analgesic agents before cramps start, in anticipation of discomfort, is advised.

Management of secondary dysmenorrhea is directed at diagnosis of and treatment for the underlying cause (e.g., endometriosis, PID) (see [Chapter 51](#)).

Amenorrhea

Amenorrhea, or the absence of menstrual flow, is a symptom of a variety of disorders and dysfunctions. Primary amenorrhea (delayed menarche) refers to the situation in which a young woman who by age 15 years has not begun developing secondary sex characteristics or who by age 16 years or older has developed secondary sex characteristics but has not started menstruation (Welt & Barbieri, 2018). There are many reasons for primary amenorrhea, including genetic and anatomical disorders, Turner syndrome, anorexia, and polycystic ovarian syndrome (Welt & Barbieri, 2018).

The nurse encourages the patient to express her concerns and anxiety about this problem because the patient may feel that she is different from her peers. A complete physical examination, careful health history, and laboratory tests help rule out possible causes, such as metabolic or endocrine disorders and systemic diseases. Treatment is directed toward correcting any abnormalities.

Secondary amenorrhea (an absence of menses for three cycles or 6 months after a normal menarche) may be caused by functional hypothalamic amenorrhea, pituitary disease, primary ovarian failure, pregnancy, breastfeeding, menopause, too little body fat (about 22% required for menses), eating disorder, thyroid disease, or polycystic ovary syndrome (Welt & Barbieri, 2018). In adolescents, secondary amenorrhea can be caused by minor emotional upset related to being away from home, attending college, tension due to schoolwork, or interpersonal problems.

Secondary nutritional disturbances may also be factors. Obesity can result in anovulation and subsequent amenorrhea. Eating disorders, such as anorexia and bulimia, often result in lack of menses because the decrease in body fat and caloric intake affects hormonal function. Intense exercise can induce menstrual disturbances. Females who are competitive athletes often experience amenorrhea. Oligomenorrhea (infrequent periods) may be related to thyroid disorders, polycystic ovarian syndrome, or premature ovarian failure. Women who are HIV positive are apt to miss menstrual periods and need to be evaluated for pregnancy, thyroid disorders, hyperprolactinemia, and menopause.

Abnormal Uterine Bleeding

Dysfunctional uterine bleeding is defined as irregular, painless bleeding of endometrial origin that may be excessive, prolonged, or without pattern.

Dysfunctional uterine bleeding can occur at any age but is most common at opposite ends of the reproductive lifespan. It is usually secondary to anovulation (lack of ovulation) and is common in adolescents and women approaching menopause.

Adolescents account for many cases of abnormal uterine bleeding; they often do not ovulate regularly as the pituitary–ovarian axis matures. Women who are perimenopausal also experience this condition because of irregular ovulation secondary to decreasing ovarian hormone production. Other causes may include fibroids, obesity, and hypothalamic dysfunction.

Abnormal or unusual vaginal bleeding that is atypical in time or amount must be evaluated because it could possibly be a manifestation of a major disorder. A physical examination is performed, and the patient is evaluated for conditions such as pregnancy, neoplasm, infection, anatomic abnormalities, endocrine disorders, trauma, blood dyscrasias, platelet dysfunction, and hypothalamic disorders.

Menorrhagia

Menorrhagia is prolonged or excessive bleeding at the time of the regular menstrual flow. In young women, the cause is usually related to endocrine disturbance; in later life, it usually results from inflammatory disturbances, tumors of the uterus, or hormonal imbalance.

Women with menorrhagia are urged to see a primary provider and to describe the amount of bleeding by pad count and saturation (i.e., absorbency of perineal pad or tampon and number saturated hourly). Persistent heavy bleeding can result in anemia. It can also be a sign of a bleeding disorder or a result of anticoagulant therapy. Treatment may involve endometrial ablation or hysterectomy.

Metrorrhagia

Metrorrhagia (vaginal bleeding between regular menstrual periods) is probably the most significant form of menstrual dysfunction because it may signal cancer, benign tumors of the uterus, or other gynecologic problems. This condition warrants prompt evaluation and treatment. Although bleeding between menstrual periods by women taking oral contraceptive agents is usually not serious, irregular bleeding by women taking hormone therapy should be evaluated (Goodman, 2020).

Menometrorrhagia is heavy vaginal bleeding between and during periods. It, too, requires evaluation.

Dyspareunia

Dyspareunia (difficult or painful penile-vaginal intercourse) can be superficial, deep, primary, or secondary and may occur at the beginning of, during, or after penile-vaginal intercourse. Dyspareunia may be related to many factors, including injury during childbirth; lack of vaginal lubrication; a history of incest, sexual abuse, or assault; endometriosis; pelvic or vaginal infection; vaginal dryness due to breast-feeding or menopause; gastrointestinal disorders; fibroids; urinary tract infection; STIs; or vulvodynia (vulvar pain that affects women of all ages without any discernible physical cause). Depending on the cause of dyspareunia, counseling, extra lubrication, or antidepressant medications may be prescribed (Mayo Clinic, 2018). Women's health issues related to sexuality may be affected by many factors. Thus, these issues need to be taken seriously, carefully assessed, and treated.

Contraception

Approximately 61 million women in the United States are in their childbearing years (i.e., between the ages of 15 and 44 years). Those who are sexually active and do not want to become pregnant but could become pregnant if they and their partners fail to use a contraceptive method, are at risk of unintended pregnancy. Thus, approximately 43 million women of childbearing age are at risk for unintended pregnancy (Alan Guttmacher Institute, 2018). Approximately 45% of the pregnancies each year in the United States are unintended and can result in negative health consequences and are an enormous financial burden to the health care system (American College of Obstetricians and Gynecologists [ACOG], 2019). Family planning benefits mothers, newborns, families, and communities.

Nurses who are involved in helping patients make contraceptive choices need to listen, take time to answer questions, and educate and assist patients in choosing the contraceptive method they prefer (see [Chart 50-8](#)). It is important for women to receive unbiased and nonjudgmental information, understand the benefits and risks of each contraceptive method, learn about alternatives and how to use them, and receive positive reinforcement and acceptance of their choice. Nurses also have the opportunity to dispel myths and misinformation surrounding contraception. [Figure 50-5](#) provides an overview of the effectiveness of family planning methods.

Contraindications

Coexisting medical disorders may make contraception a complex issue. Contraception needs to be addressed individually in women with preexisting conditions. With the aid of a thorough history, nurses are well positioned to aid

patients in choosing the safest, most effective method of contraception to meet their individual needs.

Chart 50-8 PATIENT EDUCATION

Using Contraceptives

The nurse provides education to enhance the chosen method of contraception.

The nurse instructs patients who have chosen male or female sterilization to:

- Use another contraceptive method for the first 3 months.
- Use condoms to protect against sexually transmitted infections.

The nurse instructs women who have chosen an injectable method to:

- Use condoms to protect against sexually transmitted infections.
- Obtain repeat injections on time.

The nurse instructs women who have chosen pills to:

- Use condoms to protect against sexually transmitted infections.
- Take the pill at exactly the same time every day.

The nurse instructs women who have chosen the patch to:

- Use condoms to protect against sexually transmitted infections.
- Change the patch once a week.

The nurse instructs women who have chosen a ring to:

- Use condoms to protect against sexually transmitted infections.
- Remove the vaginal ring after 3 weeks.

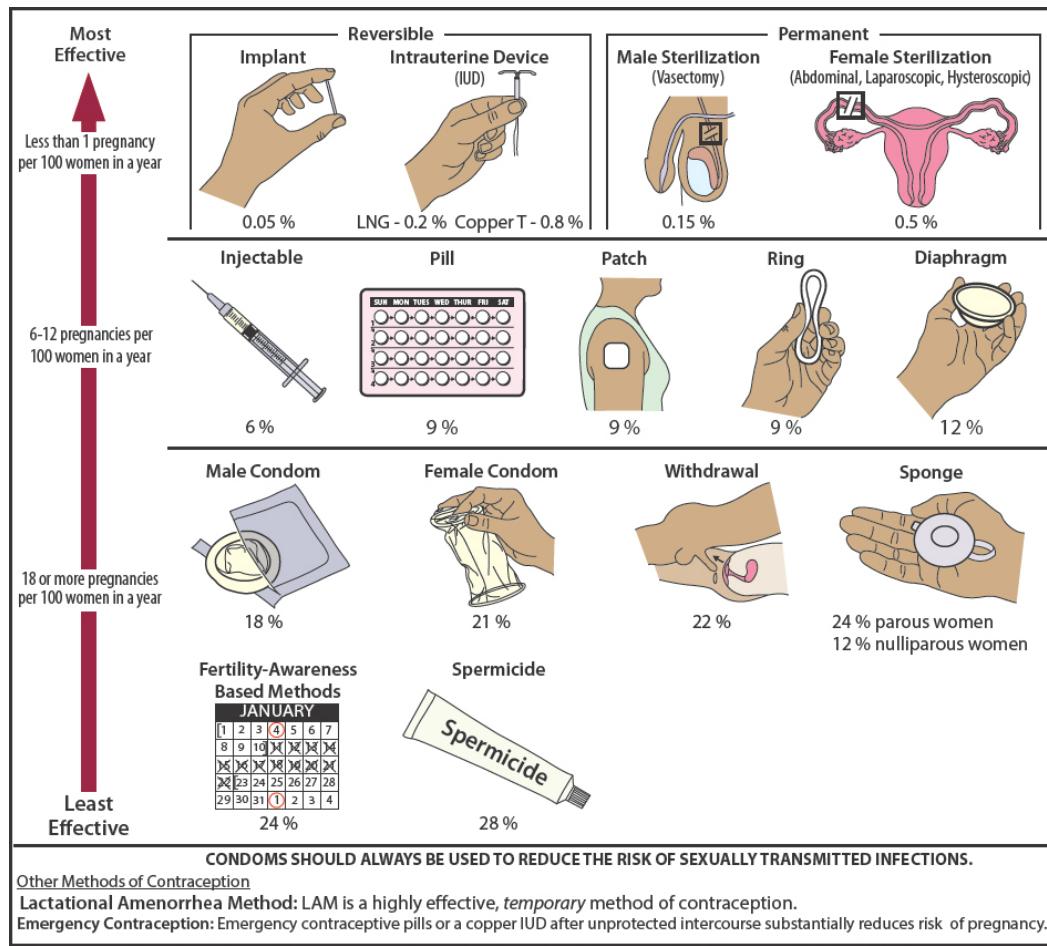
The nurse instructs women who have chosen a diaphragm to:

- Use correctly each time you have sex.

The nurse instructs women who have chosen condoms, a sponge, withdrawal, or spermicides to:

- Use correctly each time you have sex.

Adapted from Holland, A. C., Strachan, A. T., Pair, L., et al. (2018). Highlights from the U.S. selected practice recommendations for contraception use. *Nursing for Women's Health*, 22(2), 181–190.



* The percentages indicate the number out of every 100 women who experienced an unintended pregnancy within the first year of typical use of each contraceptive method.

Figure 50-5 • Overview of the effectiveness of select family planning methods. Adapted from Centers for Disease Control and Prevention (CDC). (2016). U.S. selected practice recommendations for contraceptive use, 2016. *Morbidity and Mortality Weekly Report*, 65(4), 1–72.

Abstinence

Abstinence, or celibacy, is the only completely effective means of preventing pregnancy. Abstinence may not be a desired or available option for many women because of cultural expectations and their own and their partner's values and sexual needs.

Long-Acting Reversible Contraceptive (LARC) Methods

Long-acting reversible contraception (LARC) methods are the most effective reversible methods for pregnancy prevention with a failure rate of less than 1% (Moore, Edie, Johnson, et al., 2019). Encouraging the use of LARC methods for appropriate candidates may help lower unintended pregnancy rates in the

United States. With few contraindications, the LARC methods should be offered as first-tier contraception to most women (ACOG, 2015 reaffirmed 2018; Moore et al., 2019). LARC methods include the IUD and the single-rod implant (ACOG, 2017).

Intrauterine Device

An IUD is a small device, usually T shaped that is inserted into the uterine cavity to prevent pregnancy. A string attached to the IUD is visible and palpable at the cervical os. Two types of IUDs are the hormonal and nonhormonal. The hormonal IUD releases progestin; a 3-year type and a 5-year are approved for use (ACOG, 2017). The nonhormonal IUD is effective for up to 10 years (ACOG, 2017).

Advantages include effectiveness over a long period of time, few if any systemic effects, and reduction of patient error. Almost all women are able to use an IUD. This reversible method of birth control is as effective as female sterilization and more effective than barrier methods (ACOG, 2017).

Disadvantages include possible excessive bleeding, cramps, and backaches; a slight risk of tubal pregnancy; slight risk of pelvic infection on insertion; displacement of the device; and, rarely, perforation of the cervix and uterus. If a pregnancy occurs with an IUD in place, the device is removed immediately to avoid infection. Spontaneous abortion (miscarriage) may occur on removal (ACOG, 2017).

Implants

One type of single-rod subdermal implant, effective for 3 years, is approved for use in the United States and is usually placed inside the upper arm using a small incision (ACOG, 2017). After implant insertion, changes in menstrual bleeding are common and include amenorrhea or frequent, infrequent, or prolonged bleeding (ACOG, 2017). Women should be warned about possible discomforts that can be treated with NSAIDs. Heavy or prolonged bleeding should be evaluated for an underlying gynecologic problem, such as interactions with other medications, an STI, pregnancy, or new pathologic uterine conditions (e.g., polyps, fibroids) (ACOG, 2017).

Almost all women are able to use the implant, even those who are lactating. The implant is very convenient as once it is in place the patient does not have to do anything else to prevent pregnancy.

Sterilization

Among women who practice contraception, approximately 22% rely on female and 7% on male sterilization (Alan Guttmacher Institute, 2018). Women and men who choose sterilization should be certain that they no longer wish to

have children, no matter how the circumstances in their life may change. Vasectomy (male sterilization) and tubal ligation (female sterilization) are compared in [Table 50-4](#). See [Chapter 53](#) for discussion of vasectomy.

Hormonal Contraception

Oral contraceptives block ovarian stimulation by preventing the release of FSH from the anterior pituitary gland. In the absence of FSH, a follicle does not ripen, and ovulation does not occur. Progestins (synthetic forms of progesterone) suppress the LH surge, prevent ovulation, and also render the cervical mucus impenetrable to sperm. Hormonal contraceptive agents may be intrauterine, implantable, injectable, oral, transdermal, or intravaginal. (See previous discussion of LARC methods.) These methods contain either a combination of estrogen and progestin or progestin-only. The combined methods include combination oral contraceptives, the transdermal patch, and the intravaginal ring. The progestin-only methods include the intrauterine system, the implant, the injectable, and the “mini-” pill. Hormonal contraception methods work by inhibiting ovulation (with the exception of the mini-pill and the intrauterine system).

TABLE 50-4 Comparison of Sterilization Methods

Sterilization Method	Advantages	Disadvantages
Vasectomy	<ul style="list-style-type: none">• Highly effective• Relieves female of contraceptive burden• Inexpensive in long run• Permanent• Highly acceptable procedure to most patients• Very safe• Quickly performed	<ul style="list-style-type: none">• Expensive in short term• Serious long-term effects suggested (although currently unproved)• Permanent (Although reversal is possible, it is expensive and requires highly technical and major surgery, and results cannot be guaranteed.)• Regret in 5–10% of patients• No protection against STIs, including HIV• Not effective until sperm remaining in reproductive system are ejaculated
Hysteroscopic and laparoscopic tubal sterilization	<ul style="list-style-type: none">• Low incidence of complications• Short recovery• Leaves small or no scar• Quickly performed	<ul style="list-style-type: none">• Permanent• Reversal difficult and expensive• Sterilization procedures technically difficult• Requires surgeon, operating room (aseptic conditions), trained assistants, medications, surgical equipment. (Essure [insertion of coil or spring in fallopian tubes] requires hysteroscopy rather than surgery.)• Expensive at the time performed• If failure, high probability of ectopic pregnancy• No protection against STIs, including HIV

HIV, human immune deficiency virus; STIs, sexually transmitted infections.

Chart 50-9 PHARMACOLOGY

Benefits and Risks of Hormonal Contraceptives

Benefits

- Highly effective at preventing unintended pregnancy
- Decreased cramps and bleeding
- Decreased incidence of anemia
- Decreased incidence of ectopic pregnancy
- Decreased incidence of pelvic infection
- Protection from benign breast disease
- Protection from uterine and ovarian cancer
- Regular bleeding cycle

Risks

- Bothersome side effects (e.g., breakthrough bleeding, breast tenderness)
- Nausea, weight gain, mood changes
- No protection from sexually transmitted infections (possible increased risk with unsafe sex)
- Possible increased incidence of benign liver tumors and gallbladder disorders
- Small increased risk of developing blood clots, stroke, or heart attack, related more to smoking than to oral contraceptive use alone
- Rare in women who are healthy

Adapted from Casanova, R., Chuang, A., Goepfert, A. R., et al. (Eds.). (2019). *Beckman and Ling's obstetrics and gynecology* (8th ed.). Philadelphia, PA: Wolters Kluwer.

Chart 50-9 describes the benefits and risks of hormonal contraceptive use.

Methods of Hormonal Contraception

A wide variety of hormonal methods of birth control are available. Combination methods include the combination of oral contraceptive pills, vaginal ring, and transdermal patch. Progestin-only methods include the progestin-only pills or “mini-pills,” once-every-3-month injection, levonorgestrel-releasing intrauterine system, and single-rod subdermal implant (Casanova et al., 2019).



Quality and Safety Nursing Alert

Patients need to be aware that hormonal contraceptives protect them from pregnancy but not from STIs or HIV infection. In addition, sex with multiple partners or sex without a condom may also result in chlamydial and other infections, including HIV infection.

Oral Contraceptives

Many women use oral contraceptive preparations of synthetic estrogens and progestins. A variety of formulations are available. Extended regimens of oral hormonal contraceptive agents are an option for women who have heavy or uncomfortable menstrual bleeding or who wish to have fewer periods. With the use of these regimens, women may have an increased occurrence of breakthrough bleeding; the blood may be dark brown rather than red. It may be more difficult to tell if a pregnancy occurs with this method, although pregnancy is unlikely if pills are taken as prescribed (Casanova et al., 2019).

Transdermal Contraceptives

Transdermal contraception is done through a thin, beige, matchbook-size skin patch that releases an estrogen and a progestin continuously. It is changed every week for 3 weeks, and no patch is used during the fourth week, resulting in withdrawal bleeding. The effectiveness of transdermal contraception is comparable to that of oral contraceptives. Its risks are similar to those of oral contraceptives and include an increased risk of venous thromboemboli formation. The patch may be applied to the torso, chest, arms, or thighs; it should not be applied to the breasts. The patch is convenient and more easily remembered than a daily pill but is not as effective for women who weigh more than 90 kg (198 lb). One additional side effect with the patch includes possible skin reaction such as irritation, redness, pigment changes, or rash at the site of the patch (Casanova et al., 2019).

Vaginal Contraceptives

An etonogestrel/ethynodiol vaginal ring is a combination hormonal contraceptive that releases estrogen and progestin. It is as effective as oral contraceptive agents and results in lower hormone blood levels than oral contraceptives. The ring is flexible, does not require sizing or fitting, and is effective when placed anywhere in the vagina. Patients are occasionally reluctant to consider vaginal methods of contraception unless discussed openly and as a convenient alternative to other routes of administration. Some women are uncomfortable with this method and may fear that the ring may migrate or be uncomfortable or be noticed by a partner. The ring is usually more expensive than oral contraceptives as well.

Injectable Contraceptives

An intramuscular injection of a long-acting progestin every 13 weeks inhibits ovulation and provides a reliable, private, and convenient contraceptive method (Casanova et al., 2019). A subcutaneous formulation is also available. It can be used by women who are lactating and those with hypertension, liver disease, migraine headaches, heart disease, and hemoglobinopathies. With continued use, women must be prepared for irregular bleeding episodes and spotting decrease, or amenorrhea.

Advantages of long-acting progestin include reduction of menorrhagia, dysmenorrhea, and anemia due to heavy menstrual bleeding. It may reduce the risk of pelvic infection, has been associated with improvement in hematologic status in women with sickle cell disease, and does not interfere with the efficacy of seizure agents. It decreases the risk of endometrial cancer, PID, endometriosis, and uterine fibroids (Casanova et al., 2019).

Possible side effects of long-acting progestin include irregular menstrual bleeding, bloating, headaches, hair loss, decreased sex drive, bone loss, and weight loss or weight gain. The contraceptive does not protect against STIs. Although bone loss may occur while using the injections, when the injections are stopped, sometimes all of the bone loss is regained. Use of this method should be limited to 2 years of use because of loss of bone mineral density (Casanova et al., 2019).

Long-acting progestin is contraindicated in women who are pregnant and those who have abnormal vaginal bleeding of unknown cause, breast or pelvic cancer, or sensitivity to synthetic progestin.

Mechanical Barriers

Diaphragm

The diaphragm is an effective contraceptive device that consists of a round, flexible spring (50 to 90 mm wide) covered with a domelike latex rubber cup. A spermicidal (contraceptive) jelly or cream is used to coat the concave side of the diaphragm before it is inserted deep into the vagina, covering the cervix completely. The spermicide inhibits spermatozoa from entering the cervical canal. The diaphragm is not felt by the user or her partner when properly fitted and inserted. Because women vary in size, the diaphragm must be sized and fitted by an experienced clinician. The woman is instructed in using and caring for the device. A return demonstration ensures that the woman can insert the diaphragm correctly and that it covers the cervix.

Each time the woman uses the diaphragm, she should examine it carefully. By holding it up to a bright light, she should ensure that it has no pinpoint holes, cracks, or tears; if any are present, the diaphragm should not be used. She then applies spermicidal jelly or cream and inserts the diaphragm. The diaphragm should remain in place at least 6 hours after coitus (no more than 12

hours). Additional spermicide is necessary if more than 6 hours have passed before penile-vaginal intercourse occurs and before each act of repeated penile-vaginal intercourse. On removal, the diaphragm should be cleansed thoroughly with mild soap and water, rinsed, and dried before being stored in its original container.

Disadvantages include allergic reactions in those who are sensitive to latex and an increased incidence of urinary tract infections. Toxic shock syndrome has been reported in some diaphragm users but is rare.



Quality and Safety Nursing Alert

The nurse must assess the woman for possible latex allergy because the use of latex barrier methods (e.g., diaphragm, cervical cap, male condoms) may cause severe allergic reactions, including anaphylaxis, in patients with latex allergy.

Cervical Cap

The cervical cap is much smaller (22 to 35 mm) than the diaphragm and covers only the cervix. If a woman can feel her cervix, she can usually learn to use a cervical cap. The chief advantage is that the cap may be left in place for 2 days after coitus. Although convenient to use, the cervical cap may cause cervical irritation; therefore, before fitting a cap, most primary providers obtain a Pap smear and repeat the smear after 3 months. The cap is used with a spermicide and does not require additional spermicide for repeated penile-vaginal intercourse.

Female Condom

The female condom was developed to give control of barrier protection to women—to provide them with protection from STIs and HIV as well as pregnancy. The female condom consists of a cylinder of polyurethane enclosed at one end by a closed ring that covers the cervix and at the other end by an open ring that covers the perineum (see Fig. 50-6). Advantages include some degree of protection from STIs (i.e., HPV, herpes simplex virus, and HIV) (Casanova et al., 2019). Disadvantages are that female condoms are more costly than male condoms and the inability to use the female condom with some positions (i.e., standing).

Spermicides

Spermicides are made from nonoxynol-9 or octoxynol and are available over the counter as foams, gels, films, suppositories, and sponges and also on condoms. Spermicides do not protect women from HIV or other STIs

(Casanova et al., 2019). Advantages of spermicides include they are nonhormonal, are user controlled, do not cause systemic side effects, and are immediately effective (Casanova et al., 2019).

Male Condom

The male condom is an impermeable, snug-fitting cover applied to the erect penis before it enters the vaginal canal. The tip of the condom is pinched while being applied to leave space for ejaculate. If no space is left, ejaculation may cause a tear or hole in the condom and reduce its effectiveness. The penis, with the condom held in place, is removed from the vagina while still erect to prevent the ejaculate from leaking. Condoms are available in large and small sizes.

The latex condom also creates a barrier against transmission of STIs (gonorrhea, chlamydial infection, and HIV) by body fluids and may reduce the risk of herpes virus transmission. However, natural condoms (those made from animal tissue) do not protect against HIV infection. Nurses need to reassure women that they have a right to insist that their male partners use condoms and a right to refuse sex without condoms, although women in abusive relationships may increase their risk of abuse, maltreatment, and neglect by doing so. Some women carry condoms with them to be certain that one is available. Nurses should be familiar and comfortable with instructions about using condoms because many women need to know about this way of protecting themselves from HIV and other STIs. Condoms do not provide complete protection from STIs, however, because HPV may be transmitted by skin-to-skin contact. Other STIs may be transmitted if any abraded skin is exposed to body fluids. This information should be included in patient education.

The nurse needs to consider the possibility of latex allergy. Swelling and itching can also occur. Possible warning signs of latex allergy include oral itching after blowing up a balloon or eating kiwis, bananas, pineapples, passion fruit, avocados, or chestnuts. Because many contraceptives are made of latex, patients who experience burning or itching while using latex contraceptives are instructed to see their primary provider. Alternatives to latex condoms include the female condom (Reality) and the male condom (Avanti), made of polyurethane.

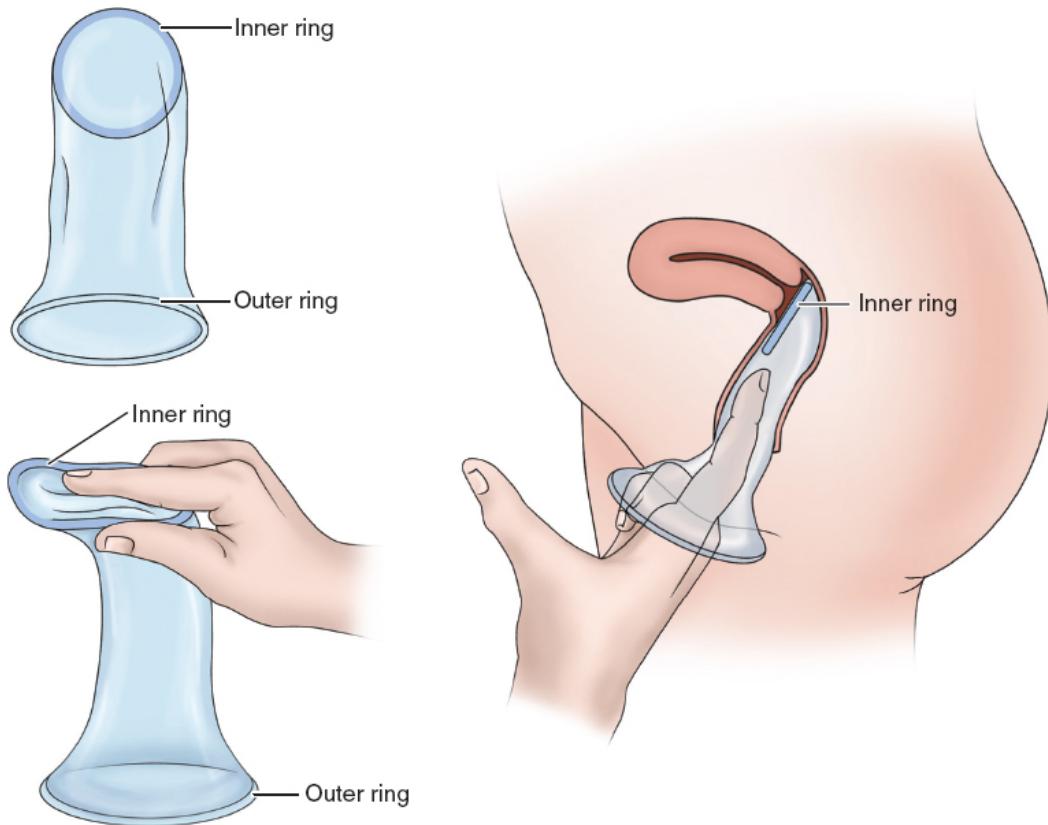


Figure 50-6 • Female condom. To insert the female condom, hold the inner ring between the thumb and middle finger. Put the index finger on the pouch between the thumb and other fingers and squeeze the ring. Slide the condom into the vagina as far as it will go. The inner ring keeps the condom in place.

Coitus Interruptus or Withdrawal

Coitus interruptus (removing the penis from the vagina before ejaculation) requires careful control by the male partner. Although it is a frequently used method of preventing pregnancy and better than no method, it is considered an unreliable method of contraception.

Fertility Awareness-Based Methods

Fertility awareness is knowing and recognizing when the fertile time occurs in the menstrual cycle. If a couple is practicing fertility awareness as a birth control method to prevent pregnancy, the couple needs to avoid having penile-vaginal intercourse or use a barrier method during the fertile period. If the woman would like to get pregnant, the couple should have penile-vaginal intercourse during the women's fertile days. When used to prevent pregnancy,

during the first year of typical use, up to 24 women out of 100 will become pregnant (Alan Guttmacher Institute, 2018).

The most common fertility awareness-based method is the Standard Days method. With this method, users must avoid unprotected penile-vaginal intercourse on days 8 to 19 of the menstrual cycle. The Standard Days method requires the woman to determine the fertile days of her cycle. This method works best if the woman has a regular menstrual cycle.

The advantages of using fertility awareness-based methods to prevent pregnancy are that they are safe, inexpensive, and approved by some religions that do not approve of other methods of contraception. The disadvantage is that they require discipline by the couple, who must monitor the menstrual cycle and abstain from penile-vaginal intercourse during the fertile phase.

Ovulation detection methods are available in most pharmacies. The presence of the enzyme guaiacol peroxidase in cervical mucus signals ovulation 6 days beforehand and also affects mucosal viscosity. Over-the-counter test kits are easy to use and reliable but can be expensive. Ovulation prediction kits are more effective for planning conception than for avoiding it.

Emergency Contraception

Emergency contraception are methods that can be used by women after unprotected penile-vaginal intercourse to prevent pregnancy (Casanova et al., 2019). Nurses need to be aware of emergency contraception as an option for women and the indications for its use. It is clearly not suitable for long-term avoidance of pregnancy because it is not as effective as oral contraceptives or other reliable methods used regularly. However, it is valuable following penile-vaginal intercourse when a pregnancy is not intended and in emergency situations such as rape, a defective or torn condom or diaphragm, or other situations that may result in unintended conception.

Methods of Emergency Contraception

Emergency Contraceptive Pills

Three kinds of emergency contraceptive pills are available in the United States. A properly timed, adequate dose of medication after penile-vaginal intercourse without effective contraception, or when a method has failed, can prevent pregnancy by inhibiting or delaying ovulation. Emergency contraceptive pills should be taken as soon as possible and within 5 days of unprotected penile-vaginal intercourse (Casanova et al., 2019).

Nausea, a common side effect, can be minimized by taking the medication with meals and with an antiemetic agent. Other side effects, such as breast soreness and irregular bleeding, may occur but are transient. Patients who use emergency contraceptive pills should be advised of the potential failure rate

and also counseled about other contraceptive methods. There are no known contraindications to the use of this method, except an established pregnancy (Casanova et al, 2019).

The nurse reviews with the patient instructions for emergency contraception based on the medication regimen prescribed. If the woman is breast-feeding, a progestin-only formulation is prescribed. To avoid exposing infants to synthetic hormones through breast milk, the patient can manually express milk and bottle-feed for 24 hours after treatment. The patient should be informed that her next menstrual period may begin a few days earlier or a few days later than expected. She is instructed to return for a pregnancy test if she has not had a menstrual period in 3 weeks and should be offered another visit to provide a regular method of contraception if she does not have one currently.

Postcoital Intrauterine Device Insertion

Postcoital IUD insertion, another form of emergency contraception, involves insertion of a copper-bearing IUD within 5 days of coitus (Casanova et al., 2019). The copper-bearing IUD prevents fertilization by causing a chemical change in sperm and egg before they can meet. The patient may experience discomfort on insertion and may have heavier menstrual periods and increased cramping. Contraindications include a confirmed or suspected pregnancy or any contraindication to regular IUD use. The patient must be informed that there is a risk that insertion of an IUD may disrupt a pregnancy that is already present.

Nursing Management

Patients who use emergency contraception may be anxious, embarrassed, and lacking information about birth control. The nurse must be supportive and nonjudgmental and provide facts and appropriate patient education. If the patient repeatedly uses this method of birth control, she should be informed that the failure rate with this method is higher than with a regularly used method. Nurses can educate and inform women about emergency contraception options to reduce unintended pregnancies and abortions. See the Resources section at the end of this chapter for more information.

Abortion

Interruption of pregnancy or expulsion of the product of conception before the fetus is viable is called *abortion*. The fetus is generally considered to be viable any time after the fifth to sixth month of gestation.

Spontaneous Abortion

It is estimated that 1 of every 5 to 10 conceptions ends in spontaneous abortion. Most of these occur because an abnormality in the fetus makes survival impossible. Other causes may include systemic diseases, hormonal imbalance, or anatomic abnormalities. If a woman who is pregnant experiences bleeding and cramping, a threatened abortion is diagnosed because an actual abortion is usually imminent. Spontaneous abortion occurs most commonly in the second or third month of gestation.

There are various types of spontaneous abortion, depending on the nature of the process (threatened, inevitable, incomplete, or complete). In a threatened abortion, the cervix does not dilate. With bed rest and conservative treatment, the abortion may be prevented. If not, an abortion is imminent. If only some of the tissue is passed, the abortion is referred to as incomplete. An emptying or evacuation procedure (D&C, or dilation and evacuation [D&E]) or administration of oral misoprostol is usually required to remove the remaining tissue. If the fetus and all related tissue are spontaneously evacuated, the abortion is termed *complete*, and no further treatment is required.

Habitual Abortion

Habitual or recurrent abortion is defined as successive, repeated, spontaneous abortions of unknown cause. As many as 60% of abortions may result from chromosomal anomalies (Casanova et al., 2019). After two consecutive abortions, the patient is referred for genetic counseling and testing, and other possible causes are explored.

If bleeding occurs in a woman who is pregnant with a past history of habitual abortion, conservative measures, such as bed rest and administration of progesterone to support the endometrium, are attempted to save the pregnancy. Supportive counseling is crucial in this stressful condition. Bed rest, sexual abstinence, a light diet, and no straining on defecation may be recommended in an effort to prevent spontaneous abortion. If infection is suspected, antibiotic agents may be prescribed.

In the condition known as incompetent or dysfunctional cervix, the cervix dilates painlessly in the second trimester of pregnancy, often resulting in a spontaneous abortion. In such cases, a surgical procedure called *cervical cerclage* may be used to prevent the cervix from dilating prematurely. It involves placing a purse-string suture around the cervix at the level of the internal os (Casanova et al., 2019). Bed rest is usually advised to keep the weight of the uterus off the cervix. About 2 to 3 weeks before term or at the onset of labor, the suture is cut. Delivery is usually by cesarean section.

Medical Management

After a spontaneous abortion, all tissue passed vaginally is saved for examination, if possible. The patient and all personnel who care for her are alerted to save any discharged material. In the rare case of heavy bleeding, the patient may require blood component transfusions and fluid replacement. An estimate of the bleeding volume can be determined by recording the number of perineal pads and the degree of saturation over 24 hours. When an incomplete abortion occurs, oxytocin may be prescribed to cause uterine contractions before D&E or uterine suctioning.

Nursing Management

Because patients experience loss and anxiety, emotional support and understanding are important aspects of nursing care. Women may be grieving or relieved, depending on their feelings about the pregnancy. Providing opportunities for the patient to talk and express her emotions is helpful and also provides clues for the nurse in planning more specific care.

Induced Abortion

A voluntary induced termination of pregnancy is performed by skilled health care providers. Decisions about abortion reside with a woman and her primary provider in the first trimester. During the second trimester, the state may regulate practice in the interest of a woman's health and during the final weeks of pregnancy may choose to protect the life of the fetus, except when necessary to preserve the life or health of the woman.

In the United States, 42% of all unintended pregnancies were terminated by abortion (Allan Guttmacher Institute, 2018). These numbers indicate the need for effective contraceptive education, information about emergency contraception, and counseling.

Chart 50-10

Types of Induced Abortions

Vacuum Aspiration

- The cervix is dilated manually with instrumentation or by laminaria (small suppositories made of seaweed that swells as it absorbs water).
- A uterine aspirator is introduced.
- Suction is applied, and tissue is removed from the uterus.

This is the most common type of termination procedure and is used early in pregnancy, up to 14 weeks. Laminaria may be used to soften and dilate the cervix prior to the procedure.

Dilation and Evacuation

Cervical dilation with laminaria followed by vacuum aspiration

Labor Induction

These procedures account for fewer than 1% of all terminations and generally take place in an inpatient setting.

1. Installation of normal saline or urea results in uterine contractions.
 - Although rare, serious complications can occur, including cardiovascular collapse, cerebral edema, pulmonary edema, kidney disease, and disseminated intravascular coagulopathy.
2. Prostaglandins
 - Prostaglandins are introduced into the amniotic fluid or by vaginal suppository or intramuscular injection in later pregnancy.
 - Strong uterine contractions begin within 4 hours and usually result in abortion.
 - Gastrointestinal side effects (e.g., nausea, vomiting, diarrhea, and abdominal cramping) and fever can occur.
3. IV oxytocin
 - Used for later abortions for genetic indications. Requires patient to go through labor.

Medical Abortion

Mifepristone

- Mifepristone is a progesterone antagonist that prevents implantation of the ovum.
- Given orally within 10 days of an expected menstrual period, mifepristone produces a medical abortion in most patients.
- Combined with a prostaglandin suppository, mifepristone causes abortion in up to 95% of patients.
- Prolonged bleeding may occur. Other side effects may include abdominal pain, nausea, vomiting, and diarrhea. This method may not be used in women with adrenal failure, asthma, long-term

corticosteroid therapy, an intrauterine device in place, porphyria, or a history of allergy to mifepristone or other prostaglandins. It is less effective when used in pregnancies more than 49 days from the beginning of the last menstrual period.

Methotrexate

- Methotrexate has also been used to terminate pregnancy because it is lethal to the fetus. It has been found to have minimal risk and few side effects in the woman. Its low cost may provide an alternative for some women.

Misoprostol

- Misoprostol is a synthetic prostaglandin analog that produces cervical effacement and uterine contractions.
- Inserted vaginally, misoprostol is effective in terminating a pregnancy in about 75% of cases.
- When combined with methotrexate or mifepristone, misoprostol's effectiveness rate is high.

Adapted from Bartz, D. A., & Blumenthal, P. D. (2019). First-trimester pregnancy termination: Medical abortion. *UpToDate*. Retrieved on 12/8/2019 at: www.uptodate.com/contents/first-trimester-pregnancy-termination-medication-abortion; Hammond, C. (2019). Second-trimester pregnancy termination: Induction (medication) termination. *UpToDate*. Retrieved on 5/12/2020 at: www.uptodate.com/contents/second-trimester-pregnancy-termination-induction-medication-termination; Shih, G., & Wallace, R. (2020). First-trimester pregnancy termination: Uterine aspiration. *UpToDate*. Retrieved on 5/12/2020 at: www.uptodate.com/contents/first-trimester-pregnancy-termination-uterine-aspiration

Medical Management

Before the abortion procedure is performed (see [Chart 50-10](#)), a nurse or counselor trained in pregnancy counseling should talk with the patient and explore her fears, feelings, and options. The nurse then identifies the patient's choice (i.e., continuing pregnancy and parenthood, continuing pregnancy followed by adoption, or terminating pregnancy by abortion). If abortion is chosen, the patient has a pelvic examination to determine uterine size. A pelvic ultrasound may also be performed. Laboratory studies before an abortion must include a pregnancy test to confirm the pregnancy, hematocrit to rule out anemia, and Rh determination. Patients with anemia will require an iron supplement, and patients who are Rh negative may require Rho(D) immune globulin (RhoGAM) to prevent isoimmunization. Before the procedure, all patients should be screened for STIs to prevent introducing pathogens upward through the cervix during the procedure.



Quality and Safety Nursing Alert

Women who have resorted to unskilled attempts to end a pregnancy may become critically ill because of infection, hemorrhage, or uterine rupture. If a woman has undergone such efforts to end a pregnancy, prompt medical attention, broad-spectrum antibiotics, and replacement of fluids and blood components may be required before careful attempts are made to evacuate the uterus.

Surgical terminations include D&C or vacuum aspiration of uterine contents. Medications can also be used. Mifepristone is used only in early pregnancy (up to 49 days from the last menstrual period). It works by blocking progesterone. Cramping and bleeding similar to a heavy menstrual period occur. After counseling and consent and often a sonogram to confirm the pregnancy, mifepristone is given. This is followed by a dose of misoprostol orally or vaginally. If the pregnancy persists, a suction aspiration is performed. Contraindications include ectopic pregnancy, adrenal failure, allergy to the medications, bleeding disorder, irritable bowel syndrome, or uncontrolled seizure disorders. Several deaths from sepsis have occurred following medical abortion; researchers and the FDA are closely monitoring the morbidity and mortality associated with medical abortion. Medical and surgical abortions used in the first trimester are both highly effective with low complication rates (Bartz & Blumenthal, 2019).

Nursing Management

Patient education is an important aspect of care for women who elect to terminate a pregnancy. A patient undergoing induced abortion is informed about what the procedure entails and the expected course after the procedure. The patient is scheduled for a follow-up appointment 2 weeks after the procedure and is instructed about signs and symptoms (i.e., fever, heavy bleeding, or pain) that should be reported.

Available contraceptive methods are reviewed with the patient. Effectiveness depends on the method used and the extent to which the woman and her partner follow the instructions for use. A woman who has used any method of birth control should be assessed for her understanding of the method and its potential side effects as well as her satisfaction with the method. If the woman has not been using contraception, the nurse explains all methods and their benefits and risks and helps the patient make a contraceptive choice for use after abortion. Related education issues, such as the need to use barrier contraceptive devices (i.e., condoms) for protection against transmission of

STIs and HIV infection and the availability of emergency contraception, are also important.

Psychological support is another important aspect of nursing care. The nurse needs to be aware that women terminate pregnancies for many reasons. Some women terminate pregnancies because of severe genetic defects. Women who have been raped or impregnated in incestuous relationships or by an abusive partner may elect to terminate their pregnancies. The care of a woman undergoing termination of pregnancy is stressful, and assistance needs to be provided in a safe and nonjudgmental way. Nurses have the right to refuse to participate in a procedure that is against their religious beliefs but are professionally obligated not to impose their beliefs or judgments on their patients.

Infertility

In the United States, infertility affects approximately 1 in 8 couples between ages 15 and 44 (over 7 million women) and is defined as a couple's inability to achieve pregnancy after 1 year of unprotected penile-vaginal intercourse (Lee, 2019). Primary infertility refers to a couple who has never had a child. Secondary infertility means that at least one conception has occurred, but currently the couple cannot achieve a pregnancy. It is often a complex physical problem and causes are related to endometriosis, uterine factors, anovulation, tubal obstruction, and male factors.

Diagnostic Findings

Ovarian and Ovulation Factors

Diagnostic studies performed to determine if ovulation is regular and whether the pregestational endometrium is adequate for implantation may include a serum progesterone level and an ovulation index. The ovulation index involves a urine dipstick test to determine whether the surge in LH that precedes follicular rupture has occurred.

Tubal and Uterine Factors

HSG is used to rule out uterine or tubal abnormalities. A contrast agent injected into the uterus through the cervix produces an outline of the shape of the uterine cavity and the patency of the tubes. This process sometimes removes mucus or tissue that is lodged in the tubes. Laparoscopy permits direct visualization of the tubes and other pelvic structures and can assist in identifying conditions that may interfere with fertility (e.g., endometriosis).

Fibroids, polyps, and congenital malformations are possible causative factors affecting the uterus. Their presence may be determined by pelvic examination, hysteroscopy, saline sonogram (a variation of a sonogram), and HSG. Endometriosis, even if mild, is associated with reduced fertility (Schenken, 2019).

Male Factors

An analysis of semen provides information about the number of sperm (density), percentage of moving forms, quality of forward movement (forward progression), and morphology (shape and form). From 2 to 6 mL of watery alkaline semen is normal. A normal count has 60 to 100 million sperm/mL. However, the incidence of impregnation is lessened only when the count decreases to fewer than 15 million sperm/mL (Anawat & Page, 2019).

Men may also be affected by varicoceles (varicose veins around the testicle), which decrease semen quality by increasing testicular temperature. Retrograde ejaculation or ejaculation into the bladder is assessed by urinalysis after ejaculation. Blood tests for male partners may include measuring testosterone, FSH, and LH (both of which are involved in maintaining testicular function), and prolactin levels (Anawat & Page, 2019).

Medical Management

The treatment of infertility is complex and often requires advanced technology. The specific type of treatment depends on the cause of the problem, if it can be identified. Many couples with infertility have normal test results for ovulation, sperm production, and fallopian tube patency.

Ovulatory dysfunction is complex, but many women with ovulation disorders have polycystic ovary syndrome (see [Chapter 51](#)) and may be treated with 5 days of clomiphene to induce ovulation (Comerford & Durkin, 2020). Insulin sensitizing agents are sometimes used, and once insulin levels are normalized, ovulation often occurs. Some women have high prolactin levels, which inhibit ovulation, and they are treated with dopaminergic drugs after a pituitary adenoma is ruled out by MRI. If a woman has premature ovarian failure, oocyte donation may be considered.

Pharmacologic Therapy

Pharmacologically induced ovulation is undertaken when women do not ovulate on their own or ovulate irregularly. These couples are often treated with clomiphene to stimulate ovulation. Gonadotropin treatment may also be used if conception does not occur. Various other medications are used, depending on the main cause of infertility (see [Chart 50-11](#)).

Blood tests and ultrasounds are used to monitor ovulation. Multiple pregnancies (i.e., twins, triplets, or more) may occur with the use of these medications. Ovarian hyperstimulation syndrome (OHSS) may also occur. This condition is characterized by enlarged multicystic ovaries and is complicated by a shift of fluid from the intravascular space into the abdominal cavity. The fluid shift can result in ascites, pleural effusion, and edema; hypovolemia may also occur. Risk factors include younger age, history of polycystic ovarian syndrome, high serum estradiol levels, a larger number of follicles, and pregnancy.

Artificial Insemination

Artificial insemination is the deposit of semen into the female genital tract by artificial means. If the sperm cannot penetrate the cervical canal normally, artificial insemination using a partner's or husband's semen or that of a donor may be considered. When the sperm of the woman's partner is defective or absent (azoospermia) or when there is a risk of transmitting a genetic disease, donor sperm may be used. Safeguards are put in place to address legal, ethical, emotional, and religious issues. Written consent is obtained to protect all parties involved, including the woman, the donor, and the resulting child. The donor's semen is frozen, and the donor is evaluated to ensure that he is free of genetic disorders and STIs, including HIV infection (Ginsburg & Srouji, 2019).

Conditions must be optimal for conception before semen is transferred to the vagina or uterus. The woman must have no abnormalities of the genital system, the fallopian tubes must be patent, and ova must be available. In the male, sperm need to be normal in shape, amount, motility, and endurance. The time of ovulation should be determined as accurately as possible so that the 2 or 3 days during which fertilization is possible each month can be targeted for the treatment.

Ultrasonography and blood studies of varying hormone levels are used to pinpoint the best time for insemination and to monitor for OHSS. Fertilization seldom occurs from a single insemination. Usually, insemination is attempted between days 10 and 17 of the cycle; three different attempts may be made during one cycle. The woman may have received clomiphene or other medications to stimulate ovulation before insemination. The recipient is placed in the lithotomy position on the examination table, a speculum is inserted, and the vagina and cervix are swabbed with a cotton-tipped applicator to remove any excess secretions. The sperm are washed before insertion to remove biochemicals and to select the most active sperm. Semen is drawn into a sterile syringe, and a cannula is attached. The semen is then directed to the external os. In intrauterine insemination, semen is placed into the uterine cavity.

Chart 50-11 PHARMACOLOGY

Medications That Induce Ovulation

- Clomiphene citrate is an estrogen antagonist that increases gonadotropin release, resulting in follicular rupture or ovulation. Clomiphene is used when the hypothalamus is not stimulating the pituitary gland to release follicle-stimulating hormone (FSH) and luteinizing hormone (LH). This medication stimulates follicles in the ovary. It is usually taken for 5 days beginning on the 5th day of the menstrual cycle. Ovulation should occur 4 to 8 days after the last dose. Patients receive instructions about timing penile-vaginal intercourse to facilitate fertilization.
- Menotropins, a combination of FSH and LH, may be used to stimulate the ovaries to produce eggs. These agents are used for women with deficiencies in FSH and LH. When followed by administration of human chorionic gonadotropin, menotropins stimulates the ovaries, so monitoring by ultrasound and hormone levels is essential because overstimulation may occur.
- Follitropin alfa, follitropin beta, and urofollitropin may be used to treat ovulation disorders or to stimulate a follicle and egg production for intrauterine insemination or in vitro fertilization or other assisted reproductive technologies.
- Gonadotropin-releasing hormone agonists (leuprolide, nafarelin acetate) suppress FSH, prevent premature egg release, and shrink fibroids.
- Bromocriptine may be used in treatment for infertility due to elevated prolactin levels.
- Progesterone vaginal suppositories help improve the uterine lining after ovulation.
- Urofollitropin, which contains FSH with a small amount of LH, is used in some disorders (e.g., polycystic ovarian syndrome) to stimulate follicle growth. Clomiphene is then used to stimulate ovulation.
- Chorionic gonadotropin, which mimics LH, releases an egg after hyperstimulation and supports the corpus luteum.
- Metformin may be used in polycystic ovarian syndrome to induce regular ovulation.
- Aspirin and heparin may be used to prevent recurrent pregnancy loss in patients with elevated antiphospholipid antibodies.

Adapted from Comerford, K. C., & Durkin, M. T. (2020). *Nursing 2020 drug handbook*. Philadelphia, PA: Wolters Kluwer.

Assisted Reproductive Technologies

Assisted reproductive technologies include in vitro fertilization (IVF) and its modifications. Currently, between 1% and 3% of all live births each year in the United States are achieved through assisted technology (Paulson, 2019).

IVF refers to a set of procedures that, if successful, results in a pregnancy. These procedures involve ovarian stimulation, egg retrieval, fertilization, and embryo transfer. The ovaries are stimulated to produce multiple eggs or ova, usually with medications, because success rates are greater with more than one embryo. Many different protocols exist for inducing ovulation with one or more agents (Paulson, 2019). Patients are carefully selected and evaluated, and cycles are carefully monitored using ultrasound and monitoring hormone levels. At the appropriate time, the ova are recovered by transvaginal ultrasound retrieval. Sperm and eggs are coincubated for up to 36 hours, and the embryos are transferred about 48 hours after retrieval. Implantation should occur in 3 to 5 days.

Gamete intrafallopian transfer (GIFT), a variation of IVF, is the treatment of choice for patients with ovarian failure. GIFT is considered in unexplained infertility and when there is religion-based discomfort with IVF. The most common indications for IVF and GIFT are irreparable tubal damage, endometriosis (see [Chapter 51](#)), unexplained infertility, inadequate sperm, and exposure to diethylstilbestrol. Success rates for GIFT are similar to those for IVF (Paulson, 2019).

Additional Assisted Reproductive Technologies

In intracytoplasmic sperm injection (ICSI), an ovum is retrieved, and a single sperm is injected through the zona pellucida, through the egg membrane, into the cytoplasm of the oocyte. The fertilized egg is then transferred back to the donor. ICSI is the treatment of choice in severe male factor infertility.

Women who cannot produce their own eggs (i.e., premature ovarian failure) have the option of using the eggs of a donor after stimulation of the donor's ovaries. The recipient also receives hormones in preparation for these procedures. Couples may also choose this modality if the female partner has a genetic disorder that may be passed on to children.

Tubal embryo transfer (TET) involves the placement of fertilized eggs or embryos into the fallopian tube. A laparoscopic procedure is needed to place the embryos in the fallopian tubes. Some women choose TET after IVF failure (Paulson, 2019).

Chart 50-12



NURSING RESEARCH PROFILE

Stress and Anxiety in Couples Who Conceive via In Vitro Fertilization

Stevenson, E. L., Ceber, M., & Silva, S. (2019). Stress and anxiety in couples who conceive via In Vitro fertilization compared with those who conceive spontaneously. *Journal of Obstetric, Gynecologic and Neonatal Nursing*, 48(6), 635–644.

Purpose

Infertility, which impacts roughly 15% of couples worldwide, is a stressful event for couples. Few studies have examined the continued stress and anxiety experienced after successful in vitro fertilization (IVF). Even less investigated is the partners' experience during infertility and IVF. The aim of this pilot study was to examine the levels of stress and anxiety of women and their partners who conceived via IVF compared with each other, as well as compared to couples who conceived spontaneously.

Design

The longitudinal, descriptive pilot study enrolled 48 women and their partners ($n = 96$). The 22 couples ($n = 44$) who conceived by IVF and 26 ($n = 52$) couples who conceived spontaneously were recruited from 2 fertility clinics and a well women clinic throughout the northeast and southeast United States. Participants were asked to complete three instruments during each trimester of pregnancy to measure the perceptual and emotional response components of stress and anxiety.

Results

The analysis of the instruments across the 3 trimesters showed significant differences between women and their male partners. All women showed greater levels of stress and anxiety during each trimester compared to their male partners. Anxiety was not consistent throughout the pregnancy, showing a gradual decline as the pregnancy progressed. The study also reported no significant difference in the levels of stress and anxiety between couples who conceived by IVF and those who conceived spontaneously.

Nursing Implications

It is imperative that nurses and other professionals recognize the impact infertility can have on a couple's level of stress and anxiety. In addition to care of the couple, nurses need to care for the individual, taking into full account the differences in experiences of the woman and her partner during the pregnancy.

Nursing Management

Nursing interventions when working with couples during infertility evaluations include assisting in reducing stress in the relationship, encouraging cooperation, protecting privacy, fostering understanding, and referring the

couple to appropriate resources when necessary. Because infertility evaluations and treatments are expensive, time-consuming, invasive, stressful, and not always successful, couples need support in working together to deal with this process (Stevenson, Cebert, & Silva, 2019) (see the Nursing research Profile in [Chart 50-12](#)).

Smoking cessation is encouraged because smoking, smokeless tobacco, electronic nicotine delivery systems (ENDS) including e-cigarettes, e-pens, e-pipes, e-hookah, and e-cigars, have an adverse effect on the success of assisted reproduction (Rodriguez, 2020). Diet, exercise, stress reduction techniques, folic acid supplementation, health maintenance, and disease prevention are emphasized in many infertility programs. Couples may also consider adoption, child-free living, and gestational carriers (the use of a surrogate to carry the fetus for the couple with infertility). Nurses can be helpful listeners and information resources in these deliberations.

Preconception/Periconception Health Care

Nurses can be instrumental in encouraging all women of childbearing age, including those with chronic illness or disabilities, to consider issues that may affect health during pregnancy (Lammers, Hulme, Wey, et al., 2017). Preconception health care is a concept that expands on the definition of prenatal care to include the time before conception (Lammers et al., 2017). Women who plan their pregnancies and are healthy and well informed tend to have better outcomes. There are currently nine consensus recommendations for advancing preconception health (see [Chart 50-13](#)).

Chart 50-13

Preconception Wellness Strategies

Nurses can help advance pre- and periconception care of women by establishing the following:

- Pregnancy intention
- Absence of sexually transmitted infections
- Access to care
- Healthy weight
- Optimal glycemic control in women with pregestational diabetes
- Preconception multivitamin with folic acid
- Teratogenic medication avoidance
- Tobacco avoidance

Adapted from Lammers, C. R., Hulme, P. A., Wey, H., et al. (2017). Understanding women's awareness and access to preconception health care in rural population: A cross-sectional study. *Journal of Community Health*, 42(3), 489–499.

Nurses can make a difference in preconception health through education and counseling. Women who use tobacco products, by smoking or ENDS, should be encouraged to stop their use; it may help to offer cessation classes. Women should take folic acid supplements to prevent neural tube defects. Women with diabetes should have good glycemic control prior to conception. It is necessary to assess rubella immunity and other immunizations as well as a family history of genetic defects; genetic counseling may be appropriate. Women taking teratogenic medications and women concerned about genetic disorders should be encouraged to discuss effective contraception and childbearing plans with their primary provider (see [Chart 50-2](#)).

Ectopic Pregnancy

The incidence of ectopic pregnancy and the risk of death due to ectopic pregnancy are decreasing. However, ectopic pregnancy remains the leading cause of pregnancy-related death in the first trimester (ACOG, 2018). Ectopic pregnancy occurs when a fertilized ovum (a blastocyst) becomes implanted on any tissue other than the uterine lining, most commonly along the fallopian tube (ACOG, 2018) (see [Fig. 50-7](#)).

Possible causes of ectopic pregnancy include salpingitis, peritubal adhesions (after pelvic infection, endometriosis, appendicitis), structural abnormalities of the fallopian tube, previous ectopic pregnancy, previous tubal surgery, multiple previous induced abortions, and tumors that distort the tube (ACOG, 2018). Additional risk factors include use of tobacco products, IUD

use, history of PID, and use of fertility drugs to induce ovulation (ACOG, 2018).

Risk factors are important, but all women need to be educated about early treatment and have a high index of suspicion in the case of a period that does not seem normal, the presence of pain, or pain with a suspected pregnancy. Women may have fatal hemorrhage with ruptured ectopic pregnancies if they delay seeking attention or if their primary providers are not alert to the possibility of this diagnosis.

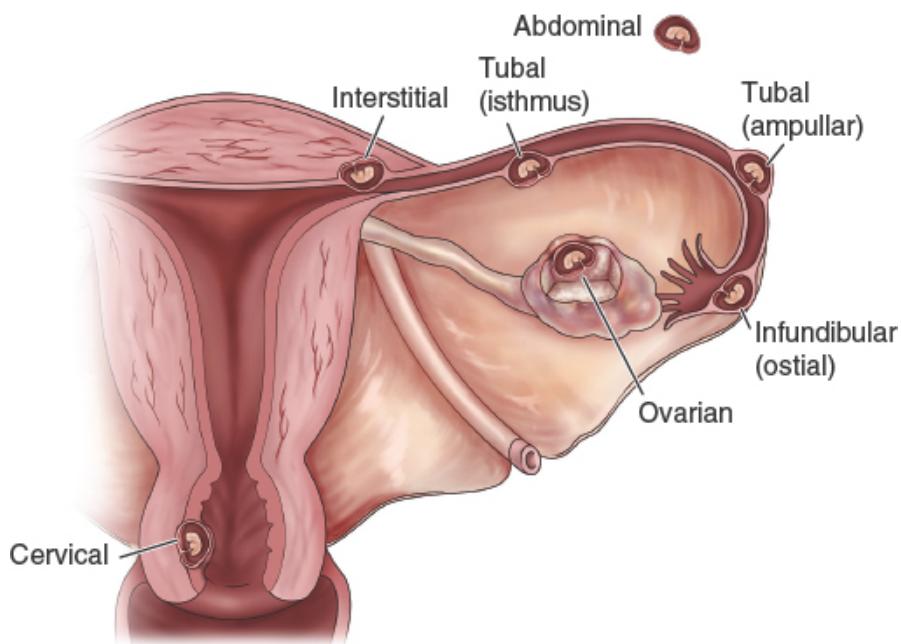


Figure 50-7 • Sites of ectopic pregnancy.

Clinical Manifestations

Signs and symptoms vary depending on whether tubal rupture has occurred. Delay in menstruation from 1 to 2 weeks followed by slight bleeding (spotting) or a report of a slightly abnormal period suggests the possibility of an ectopic pregnancy. Symptoms may begin late, with vague soreness on the affected side (probably due to uterine contractions and distention of the tube), and may proceed to sharp, colicky pain. Most patients experience some pelvic or abdominal pain and some spotting or bleeding. Gastrointestinal symptoms, dizziness, or lightheadedness may occur. Patients may think the abnormal bleeding is a menstrual period, especially if a recent period occurred and was normal.

If implantation occurs in the fallopian tube, the tube becomes more and more distended and can rupture if the ectopic pregnancy remains undetected for 4 to 6 weeks or longer after conception. When the tube ruptures, the ovum

is discharged into the abdominal cavity, and the woman experiences agonizing pain, dizziness, faintness, and nausea and vomiting due to the peritoneal reaction to blood escaping from the tube. Dyspnea and symptoms of shock may occur, and the signs of hemorrhage—rapid and thready pulse, decreased blood pressure, subnormal temperature, restlessness, pallor, and sweating—are evident. Later, the pain becomes generalized in the abdomen and radiates to the shoulder and neck because of accumulating intraperitoneal blood that irritates the diaphragm.

Assessment and Diagnostic Findings

Ectopic pregnancies must be diagnosed promptly to prevent life-threatening hemorrhage, which is the major complication of rupture. During vaginal examination, a large mass of clotted blood that has collected in the pelvis behind the uterus or a tender adnexal mass may be palpable, although there are often no abnormal findings. If an ectopic pregnancy is suspected, the patient is evaluated by sonography and human chorionic gonadotropin (hCG) levels. Serial hCG tests may be needed (Tulandi, 2019). The levels of hCG (the diagnostic hormone of pregnancy) double in early normal pregnancies every 3 days but are reduced in abnormal or ectopic pregnancies. A less-than-normal increase is cause for suspicion. Transvaginal ultrasound, the usual method of diagnosis, can detect a pregnancy between 5 and 6 weeks from the time of the last menstrual period. Detectable fetal heart movement outside the uterus on ultrasound is firm evidence of an ectopic pregnancy.

Occasionally, the clinical picture makes the diagnosis relatively easy. However, when the clinical signs and symptoms are inconclusive, laparoscopy may be required for definitive diagnosis (Tulandi, 2019).

Medical Management

Surgical Management

When surgery is performed early, almost all patients recover rapidly; if tubal rupture occurs, mortality increases. The type of surgery is determined by the size and extent of local tubal damage. Resection of the involved fallopian tube with end-to-end anastomosis may be effective. Some surgeons attempt to salvage the tube with a salpingotomy, which involves opening and evacuating the tube and controlling bleeding. More extensive surgery includes salpingectomy (removing the tube alone) or salpingo-oophorectomy (removing the tube and ovary).

Pharmacologic Therapy

Another option is the use of methotrexate without surgery (ACOG, 2018). Because methotrexate stops the pregnancy from progressing by interfering with DNA synthesis and the multiplication of cells, it interrupts early, small, unruptured ectopic pregnancies. The patient must be hemodynamically stable; have no active renal or hepatic disease; have no evidence of thrombocytopenia or leukopenia; and have a very small, unruptured ectopic pregnancy on ultrasound. Other indications may include no fetal cardiac activity and no active abdominal bleeding. Methotrexate is occasionally used to eliminate residual ectopic pregnancy tissue following a laparoscopy (ACOG, 2018).

NURSING PROCESS

The Patient with an Ectopic Pregnancy

Assessment

The health history includes the menstrual pattern and any (even slight) bleeding since the last menstrual period. The nurse elicits the patient's description of pain and its location. The nurse asks the patient whether any sharp, colicky pains have occurred and whether pain radiates to the shoulder and neck (possibly caused by rupture and pressure on the diaphragm).

In addition, the nurse monitors vital signs, level of consciousness, and the nature and amount of vaginal bleeding. If possible, the nurse assesses how the patient is coping with the abnormal pregnancy and likely loss.

Diagnosis

NURSING DIAGNOSES

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

- Acute pain associated with the progression of the ectopic pregnancy
- Grief associated with the loss of pregnancy and anticipatory effect on future pregnancies
- Lack of knowledge associated with the treatment and effect on future pregnancies

COLLABORATIVE PROBLEMS/POTENTIAL COMPLICATIONS

Potential complications may include:

- Hemorrhage
- Hemorrhagic shock

Planning and Goals

The major goals may include relief of pain; acceptance and resolution of grief and pregnancy loss; increased knowledge about ectopic pregnancy, its treatment, and its outcome; and absence of complications.

Nursing Interventions

RELIEVING PAIN

The abdominal pain associated with ectopic pregnancy may be described as cramping or severe continuous pain. If the patient is to have surgery, preanesthetic medications may provide pain relief. Postoperatively, analgesic agents are given liberally; this promotes early ambulation and enables the patient to cough and take deep breaths.

SUPPORTING THE GRIEVING PROCESS

Patients experience varying levels of distress. If the pregnancy was desired, loss may or may not be expressed verbally by the patient and her partner. The impact may not be fully realized until much later. The nurse should be available to listen and provide support. The patient's partner, if appropriate, should participate in this process. Even if the pregnancy was unintended, a loss has been experienced, and a grief reaction may occur.

MONITORING AND MANAGING POTENTIAL COMPLICATIONS

Potential complications of ectopic pregnancy are hemorrhage and shock. Careful assessment is essential to detect the development of these complications. Continuous monitoring of vital signs, level of consciousness, amount of bleeding, and intake and output provide information about the possibility of hemorrhage and the need to prepare for IV therapy. Bed rest is indicated. Hematocrit, hemoglobin, and blood gases are monitored to assess hematologic status and adequacy of tissue perfusion. Significant deviations in these laboratory values are reported immediately, and the patient is prepared for possible surgery. Blood component therapy may be required if blood loss has been rapid and extensive. If hypovolemic shock occurs, the treatment is directed toward reestablishing tissue perfusion and adequate blood volume. See [Chapter 11](#) for a discussion of the IV fluids and medications used in treating shock.

The nurse has an important role in prevention by being alert to patients with abnormal bleeding who may be at risk for an ectopic pregnancy and referring them immediately for care. It is necessary to keep a high index of suspicion in daily practice when a woman of childbearing age, particularly one who is not using an effective method of contraception consistently, reports abdominal discomfort or abnormal bleeding.

PROMOTING HOME, COMMUNITY-BASED, AND TRANSITIONAL CARE



Educating Patients About Self-Care. If the patient has experienced life-threatening hemorrhage and shock, these complications are addressed and treated before education can begin. At this time, the patient's and the nurse's attention is focused on the crisis, not on learning. Once hemodynamically stable, the patient begins to ask questions about what happened and why certain procedures were performed. Procedures are explained in terms that are understandable to a patient who is distressed and apprehensive. The patient's partner is included in education when possible. After the patient recovers from postoperative discomfort, it may be more appropriate to address any questions and concerns that she and her partner have, including the effect of this pregnancy or its treatment on future pregnancies. The patient should be advised that ectopic pregnancies may recur. The patient is educated about possible complications and instructed to report early signs and symptoms. It

is important to review signs and symptoms with the patient and instruct her to report an abnormal menstrual period promptly.

Continuing and Transitional Care. Because of the risk of subsequent ectopic pregnancies, the patient is advised to seek preconception counseling before considering future pregnancies and to seek early prenatal care. Follow-up contact allows the nurse to answer questions and clarify information for the patient and her partner.

Evaluation

Expected patient outcomes may include:

1. Experiences relief of pain
 - a. Reports a decrease in pain and discomfort
 - b. Ambulates as prescribed; performs coughing and deep breathing
2. Begins to accept loss of pregnancy and expresses grief by verbalizing feelings and reactions to loss
3. Verbalizes an understanding of the causes of ectopic pregnancy
4. Experiences no complications
 - a. Exhibits no signs of bleeding, hemorrhage, or shock
 - b. Has decreased amounts of discharge (on perineal pad)
 - c. Has normal skin color and turgor
 - d. Exhibits stable vital signs and adequate urine output
 - e. Levels of beta-hCG return to normal

Perimenopause

Perimenopause is the menstrual transition period before menopause that begins on average 4 years before the last menstrual period (Casper, 2019). Perimenopause is characterized by marked hormonal fluctuations and irregular menstrual cycles (Casper, 2019). Women often have varied beliefs about aging, and these must be considered when caring for or educating patients who are perimenopausal.

Nursing Management

Women who are perimenopausal often benefit from information about the subtle physiologic changes they are experiencing. Perimenopause has been described as an opportune time for educating women about health promotion and disease prevention strategies. When discussing health-related concerns with women who are in midlife, nurses should consider the following issues:

- Sexuality, fertility, contraception, and STIs

- Unintended pregnancy (if contraception is not used correctly and consistently)
- Oral contraceptive use. Oral contraceptives provide women with protection against uterine cancer, ovarian cancer, anemia, pregnancy, and fibrocystic breast changes as well as relief from perimenopausal symptoms (Casanova et al., 2019). This option should be discussed with women who are perimenopausal. Women who smoke and are 35 years or older should not take oral contraceptive agents because of an increased risk of cerebrovascular disease. Contraception is discussed in detail earlier in this chapter.
- Breast health. About 16% of cases of breast cancer occur in women who are perimenopausal, so breast self-examination, routine physical examinations, and mammograms are essential.

Menopause

Menopause is the permanent physiologic cessation of menses associated with declining ovarian function evidenced by 12 consecutive months with no menstrual bleeding (Casanova et al., 2019). Most women stop menstruating between 41 and 59 years of age. Postmenopause is the period beginning from about 1 year after menses cease. Due to a decrease in estrogen levels, menopause may be associated with some atrophy of breast tissue and genital organs, loss in bone density, and vascular changes.

Menopause starts gradually and is usually signaled by changes in menstruation. The monthly flow may increase or decrease, become irregular, and finally cease. Often, the interval between periods is longer; a lapse of several months between periods is not uncommon. Ovulation occurs less frequently, estrogen levels fluctuate, and FSH levels increase in an attempt to stimulate estrogen production (Casanova et al., 2019).

Postmenopausal Bleeding

Bleeding 1 year after menses cease at menopause must be investigated, and a malignant condition must be considered until proven otherwise. A transvaginal ultrasound can be used to measure the thickness of the endometrial lining (Goodman, 2020). The uterine lining in women who are postmenopausal should be thin because of low estrogen levels. A thicker lining warrants further evaluation by endometrial biopsy or a D&C.

Clinical Manifestations

Menopause has systemic effects that include an increase in body fat and intra-abdominal deposition of body fat. Also, levels of total and LDL cholesterol increase. Hot flashes occur in many women going through menopause due to alterations in thermoregulation. Because of these hormonal changes, some women notice irregular menses, breast tenderness, and mood changes long before menopause occurs (Casanova et al., 2019). The hot or warm flashes and night sweats reported by some women are thought to be caused by hormonal changes and denote vasomotor instability. They may vary in intensity from a barely perceptible warm feeling to a sensation of extreme warmth accompanied by profuse sweating, causing discomfort, sleep disturbances, and subsequent fatigue. Other physical changes may include increased bone loss (see [Chapter 36](#)).

Chart 50-14  **HEALTH PROMOTION**

Strategies for Women Approaching Menopause

- An annual physical examination can help screen for problems and promote general health.
- Changes in lifestyle (e.g., diet, activity) to promote health and wellness.
 - A nutritious diet (decrease fat and calories, increase fiber and whole grains) and weight control will enhance physical and emotional well-being.
 - Exercise for at least 30 minutes 3 or 4 times a week to maintain good health.
 - Involvement in outside activities is beneficial in reducing anxiety and tension.
- Recognize the following about sexual activity:
 - Sexual functioning may be enhanced at midlife.
 - Frequent sexual activity helps to maintain the elasticity of the vagina.
 - Contraception is advised until 1 year passes without menses.
 - Safer sex is important at any age.
- Strategies and methods to prevent or manage potential problems:
 - *Hot flashes*: See primary provider to discuss hormone replacement therapy indications (lowest dose for shortest period of time) and alternative therapy (e.g., vitamin therapy, black cohosh, and other herbal preparations). Fatigue and stress may worsen hot flashes.
 - *Itching or burning of vulvar areas*: See primary provider to rule out dermatologic abnormalities and, if appropriate, to obtain a prescription for a lubricating or hormonal cream.
 - *Dyspareunia due to vaginal dryness*: Use a water-soluble lubricant, hormone cream, or contraceptive foam.
 - *Decreased perineal muscle tone and bladder control*: Practice Kegel exercises daily (contract the perineal muscles as though stopping urination; hold for 5 to 10 seconds and release; repeat frequently during the day).
 - *Dry skin*: Use mild emollient skin cream and lotions to prevent dry skin.
 - *Weight control*: Join a weight reduction support group such as Weight Watchers or a similar group if appropriate or consult a registered dietitian for guidance about the tendency to gain weight, particularly around the hips, thighs, and abdomen.
 - *Osteoporosis*: Observe recommended calcium and vitamin D intake, including calcium supplements, if indicated, to slow the process of osteoporosis; avoid smoking, alcohol, and excessive caffeine, all of which increase bone loss. Perform weight-bearing exercises. Undergo bone density testing when appropriate.

- *Risk for urinary tract infection (UTI)*: Drink 6 to 8 glasses of water daily as a possible way to reduce the incidence of UTI related to atrophic changes of the urethra.
- *Vaginal bleeding*: Report any bleeding after 1 year of no menses to the primary provider *immediately, no matter how minimal*.

The entire genitourinary system is affected by the reduced estrogen level. Changes in the vulvovaginal area may include a gradual thinning of pubic hair and a gradual shrinkage of the labia. Vaginal secretions decrease, and women may report dyspareunia. The vaginal pH increases during menopause, predisposing women to bacterial infections and atrophic vaginitis. Discharge, itching, and vulvar burning may result.

Some women report fatigue, forgetfulness, weight gain, irritability, trouble sleeping, feeling “blue,” and feelings of panic. Menopausal complaints need to be evaluated carefully because they may indicate other disorders. Most women have few problems and are relieved to be free from menstrual periods. Nurses should provide women with education and health promotion strategies appropriate for those approaching menopause (see [Chart 50-14](#)).

Psychological Considerations

Women’s reactions and feelings related to loss of reproductive capacity may vary. Some women may experience role confusion, whereas others experience a sense of sexual and personal freedom. Women may be relieved that the childbearing phase of their lives is over. Each woman’s personal views about menopause and circumstances affect her response and must be considered on an individual basis. Nurses need to be sensitive to all possibilities and take their cues from the patient.

Medical Management

Women approaching menopause often have many concerns about their health. Some have concerns based on a family history of heart disease, osteoporosis, or cancer. Each woman needs to be as knowledgeable as possible about her health options and should be encouraged to discuss her concerns with her primary provider so that she can make an informed decision about managing menopausal symptoms and maintaining her health.

Hormone Therapy

HT or menopausal hormonal therapy (previously referred to as hormone replacement therapy [HRT]) is medication that contains estrogen or estrogen and progestin together, to replace the ones the body is no longer making. HT is controversial but it is prescribed to treat moderate to severe menopause-related

vasomotor symptoms (hot flashes and night sweats) in women without contraindications to estrogen and progesterone whose quality of life is being affected (Martin & Barbieri, 2019). The current recommendation for treatment of hot flashes with HT is to use the lowest dose possible for the shortest time possible (Martin & Barbieri, 2019).

Methods of Administration

Both estrogen and progestin are prescribed for women who have not had a hysterectomy; progestin prevents proliferation of the uterine lining and hyperplasia. Women who no longer have a uterus because of hysterectomy can take estrogen without progestin (i.e., unopposed estrogen) because there is no longer a risk of estrogen-induced hyperplasia of the uterine lining. Although there is a slight increase of risk of stroke in women taking estrogen alone following hysterectomy, the risk of breast cancer is unchanged (Martin & Barbieri, 2019).

Some women take both estrogen and progestin daily; others take estrogen for 25 consecutive days each month, with progestin taken in cycles (e.g., 10 to 14 days of the month). Women who take HT for 25 days often experience bleeding after completing the progestin. Other women take estrogen and progestin every day and usually experience no bleeding. They occasionally have irregular spotting, which should be evaluated by their primary provider. Progestin administration may be oral, transdermal, vaginal, or intrauterine.

Estrogen patches, which are replaced once or twice weekly, are another option but require a progestin along with them if the woman still has a uterus. Another type of patch provides estrogen and progestin treatment (Comerford & Durkin, 2020). Skin should be dry at the area of application and cleansing the site with alcohol may improve adhesiveness. Vaginal treatment with an estrogen cream, suppository, or a vaginal ring may be used for vasomotor symptoms, vaginal dryness, or atrophy (Comerford & Durkin, 2020).

Risks and Benefits

HT is contraindicated in women with a history of breast cancer, vascular thrombosis, impaired liver function, uterine cancer, and undiagnosed abnormal vaginal bleeding. The risk of venous thromboembolism is increased with HT (Martin & Barbieri, 2019). Women who elect to take HT should be educated about the signs and symptoms of deep vein thrombosis (DVT) and pulmonary embolism (PE) and instructed to report these signs and symptoms (i.e., leg redness, tenderness, chest pain, shortness of breath) immediately. Women who take HT need to be informed about the importance of regular follow-up care, including a yearly physical examination and mammograms as needed and age appropriate. An endometrial biopsy is indicated for any irregular bleeding. Because the risk of complications increases the longer HT is used, HT should be used for the shortest time possible (Martin & Barbieri, 2019). Estrogen

alone or in combination with a progestin does not reduce the risk of dementia or cognitive impairment.

Alternative Therapy for Hot Flashes

Because women often seek information about alternatives to the use of HT, nurses must be knowledgeable about other approaches that women can use to promote their health in the peri- and postmenopausal periods. Problematic hot flashes have been treated with low-dose venlafaxine, psychoeducational approaches, and diet and lifestyle changes (Santen, Loprinzi, & Casper, 2019). Similarly, vitamin B₆ and vitamin E may be effective. Some women have expressed interest in other alternative treatments (e.g., natural estrogens and progestins, black cohosh, ginseng, dong quai, soy products, and several other herbal preparations); however, scant data exist about their safety or effectiveness. A few studies have shown some improvement in vasomotor symptoms (hot flashes and night sweats) with the use of complementary therapies. These include reflexology, aromatherapy, yoga, hypnotherapy, breathing exercises, and meditation (Santen et al., 2019). When taking a medical history of a patient who is perimenopausal or menopausal, the nurse should always address their use of complementary and alternative therapies and supplements.

Maintaining Bone Health

Acceleration of bone loss resulting in osteoporosis and microarchitectural deterioration of bone tissue occurs at menopause and leads to increased bone fragility and risk of fracture (see [Chapter 36](#)).

Maintaining Cardiovascular Health

A variety of strategies can help to lower the risk of heart disease in women, including lifestyle changes and behavioral strategies (see [Chapter 21](#)).

Behavioral Strategies

As stated previously, regular physical exercise is beneficial. It may also reduce stress, enhance well-being, and improve self-image. In addition, weight-bearing exercise may prevent loss of muscle tissue and bone tissue.

Women are also encouraged to participate in other health-promoting activities. These include regular health screening recommended for women at the time of menopause: gynecologic examinations, mammograms, colonoscopy, fecal occult blood testing, and bone mineral density testing if at risk for osteoporosis.

Nutritional Therapy

Women are encouraged to decrease their fat and caloric intake and increase their intake of whole grains, fibers, fruits, and vegetables.

Nursing Management

Nurses can encourage women to view menopause as a natural change resulting in freedom from symptoms related to menses. No relationship exists between menopause and mental health problems; however, social circumstances (e.g., adolescent children, ill partners, and dependent or ill parents) that may coincide with menopause can be stressful.

Measures should be taken to promote general health. The nurse explains to the patient that cessation of menses is a normal occurrence that is rarely accompanied by nervous symptoms or illness. The current expected lifespan after menopause for the average woman is 30 to 35 years, which may encompass as many years as the childbearing phase of her life. Normal sexual urges continue, and women retain their usual response to sex long after menopause. Many women enjoy better health after menopause than before, especially those who have experienced dysmenorrhea. The individual woman's evaluation of herself and her worth, now and in the future, is likely to affect her emotional reaction to menopause. Patient education and counseling regarding healthy lifestyles, health promotion, and health screening are of paramount importance (Santen et al., 2019).

CRITICAL THINKING EXERCISES

1  During an outpatient visit, your 33-year-old female patient and her spouse mention they are interested in infertility evaluation. What information will you need to determine if infertility treatment is an option? What is the evidence base for infertility methods for this couple? Specify the criteria used to evaluate the strength of the evidence for the practices that you identify.

2  A 40-year-old woman was admitted to your unit for complications from a recent induced abortion. You notice bruising in various stages of healing and suspect she may be a victim of intimate partner violence. What type of referrals might be appropriate for this patient? What members of the interprofessional health care team do you anticipate as being integral to the care of this patient?

3  During her annual physical examination, a 21-year-old woman is anxious about her first pelvic examination. What are the immediate nursing priorities in providing care to this patient? How will your priorities and approach differ if the patient were older adult or from a different culture than your own?

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*Asterisk indicates nursing research.

**Double asterisk indicates classic reference.

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Resources

American Congress of Obstetricians and Gynecologists (ACOG), www.acog.org
American Society for Reproductive Medicine (ASRM), www.asrm.org
Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN),
www.awhonn.org

DES Action USA, www.desaction.org
Emergency Contraception, ec.princeton.edu
Female Genital Cutting Education and Networking Project (provides fact sheets, state policies, periodicals), www.fgmnetwork.org
Futures Without Violence, www.futureswithoutviolence.org
Health Promotion for Women With Disabilities, Villanova University College of Nursing,
www1.villanova.edu/villanova/nursing/community/womendisabilities.html
National Coalition Against Domestic Violence (NCADV), www.ncadv.org
North American Menopause Society (NAMS), www.menopause.org
Nurse Practitioners in Women's Health (NPWH), www.npwh.org
Planned Parenthood Federation of America, www.plannedparenthood.org

51 Management of Patients with Female Reproductive Disorders

LEARNING OUTCOMES

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

1. Compare the various types of vaginal infections and the signs, symptoms, and treatments of each.
2. Discuss the signs and symptoms, management, and nursing care of patients with inflammatory processes, structural disorders, and benign and malignant conditions of the female reproductive tract.
3. Use the nursing process as a framework for care of the patient with a vulvovaginal infection or with genital herpes, or who is undergoing a hysterectomy.
4. Describe the nursing management of the patient undergoing radiation therapy for cancer of the female reproductive tract.

NURSING CONCEPTS

Comfort
Family
Infection
Reproduction
Sexuality

GLOSSARY

- abscess:** a collection of purulent material
- Bartholin cyst:** a cyst in a paired Bartholin or vestibular gland in the vulva
- brachytherapy:** delivery of radiation therapy through internal implants to a localized area of tissue
- candidiasis:** infection caused by *Candida* species or yeast; also referred to as monilial vaginitis or yeast infection
- condylomata:** warty growths indicative of the human papillomavirus
- cryotherapy:** destruction of tissue by freezing (e.g., with liquid nitrogen)
- cystocele:** displacement of the bladder downward into the vagina
- douche:** rinsing the vaginal canal with fluid
- dysplasia:** term related to abnormal cell changes; may be found on Pap smear and cervical biopsy reports
- endocervicitis:** inflammation of the mucosa and the glands of the cervix
- endometriosis:** endometrial tissue in abnormal locations; causes pain with menstruation, scarring, and possible infertility
- enterocele:** a protrusion of the intestinal wall into the vagina
- fibroid tumor:** usually benign tumor arising from the muscle tissue of the uterus
- fistula:** abnormal opening between two organs or sites (e.g., vesicovaginal, between bladder and vagina; rectovaginal, between rectum and vagina)
- hyphae:** long, branching filamentous structures characteristic of fungi such as *Candida* seen under microscopic examination
- hysterectomy:** surgical removal of the uterus
- loop electrocautery excision procedure (LEEP):** procedure in which a laser is used to remove a thin layer of cervical tissue after abnormal biopsy findings
- myomectomy:** surgical removal of uterine fibroids
- oophorectomy:** surgical removal of an ovary
- pelvic exenteration:** major surgical procedure in which the pelvic organs are removed
- pelvic inflammatory disease (PID):** inflammatory condition of the pelvic cavity, usually from a sexually transmitted infection
- polycystic ovary syndrome (PCOS):** complex endocrine condition resulting in chronic anovulation, androgen excess, and multiple ovarian cysts
- rectocele:** bulging of the rectum into the vagina
- salpingitis:** inflammation of the fallopian tube

salpingo-oophorectomy: removal of the ovary and its fallopian tube (removal of the fallopian tube alone is a salpingectomy)

vaginitis: inflammation of the vagina, usually secondary to infection

vulvar dystrophy: thickening or lesions of the vulva; usually causes itching and may require biopsy to exclude malignancy

vulvectomy: removal of the tissue of the vulva

vulvitis: inflammation of the vulva, usually secondary to infection or irritation

vulvodynia: painful condition that affects the vulva

Disorders of the female reproductive system can be minor or serious but are often anxiety producing and distressing. Some disorders are self-limited and cause only minor inconvenience; others are life-threatening and require immediate attention and long-term therapy. Many disorders are managed by the patient at home, whereas others require hospitalization and surgical intervention. Nurses not only need to be knowledgeable about these disorders but need to be sensitive to patient concerns and possible discomfort in discussing and managing these disorders.

VULVOVAGINAL INFECTIONS

Vulvovaginal infections are common, and nurses have an important role in providing information that may prevent their occurrence. To help prevent these infections, women need to understand their anatomy and normal vulvovaginal health.

The Bartholin glands on either side of the entrance to the vagina can become blocked (cyst formation) or infected (abscess formation) (Ball, Dains, Flynn, et al., 2019). Treatment is different for both cyst and abscess formation, but pain is common with both. Pain can interfere with sitting and walking.

The vagina is protected against infection by its normally low pH (3.5 to 4.5), which is maintained in part by the actions of *Lactobacillus acidophilus*, the dominant bacteria in a healthy vaginal ecosystem. These bacteria suppress the growth of anaerobes and produce lactic acid, which maintains normal pH. They also produce hydrogen peroxide, which is toxic to anaerobes (Paavonen & Brunham, 2018). The risk of infection increases if a woman's resistance is reduced by stress or illness, if the pH is altered, or if a pathogen is introduced (see [Chart 51-1](#)). Continued research into causes and treatments is needed, along with better ways to encourage growth of lactobacilli.

Chart 51-1



RISK FACTORS

Vulvovaginal Infections

- Allergies
- Diabetes
- Frequent douching
- HIV infection
- Long-term or repeated use of broad-spectrum antibiotics
- Low estrogen levels
- Oral-genital contact (yeast can inhabit the mouth and intestinal tract)
- Perimenopause/Menopause
- Poor personal hygiene
- Pregnancy
- Premenarche
- Sex with infected partner
- Synthetic clothing
- Tight undergarments
- Use of oral contraceptives

HIV, human immune deficiency virus.

Adapted from Singh, J., Kalia, N., & Kaur, M. (2018). Recurrent vulvovaginal infections: Etiology, diagnosis, treatment and management. In P. Sing (Ed.). *Infectious diseases and your health*. Singapore: Springer; Zapata, M. R. (2017). Diagnosis and treatment of vulvovaginitis. In D. Shoupe (Ed.). *Handbook of gynecology*. Switzerland: Springer.

The epithelium of the vagina is highly responsive to estrogen, which induces glycogen formation. The subsequent breakdown of glycogen into lactic acid assists in producing a low vaginal pH. When estrogen decreases during lactation and menopause, glycogen also decreases. With reduced glycogen formation, infections may occur. In addition, as estrogen production ceases during the peri- and postmenopausal periods, the vagina and labia may atrophy (thin), making the vaginal area more susceptible to infection. When patients are treated with antibiotic agents, the normal vaginal flora is reduced. This results in altered pH and growth of fungal organisms. Other factors that may initiate or predispose to infections include contact with an infected partner and wearing tight, nonabsorbent, and heat- and moisture-retaining clothing.

Vaginitis (inflammation of the vagina) is a group of conditions that cause vulvovaginal symptoms such as itching, irritation, burning, and abnormal discharge. Bacterial vaginitis is the most common cause, followed by trichomoniasis and vulvovaginal candidiasis (Paladine & Desai, 2018) (see Table 51-1). Other types include desquamative vaginitis, atrophic vaginitis, various vulvar dermatologic conditions, and vulvodynia. Normal vaginal discharge, which may occur in slight amounts during ovulation or just before

the onset of menstruation, is clear to white, odorless, and viscous. It becomes more profuse when vaginitis occurs. Urethritis may accompany vaginitis because of the proximity of the urethra to the vagina. Discharge that occurs with vaginitis may produce itching, odor, redness, burning, or edema, which may be aggravated by voiding and defecation. After the causative organism has been identified, appropriate treatment (discussed later) is prescribed. This may include an oral medication or a local medication that is inserted into the vagina using an applicator.

Candidiasis

Vulvovaginal **candidiasis** is a fungal or yeast infection caused by strains of *Candida* (see [Table 51-1](#)). It is the second most common type of vaginal infection and accounts for an estimated 1.4 million outpatient visits annually in the United States (Centers for Disease Control and Prevention [CDC], 2019a). An estimated 75% of women will experience at least one yeast infection, and 40% to 45% will experience two or more in their lifetime (CDC, 2019a). *Candida albicans* accounts for approximately 90% of the cases, but other strains, such as *Candida glabrata*, may also be implicated (Casanova, Chuang, Goepfert, et al., 2019). Many women with a healthy vaginal ecosystem harbor *Candida* but are asymptomatic. Certain conditions favor the change from an asymptomatic state to colonization with symptoms. For example, the use of antibiotic agents decreases bacteria, thereby altering the natural protective organisms usually present in the vagina. Although infections can occur at any time, they occur more commonly in pregnancy or with a systemic condition such as diabetes or human immune deficiency virus (HIV) infection, or when patients are taking medications such as corticosteroids or oral contraceptive agents (Casanova et al., 2019).

Clinical Manifestations

Clinical manifestations include a vaginal discharge that causes pruritus (itching) and subsequent irritation. The discharge may be watery or thick but usually has a white, cottage cheese–like appearance. Symptoms are usually more severe just before menstruation and may be less responsive to treatment during pregnancy. Diagnosis is made by microscopic identification of spores and **hyphae** (long, branching filamentous structures) on a glass slide prepared from a discharge specimen mixed with potassium hydroxide. With candidiasis, the pH of the discharge is 4 to 5 (Casanova et al., 2019). Manifestations may be uncomplicated, occurring sporadically in women who are healthy, or recurrent and complicated in women who have diabetes, are pregnant, have a compromised immune system, or have obesity.

TABLE 51-1 Vaginal Infections and Vaginitis

Infection	Cause	Clinical Manifestations	Management Strategies
Candidiasis	<i>Candida albicans</i> , <i>C. glabrata</i> , or <i>C. tropicalis</i>	Inflammation of vaginal epithelium, producing itching, reddish irritation White, cheeselike discharge clinging to epithelium	Eradicate the fungus by administering an antifungal agent. Some more frequently used vaginal creams and suppositories are miconazole and clotrimazole. Review other causative factors (e.g., antibiotic therapy, nylon underwear, tight clothing, pregnancy, oral contraceptive agents). Assess for diabetes and HIV infection in patients with recurrent monilia.
<i>Gardnerella</i> -associated bacterial vaginosis	<i>Gardnerella vaginalis</i> and vaginal anaerobes	Usually no edema or erythema of vulva or vagina Gray-white to yellow-white discharge clinging to external vulva and vaginal walls	Administer metronidazole, with instructions about avoiding alcohol while taking this medication. If infection is recurrent, may treat partner.
<i>Trichomonas vaginalis</i> vaginitis	<i>Trichomonas vaginalis</i>	Inflammation of vaginal epithelium, producing burning and itching Frothy yellow-white or yellow-green vaginal discharge	Relieve inflammation, restore acidity, and reestablish normal bacterial flora; provide oral metronidazole for patient and partner.
Bartholinitis (infection of the greater vestibular gland)	<i>Escherichia coli</i> <i>T. vaginalis</i> Staphylococcus Streptococcus Gonococcus	Erythema around vestibular gland Swelling and edema Abscessed vestibular gland	Drain the abscess; provide antibiotic therapy; excise gland of patients with chronic bartholinitis.
Cervicitis—acute and chronic	Chlamydia Gonococcus Streptococcus Many pathogenic	Profuse purulent discharge Backache Urinary frequency and urgency	Determine the cause—perform cytologic examination of cervical smear and appropriate cultures. Eradicate the gonococcal organism, if present: penicillin (as directed)

	bacteria		or spectinomycin or tetracycline, if patient is allergic to penicillin. Tetracycline, doxycycline to eradicate chlamydia. Eradicate other causes.
Atrophic vaginitis	Lack of estrogen; glycogen deficiency	Discharge and irritation from alkaline pH of vaginal secretions	Provide topical vaginal estrogen therapy; improve nutrition if necessary; relieve dryness through the use of moisturizing medications.

HIV, human immune deficiency virus.

Adapted from Paladine, H. L., & Desai, U. A. (2018). Vaginitis: Diagnosis and treatment. *American Family Physician*, 97(5), 321–329.

Medical Management

The goal of management is to eliminate symptoms. Treatments include antifungal agents such as miconazole, nystatin, clotrimazole, and terconazole cream. These agents are inserted into the vagina with an applicator at bedtime. There are 1-, 3-, and 7-night treatment courses available (Paladine & Desai, 2018). Oral medication (fluconazole) is also available in a one-pill dose. Relief should be noted within 3 days.

Some vaginal creams are available without a prescription; however, patients are cautioned to use these creams only if they are certain that they have a yeast or monilial infection. Patients often use these remedies for problems other than yeast infections. If a woman is uncertain about the cause of her symptoms or if relief has not been obtained after using these creams, she should be instructed to seek health care promptly. Yeast infections can become recurrent or complicated. Women may have more than four infections in a year and severe symptoms due to preexisting conditions such as diabetes or immunosuppression. Cell-mediated immunity may be a factor. Women with recurrent yeast infections benefit from a comprehensive gynecologic assessment.

Bacterial Vaginosis

Bacterial vaginosis is caused by an overgrowth of anaerobic bacteria and *Gardnerella vaginalis* normally found in the vagina and an absence of lactobacilli (see Table 51-1). Risk factors include douching after menses, smoking, multiple sex partners, and other sexually transmitted infections (STIs) (also referred to as sexually transmitted diseases [STDs]). Bacterial vaginosis is not considered an STI but is associated with sexual activity, and

incidence is increased in female same-sex partners (Paavonen & Brunham, 2018).

Clinical Manifestations

Bacterial vaginosis can occur throughout the menstrual cycle and does not produce local discomfort or pain. More than half of patients with bacterial vaginosis do not notice any symptoms. Discharge, if noticed, is heavier than normal and gray to yellowish white in color. It is characterized by a fishlike odor that is particularly noticeable after penile–vaginal intercourse or during menstruation as a result of an increase in vaginal pH. The pH of the discharge is usually greater than 4.7 because of the amines that result from enzymes from anaerobes. The fishlike odor can be detected readily by adding a drop of potassium hydroxide to a glass slide with a sample of vaginal discharge, which releases amines; this is referred to as a positive “whiff” test. Under the microscope, vaginal cells are coated with bacteria and are described as “clue cells.” Lactobacilli, which serve as a natural host defense, are usually absent. Bacterial vaginosis is not usually considered a serious condition, although it can be associated with premature labor, premature rupture of membranes, endometritis, and pelvic infection (Casanova et al., 2019; Paavonen & Brunham, 2018).

Medical Management

Metronidazole, given orally twice a day for 1 week, is effective; a vaginal gel is also available. Clindamycin vaginal cream or ovules (oval suppositories) are also effective. Treatment of patients’ partners does not seem to be effective, but the use of condoms may be helpful. Bacterial vaginosis is highly persistent and tends to recur after treatment; therefore, women are encouraged to seek follow-up care if symptoms recur (CDC, 2015; Paladine & Desai, 2018).

Trichomoniasis

Trichomonas vaginalis is a flagellated protozoan that causes a common STI often called *trich*. About 3.7 million cases occur each year in the United States; however, only about 30% of those will exhibit symptoms of the disease (CDC, 2017a). Trichomoniasis may be transmitted by an asymptomatic carrier who harbors the organism in the urogenital tract (see Table 51-1). It may increase the risk of contracting HIV from an infected partner and may play a role in development of cervical neoplasia, postoperative infections, adverse pregnancy outcomes, pelvic inflammatory disease (PID), and infertility.

Clinical Manifestations

Clinical manifestations include a vaginal discharge that is thin (sometimes frothy), yellow to yellow-green, malodorous, and very irritating. An accompanying vulvitis may result, with vulvovaginal burning and itching. Diagnosis is made most often by microscopic detection of the motile causative organisms or less frequently by culture. Inspection with a speculum often reveals vaginal and cervical erythema (redness) with multiple small petechiae (“strawberry spots”) (Casanova et al., 2019). Testing of a trichomonal discharge demonstrates a pH greater than 4.5.

Medical Management

The most effective treatment for trichomoniasis is metronidazole or tinidazole. All partners receive a one-time loading dose or a smaller dose twice a day for 7 days (CDC, 2015). The one-time dose is more convenient; consequently, adherence tends to be greater. The week-long treatment has occasionally been noted to be more effective. Some patients complain of an unpleasant but transient metallic taste when taking metronidazole. Nausea and vomiting, as well as a hot, flushed feeling can occur when this medication is taken with an alcoholic beverage. Patients are strongly advised to abstain from alcohol during treatment and for 24 hours after taking metronidazole or 72 hours after completion of a course of tinidazole (CDC, 2015). About 1 in 5 people will be reinfected with trichomoniasis within 3 months of treatment. All sexual partners should be treated, and patients are encouraged to abstain from sexual activity for 7 to 10 days after treatment (CDC, 2017a).



Gerontologic Considerations

After menopause, the vaginal mucosa becomes thinner and may atrophy. While vulvovaginal atrophy can occur at any time in a woman’s life, it is most common in women who are postmenopausal, with an incidence of nearly 50% (Naumova & Castelo-Branco, 2018). This condition can be complicated by infection from phylogenetic bacteria, resulting in atrophic vaginitis (see [Table 51-1](#)). Leukorrhea (vaginal discharge) may cause itching and burning. Management is similar to bacterial vaginosis. Estrogenic hormones, either taken orally or inserted into the vagina in a cream form, can also be effective in restoring the epithelium.

Desquamative inflammatory vaginitis is an uncommon but severe purulent form of vaginal infection that occurs mostly in Caucasian women who are perimenopausal. It results in vaginal inflammation, burning, discharge, and

dyspareunia (pain with penile–vaginal intercourse). Topical anti-inflammatory and antibiotic treatment is usually effective (Mills, 2017).

NURSING PROCESS

The Patient with a Vulvovaginal Infection

Assessment

The woman with vulvovaginal symptoms should be examined as soon as possible after the onset of symptoms. She should be instructed not to **douche** (rinse the vaginal canal), because doing so removes the discharge needed to make the diagnosis. The area is observed for erythema, edema, excoriation, and discharge. Each of the infection-producing organisms produces its own characteristic discharge and effect (see [Table 51-1](#)). The patient is asked to describe any discharge and other symptoms, such as odor, itching, or burning. Dysuria often occurs as a result of local irritation of the urinary meatus. A urinary tract infection may need to be ruled out by obtaining a urine specimen for culture and sensitivity testing.

The patient is asked about the occurrence of factors that may contribute to vulvovaginal infection:

- Physical and chemical factors, such as constant moisture from tight or synthetic clothing, perfumes and powders, soaps, bubble bath, poor hygiene, and the use of feminine hygiene products
- Psychogenic factors (e.g., stress, fear of STIs, intimate partner violence [IPV])
- Medical conditions or endocrine factors, such as a predisposition to *Monilia* in a patient who has diabetes
- The use of medications such as antibiotics, which may alter the vaginal flora and allow an overgrowth of monilial organisms
- New sex partner, multiple sex partners, previous vaginal infection

The patient is also asked about factors that could contribute to infection, including hygiene practices (douching) and the use or nonuse of condoms.

The nurse may prepare a vaginal smear (wet mount) to assist in diagnosing the infection. A common method for preparing the smear is to collect vaginal secretions with an applicator and place the secretions on two separate glass slides. A drop of saline solution is added to one slide and a drop of 10% potassium hydroxide is added to another slide for examination under a microscope. If bacterial vaginosis is present, the slide with normal saline solution added shows epithelial cells dotted with bacteria (clue cells). If *Trichomonas* species is present, small motile cells are seen. In the presence of yeast, the potassium hydroxide slide reveals branching hyphae (Casanova et al., 2019). Discharge associated with bacterial vaginosis produces a strong odor when mixed with potassium hydroxide. Testing the pH of the discharge with Nitrazine paper assists in proper diagnosis (Casanova et al., 2019).

Diagnosis

NURSING DIAGNOSES

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

- Discomfort associated with distressing symptoms and feelings of discomfort from the infectious process
- Anxiety associated with worry about symptoms
- Risk for infection or spread of infection
- Lack of knowledge about proper hygiene and preventive measures

Planning and Goals

Major goals may include increased comfort, reduction of anxiety related to symptoms, prevention of reinfection or infection of sexual partner, and acquisition of knowledge about methods for preventing vulvovaginal infections and managing self-care.

Nursing Interventions

RELIEVING IMPAIRED COMFORT

Treatment with the appropriate medication usually relieves discomfort. Sitz baths may be occasionally recommended and may provide temporary relief of symptoms.

REDUCING ANXIETY

Vulvovaginal infections are upsetting and require treatment. The patient who experiences such an infection may be very anxious about the significance of the symptoms and possible causes. Explaining the cause of symptoms may reduce anxiety related to fear of a more serious illness. Discussing ways to help prevent vulvovaginal infections may help patients adopt specific strategies to decrease infection and the related symptoms.

PREVENTING REINFECTION OR SPREAD OF INFECTION

Patient education should include the fact that vulvovaginal candidiasis is not an STI and incidence can be decreased by completing treatment, avoiding unnecessary antibiotic agents, wearing cotton underwear, and not douching.

The patient needs to be informed about the importance of adequate treatment for herself and her partner, if indicated. Other strategies to prevent persistence or spread of infection include abstaining from penile-vaginal intercourse when infected, treatment for sexual partners, and minimizing irritation of the affected area. When medications such as antibiotic agents are prescribed for any infection, the nurse instructs the patient about the usual precautions related to using these agents. If vaginal itching occurs several days after use, the patient can be reassured that this is usually not an allergic reaction but may be a yeast or monilial infection

resulting from altered vaginal bacteria. Treatment for monilial infection is prescribed if indicated.

Another goal of treatment is to reduce tissue irritation caused by scratching or wearing tight clothing. The area needs to be kept clean by daily bathing and adequate hygiene after voiding and defecation. The use of a hair dryer on a cool setting will dry the area, and application of topical corticosteroids may decrease irritation.

When educating the patient about medications such as suppositories and devices such as applicators to dispense cream or ointment, the nurse may demonstrate the procedure by using a plastic model of the pelvis and vagina. The nurse should also stress the importance of hand hygiene before and after each administration of medication. To prevent the medication from escaping from the vagina, the patient should recline for 30 minutes after it is inserted, if possible. The patient is informed that seepage of medication may occur, and the use of a perineal pad may be helpful.

PROMOTING HOME, COMMUNITY-BASED, AND TRANSITIONAL CARE



Educating Patients About Self-Care. Vulvovaginal conditions are treated on an outpatient basis unless a patient has other medical problems. Patient education, tact, and reassurance are important aspects of nursing care. Women may express embarrassment, guilt, or anger and may be concerned that the infection could be serious or that it may have been acquired from a sex partner. In some instances, treatment plans include the partner.

The nurse assesses the patient's learning needs about the immediate problem. The patient needs to know the characteristics of normal as opposed to abnormal discharge. Questions often arise about douching. Normally, douching and the use of feminine hygiene sprays are unnecessary because daily baths or showers and proper hygiene after voiding and defecating keep the perineal area clean. Douching tends to eliminate normal flora, reducing the body's ability to ward off infection. In addition, repeated douching may result in vaginal epithelial breakdown and chemical irritation and has been associated with other pelvic disorders. In the case of recurrent yeast infections, the perineum should be kept as dry as possible. Loose-fitting cotton instead of tight-fitting synthetic, nonabsorbent, heat-retaining underwear is recommended.

Vulvar self-examination is a good health practice for all women. Becoming familiar with one's own anatomy and reporting anything that seems new or different may result in early detection and treatment of any new disorders. Nurses can also play a role in educating women about the risks of unprotected penile–vaginal intercourse, particularly with partners who have had sex with others.

Evaluation

Expected patient outcomes may include:

1. Experiences increased comfort
 - a. Cleans the perineum as instructed
 - b. Reports that itching is relieved
 - c. Maintains urine output within normal limits and without dysuria
2. Experiences relief of anxiety
3. Remains free from infection
 - a. Has no signs of inflammation, pruritus, odor, or dysuria
 - b. Notes that vaginal discharge appears normal (thin, clear, not frothy)
4. Participates in self-care
 - a. Takes medication as prescribed
 - b. Wears absorbent underwear
 - c. Avoids unprotected penile–vaginal intercourse
 - d. Douches only as prescribed
 - e. Performs vulvar self-examination regularly and reports any new findings to primary provider

Human Papillomavirus

Human papillomavirus (HPV) is the most common STI in the United States, affecting 79 million Americans and about 14 million newly acquired infections each year. Most adults who are sexually active will be infected with at least one type of HPV during their lifetime (CDC, 2019b). Most infections are self-limiting and without symptoms, and others can cause cervical and anogenital cancers. Infections can be latent (asymptomatic and detected only by deoxyribonucleic acid [DNA] hybridization tests for HPV), subclinical (visualized only after application of acetic acid followed by inspection under magnification), or clinical (visible condylomata acuminata).

Pathophysiology

HPV can be found in lesions of the skin, cervix, vagina, anus, penis, and oral cavity. Of the more than 100 genotypes of HPV that exist, about 40 genotypes affect the anogenital tract (Casanova et al., 2019). Some are low risk in that they are unlikely to cause cancerous changes. These include types 6, 11, 42, 43, 44, 54, 61, 70, and 72. The most common strains of HPV, 6 and 11, usually cause **condylomata** (warty growths) that can appear on the vulva, vagina, cervix, and anus. These are often visible or may be palpable by patients. Condylomata are rarely premalignant but are an outward manifestation of the virus (Casanova et al., 2019). High-risk oncogenic types, including 16, 18, 31,

33, 45, and 52 affect the cervix, causing abnormal cell changes or **dysplasia** (found on a Papanicolaou [Pap] smear). HPV types 16 and 18 account for 66% of cervical cancer cases, while types 31, 33, 45, and 52 account for another 15% (American College of Obstetricians and Gynecologists [ACOG], 2017a). The incidence of HPV in young women who are sexually active is high. The infection often disappears as the result of an effective immune system response. It is thought that two proteins produced by high-risk types of HPV interfere with tumor suppression by normal cells. Risk factors include being young, being sexually active, having multiple sex partners, and having sex with a partner who has or has had multiple partners. It can be transmitted by other means, however, as it has been found in young girls who have not been sexually active.

Medical Management

Options for the treatment of external genital warts by a primary provider include topical application of trichloroacetic acid, podophyllin, cryotherapy, as well as surgical removal. Topical agents that can be applied by patients to external lesions include podofilox and imiquimod. Because the safety of podophyllin, imiquimod, and podofilox during pregnancy has not been determined, these agents should not be used during pregnancy. Electrocautery and laser therapy are alternative therapies that may be indicated for patients with a large number or area of genital warts.

Treatment usually eradicates perineal warts or condylomata. However, they may resolve spontaneously without treatment and may also recur even with treatment. Genital warts are more resistant to treatment in patients with diabetes, those who are pregnant, who smoke, or are immunocompromised (Casanova et al., 2019).

If the treatment includes application of a topical agent by the patient, she needs to be carefully instructed in the use of the agent prescribed and must be able to identify the warts and be able to apply the medication to them. The patient is instructed to anticipate mild pain or local irritation with the use of these agents.

Women with HPV should have annual Pap smears because of the potential of HPV to cause dysplasia.



For the procedural guidelines for obtaining an optimal Pap smear, go to thepoint.lww.com/Brunner15e.

Much remains unknown about subclinical and latent HPV disease. Women are often exposed to HPV by partners who are unknowing carriers. The use of condoms can reduce the likelihood of transmission, but transmission can also occur during skin-to-skin contact in areas not covered by condoms.

In many cases, patients are angry about having warts or HPV and do not know who infected them because the incubation period can be long, and partners may have no symptoms. Acknowledging the emotional distress that occurs when an STI is diagnosed and providing support and facts are important nursing actions.

Prevention

The best strategy is prevention of HPV. The Advisory Committee on Immunization Practices (ACIP) of the CDC recommends routine vaccination of boys and girls 11 to 12 years of age, before they become sexually active. Vaccination is also recommended for females aged 13 through 26 years and males aged 13 through 21 years for those who were not previously vaccinated (Meites, Szilagyi, Chesson, et al., 2019). The ACIP recommends the 9-valent human papillomavirus (9vHPV) vaccine for routine vaccinations. In addition to the four noninfectious virus-like particles (VLPs) HPV 6, 11, 16, and 18 found in 4vHPV, 9vHPV also contains HPV 31, 33, 45, 52, and 58 VLPs (Meites et al., 2019). The vaccination is given in two intramuscular doses, with the initial dose followed by a second dose 6 to 12 months after the first dose. Completion of both doses of the vaccine is important for immunity to develop. If the doses are less than 5 months apart a third dose is required. The vaccination is contraindicated for use in women who are pregnant (National Cancer Institute [NCI], 2018).

Although this vaccine is considered an important medical breakthrough with the potential to decrease the impact of HPV-related disease in men and women, it does not replace other strategies important in prevention of HPV. Women still need cervical cancer screening (CDC, 2019b).

Herpes Virus Type 2 Infection (Herpes Genitalis, Herpes Simplex Virus)

Herpes simplex virus 2 (HSV-2) is a recurrent, lifelong viral infection that causes herpetic lesions (blisters) on the external genitalia and occasionally the vagina and cervix. It is an STI but possibly may also be transmitted asexually from wet surfaces or by self-transmission (i.e., touching a cold sore and then touching the genital area). The initial infection is usually very painful, and blisters may take 2 to 4 weeks to heal, but it can also be asymptomatic. Over 87% of infected individuals are unaware of their infection; most HSV

transmission occurs from asymptomatic viral shedding (CDC, 2017b). Recurrences are less painful, self-limited, and usually produce less severe symptoms. Some patients have few or no recurrences, whereas others have frequent bouts (CDC, 2017b). Recurrences can be associated with stress, sunburn, dental work, or inadequate rest or poor nutrition, or any situations that tax the immune system.

There are more than 400 million people affected by HSV-2 worldwide (Cohen, 2017). The prevalence of other STIs has decreased slightly, possibly because of increased condom use, but herpes can be transmitted by contact with skin that is not covered by a condom. Transmission is possible even when a carrier does not have symptoms (subclinical shedding). Lesions increase vulnerability to HIV infection and other STIs.

Pathophysiology

Herpes simplex virus (HSV) is a double-stranded DNA virus that is differentiated into two types of HSV infection (Casanova et al., 2019). These include herpes simplex type 1 (HSV-1), usually associated with cold sores of the lips (herpes labialis) and gingivostomatitis as well as herpes simplex type 2 (HSV-2), usually associated with genital herpes.

Close human contact by the mouth, oropharynx, mucosal surface, vagina, or cervix appears necessary to acquire the infection. Other susceptible sites are skin lacerations and conjunctivae. Usually, the virus is killed at room temperature by drying. When viral replication diminishes, the virus ascends the peripheral sensory nerves and remains inactive in the nerve ganglia. Another outbreak may occur when the host is subjected to stress. In women who are pregnant and have active herpes, infants delivered vaginally may become infected with the virus. There is a risk of fetal morbidity and mortality if this occurs; therefore, a cesarean delivery may be performed if the virus recurs near the time of delivery.

Clinical Manifestations

Itching and pain occur as the infected area becomes red and edematous. Infection may begin with macules and papules and progress to vesicles and ulcers. The vesicular state often appears as a blister, which later coalesces, ulcerates, and encrusts. In women, the labia are the usual primary site, although the cervix, vagina, and perianal skin may be affected. In men, the glans penis, foreskin, or penile shaft is typically affected. Influenzalike symptoms may occur 3 or 4 days after the lesions appear. Inguinal lymphadenopathy (enlarged lymph nodes in the groin), minor temperature elevation, malaise, headache, myalgia (aching muscles), and dysuria (pain on

urination) are often noted. Pain is evident during the first week and then decreases. The lesions last 2 to 12 days before crusting over (CDC, 2017b).

Rarely, complications may arise from extragenital spread, such as to the buttocks, upper thighs, or even the eyes, as a result of touching lesions and then touching other areas. Patients should be advised to wash their hands after contact with lesions. Other potential problems are aseptic meningitis, neonatal transmission, and severe emotional stress related to the diagnosis.

Medical Management

Currently, there is no cure for genital herpes infection, but treatment is aimed at relieving the symptoms. Management goals include preventing the spread of infection, making patients comfortable, decreasing potential health risks, and initiating a counseling and education program. Three oral antiviral agents—acyclovir, valacyclovir, and famciclovir—can suppress symptoms and shorten the course of the infection (King, 2017). These agents are effective at reducing the duration of lesions and preventing recurrences. Antispasmodic agents and a saline compress can provide additional relief of symptoms. Resistance and long-term side effects do not appear to be major problems. Recurrent episodes are often milder than the initial episode. Prophylactic vaccine and topical gel development for genital herpes continues to be investigated in clinical trials (King, 2017).

NURSING PROCESS

The Patient with a Genital Herpes Infection

Assessment

The health history and a physical and pelvic examination are important in establishing the nature of the infectious condition. In addition, patients are assessed for risk of STIs. The perineum is inspected for painful lesions. Inguinal nodes are assessed and are often enlarged and tender during an occurrence of genital herpes.

Diagnosis

NURSING DIAGNOSES

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

- Acute pain associated with the genital lesions
- Risk for infection or spread of infection
- Anxiety associated with worry about the diagnosis
- Lack of knowledge about the disease and its management

Planning and Goals

Major goals may include relief of pain and discomfort, control of infection and its spread, relief of anxiety, knowledge of and adherence to the treatment regimen and self-care, and knowledge about implications for the future.

Nursing Interventions

RELIEVING PAIN

The lesions should be kept clean, and proper hygiene practices are advocated. Sitz baths may ease discomfort. Additional strategies for relieving pain during a herpes outbreak can be found in [Chart 51-2](#).

Chart 51-2 HEALTH PROMOTION

Strategies for the Patient with Genital Herpes

Herpes is transmitted mainly by direct contact. Sexual activity during a herpes outbreak not only increases the risk of transmission but also increases the likelihood of contracting HIV and other STIs. The patient therefore takes the following measures:

- Abstains from sexual activity during treatment for active disease (other options such as hand-holding and kissing are acceptable).
- Avoids exposure to the sun, which can cause recurrences (and skin cancer).
- Avoids self-infection by not touching lesions during an outbreak.
- Uses barrier methods when engaging in sexual activity to provide protection against viral transmission.
- Informs sexual partners of herpes diagnosis as transmission is possible even in the absence of active lesions.
- Informs obstetric care provider about the history of genital herpes. In cases of recurrence at time of delivery, cesarean section may be considered.
- Utilizes available support services (see Resources section).
- Keeps follow-up appointments with health care provider, and reports repeated recurrences (may not be as severe as the initial episode).
- Takes medication prescribed for outbreaks and avoids occlusive ointments, strong perfumed soaps, or bubble bath.
- Takes aspirin and other analgesic agents to control pain during outbreaks.
- Uses the appropriate hygiene practices including hand hygiene, perineal cleanliness, gentle washing of lesions with mild soap and running water and lightly drying lesions (i.e., lesions can become infected from germs on the hand, and the virus from the lesion can be transmitted from the hand to another area of the body or another person).
- Wears loose, comfortable clothing; eats a balanced diet; ingests adequate fluids gets adequate rest during outbreaks.

HIV, human immune deficiency virus; STIs, sexually transmitted infections.

The patient is encouraged to increase fluid intake, to be alert for possible bladder distention, and to contact her primary provider immediately if she cannot void because of discomfort. Painful voiding may occur if urine comes in contact with the herpes lesions. Discomfort with urination can be reduced by pouring warm water over the vulva during voiding. When oral antiviral agents are prescribed, the patient is instructed about when to take the medication and what side effects to note, such as rash and headache.

PREVENTING INFECTION AND ITS SPREAD

The risk of reinfection and spread of infection to others or to other structures of the body can be reduced by proper hand hygiene, the use of barrier methods with sexual contact, and adherence to prescribed medication regimens. Avoidance of contact when obvious lesions are present does not eliminate the risk because the virus can be shed in the absence of symptoms, and lesions may not be visible.

RELIEVING ANXIETY

Concern about the presence of herpes infection, future occurrences of lesions, and the impact of the infection on future relationships and childbearing may cause considerable patient anxiety. Nurses serve as important sources of support by listening to patients' concerns and providing information and education. The patient may be angry with her partner if the partner is the probable source of the infection. The patient may need assistance in discussing the infection and its implications with her current sexual partners and in future sexual relationships. The nurse can provide the patient with contact details for support services to assist in coping with the diagnosis (see the Resources section).

INCREASING KNOWLEDGE ABOUT THE DISEASE AND ITS TREATMENT

Patient education is an essential part of nursing care of the patient with a genital herpes infection. This includes an adequate explanation about the infection and how it is transmitted, management and treatment strategies, strategies to minimize spread of infection, the importance of adherence to the treatment regimen, and self-care strategies. Because of the increased risk of HIV and other STIs in the presence of skin lesions, an important part of education involves informing the patient of strategies to protect herself from exposure to HIV and other STIs.

PROMOTING HOME, COMMUNITY-BASED, AND TRANSITIONAL CARE



Educating Patients About Self-Care. Health promotion strategies and self-care measures for the patient with genital herpes are described in [Chart 51-2](#).

Evaluation

Expected patient outcomes may include:

1. Experiences a reduction in pain and discomfort
2. Keeps infection under control
 - a. Demonstrates proper hygiene techniques
 - b. Takes medication as prescribed
 - c. Consumes adequate fluids
 - d. Assesses own current lifestyle (diet, adequate fluid intake, safer sex practices, stress management)
3. Uses strategies to reduce anxiety
 - a. Verbalizes issues and concerns related to genital herpes infection
 - b. Discusses strategies to deal with issues and concerns with current and future sexual partners
 - c. Utilizes available support services if indicated
4. Demonstrates knowledge about genital herpes and strategies to control and minimize recurrences
 - a. Identifies methods of transmission of herpes infection and strategies to prevent transmission to others
 - b. Discusses strategies to reduce recurrence of lesions
 - c. Takes medications as prescribed
 - d. Reports no recurrence of lesions

Endocervicitis and Cervicitis

Endocervicitis is an inflammation of the mucosa and the glands of the cervix that may occur when organisms gain access to the cervical glands after penile–vaginal intercourse and, less often, after procedures such as abortion, intrauterine manipulation, or vaginal delivery. If untreated, the infection may extend into the uterus, fallopian tubes, and pelvic cavity. Inflammation can irritate the cervical tissue, resulting in spotting or bleeding and mucopurulent cervicitis (inflammation of the cervix with exudate).

Chlamydia and Gonorrhea

Chlamydia and gonorrhea are the most common causes of endocervicitis, although *Mycoplasma* may also be involved. Chlamydia causes about 2.86 million infections every year in the United States; it is most commonly found in young people who are sexually active with more than one partner and is transmitted through sexual contact (CDC, 2016). Untreated chlamydia infections can spread to the fallopian tubes and uterus leading to serious complications including PID, an increased risk of ectopic pregnancy, and infertility (CDC, 2016). Chlamydial infections of the cervix often produce no

symptoms, but cervical discharge, dyspareunia, dysuria, and bleeding may occur. Other complications include conjunctivitis and perihepatitis (Fitz-Hugh–Curtis syndrome) (CDC, 2016). Gonorrhea is the second most commonly reported STI, with over a million new infections each year (CDC, 2019). The inflamed cervix that results from infection may leave a woman more vulnerable to HIV transmission from an infected partner. Gonorrhea is often asymptomatic and a major cause of PID, tubal infertility, ectopic pregnancy, and chronic pelvic pain (CDC, 2019). Diagnosis can be confirmed by urine culture or other methods such as using a swab to obtain a sample of cervical or penile discharge from the patient's partner (CDC, 2019).

Medical Management

The CDC recommends treating chlamydia with doxycycline for 1 week or with a single dose of azithromycin (CDC, 2016). Antimicrobial resistance to fluoroquinolones in the treatment of gonorrhea has left cephalosporins as the remaining recommended treatment (ACOG, 2018a; CDC, 2019). Dual therapy with azithromycin and ceftriaxone given simultaneously on the same day is the recommended first-line treatment for gonorrhea infection (ACOG, 2018a; CDC, 2019). Partners must also be treated. Women who are pregnant are cautioned not to take tetracycline because of potential adverse effects on the fetus. In these cases, erythromycin may be prescribed. Results are usually good if treatment begins early. Possible complications from delayed or no treatment are tubal disease, ectopic pregnancy, PID, and infertility.

Cultures for chlamydia and other STIs should be obtained from all patients who have been sexually assaulted when they first seek medical attention; patients are treated prophylactically. Cultures should then be repeated in 2 weeks. Annual screening for chlamydia is recommended for all young women who are sexually active and older women with new sex partners or multiple partners (CDC, 2016).

Nursing Management

All women who are sexually active may be at risk for chlamydia, gonorrhea, and other STIs, including HIV. Nurses can assist patients in assessing their own risk. Recognition of risk is a first step before changes in behavior occur. Patients should be discouraged from assuming that a partner is “safe” without open, honest discussion. Nonjudgmental attitudes, educational counseling, and role-playing may be helpful.

Because chlamydia, gonorrhea, and other STIs may have a serious effect on future health and fertility, and because many of these disorders can be prevented by the use of condoms and spermicides and careful choice of partners, nurses can play a major role in counseling patients about safer sex

practices. Exploring options with patients, addressing knowledge deficits, and correcting misinformation may reduce morbidity and mortality.

Patients should be advised to refer partners for evaluation and treatment. All women aged 25 and younger who are sexually active should be screened annually. Those older than 25 years should be screened if risk factors are present. Repeat testing should occur 3 months after treatment (CDC, 2016).

Promoting Home, Community-Based, and Transitional Care



Educating Patients About Self-Care

Nurses can educate women and help them improve communication skills and initiate discussions about sex with their partners. Communicating with partners about sex, risk, postponing penile–vaginal intercourse, and using safer sex behaviors, including the use of condoms, may be lifesaving. Some young women report having sex but not being comfortable enough to discuss sexual risk issues. Nurses can help women to advocate for their own health by discussing safety with partners prior to sexual activity.

Reinforcing the need for annual screening for chlamydia and other STIs is an important part of patient education. Instructions also include the need for the patient to abstain from penile–vaginal intercourse until all her sex partners are treated (CDC, 2016).

Pelvic Inflammatory Disease

Pelvic inflammatory disease (PID) is an inflammatory condition of the pelvic cavity that may begin with cervicitis and involve the uterus (endometritis), fallopian tubes (salpingitis), ovaries (oophoritis), pelvic peritoneum, or pelvic vascular system. Infection, which may be acute, subacute, recurrent, or chronic and localized or widespread, is usually caused by bacteria but may be attributed to a virus, fungus, or parasite. Gonorrheal and chlamydial organisms are common causes, but most cases of PID are polymicrobial. While incidence has been declining over the past decades, data from a recent survey indicates the rate of PID in sexually experienced women of reproductive age (18 to 44 years of age) is 4.4% or 2.5 million women (CDC, 2017c; Curry, Williams, & Penny, 2019).

Short- and long-term consequences can occur. The fallopian tubes become narrow and scarred, which increases the risk of ectopic pregnancy (fertilized eggs trapped in the tube), infertility, recurrent pelvic pain, tubo-ovarian **abscess** (a collection of purulent material), and recurrent disease (Curry et al., 2019).

Pathophysiology

The exact pathogenesis of PID has not been determined, but it is presumed that organisms usually enter the body through the vagina, pass through the cervical canal, colonize the endocervix, and move upward into the uterus. Under various conditions, the organisms may proceed to one or both fallopian tubes and ovaries and into the pelvis. In bacterial infections that occur after childbirth or abortion, pathogens are disseminated directly through the tissues that support the uterus by way of the lymphatics and blood vessels (see Fig. 51-1A). In pregnancy, the increased blood supply required by the placenta provides a wider pathway for infection. These postpartum and postabortion infections tend to be unilateral. Infections can cause perihepatic inflammation when the organism invades the peritoneum.

In gonorrheal infections, the gonococci pass through the cervical canal and into the uterus, where the environment, especially during menstruation, allows them to multiply rapidly and spread to the fallopian tubes and into the pelvis (see Fig. 51-1B). The infection is usually bilateral.

In rare instances, organisms (e.g., tuberculosis) gain access to the reproductive organs by way of the bloodstream from the lungs (see Fig. 51-1C). One of the most common causes of **salpingitis** (inflammation of the fallopian tube) is chlamydia, possibly accompanied by gonorrhea.

Pelvic infection is most often sexually transmitted but can also occur with invasive procedures such as endometrial biopsy, abortion, hysteroscopy, or insertion of an intrauterine device. Bacterial vaginosis (a vaginal infection) may predispose women to pelvic infection. Risk factors include early age at first sexual experience, multiple sexual partners, frequent penile–vaginal intercourse, penile–vaginal intercourse without condoms, sex with a partner with an STI, and a history of STIs or previous pelvic infection.

Clinical Manifestations

Symptoms of pelvic infection usually begin with vaginal discharge, dyspareunia, dysuria, pelvic or lower abdominal pain, tenderness that occurs after menses, and postcoital bleeding. Other symptoms include fever, general malaise, anorexia, nausea, headache, and possibly vomiting (Norris, 2019). On pelvic examination, intense tenderness may be noted on palpation of the uterus or movement of the cervix (cervical motion tenderness). Symptoms may be acute and severe or low grade and subtle (CDC, 2017c; Curry et al., 2019).

Complications

Pelvic or generalized peritonitis, abscesses, strictures, and fallopian tube obstruction may develop. Obstruction may cause an ectopic pregnancy in the

future if a fertilized egg cannot pass a tubal stricture, or scar tissue may occlude the tubes, resulting in sterility. Adhesions are common and often result in chronic pelvic pain; they eventually may require removal of the uterus, fallopian tubes, and ovaries.

Medical Management

Broad-spectrum antibiotic therapy is prescribed, usually a combination of ceftriaxone, doxycycline, and metronidazole. Women are most often treated as outpatients and monitored carefully. Indications for hospitalization include surgical emergencies, pregnancy, no clinical response to outpatient oral antimicrobial therapy, inability to follow or tolerate an outpatient oral regimen, severe illness (i.e., nausea, vomiting, or high fever), and tubo-ovarian abscess (Curry et al., 2019; Norris, 2019). Treatment of sexual partners is necessary to prevent reinfection.

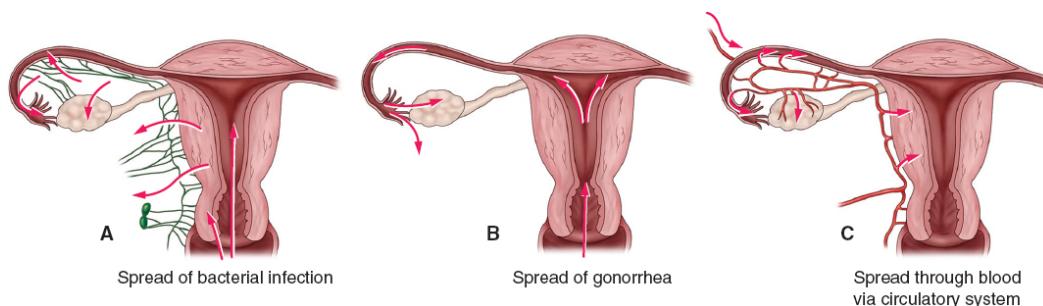


Figure 51-1 • Pathway by which microorganisms spread in pelvic infections. **A.** Bacterial infection spreads up the vagina into the uterus and through the lymphatics. **B.** Gonorrhea spreads up the vagina into the uterus and then to the tubes and ovaries. **C.** Bacterial infection can reach the reproductive organs through the bloodstream (hematogenous spread).

Chart 51-3 HOME CARE CHECKLIST

The Patient with Pelvic Inflammatory Disease

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

- State the impact of pelvic inflammatory disease on physiologic functioning, ADLs, IADLs, roles, relationships, and spirituality.
- Identify the name, dose, side effects, frequency, and schedule for all medications.
 - State the importance of completing the course of antibiotic therapy.
- Understand interventions that may prevent reoccurrence:
 - Describe proper perineal care procedures (wiping from front to back after defecation or urination).
 - Take full course of antibiotic agents, if prescribed, after insertion of intrauterine devices.
 - Recognize that sexual partners may need treatment.
- Discuss the importance of following health practices (e.g., proper nutrition, exercise, weight control), and safer sex practices (e.g., avoiding multiple sexual partners, consistent use of condoms before penile–vaginal intercourse or any penile–vaginal contact if there is any chance of transmitting infection).
- State symptoms which require evaluation by a health care provider:
 - Pelvic pain or abnormal discharge, particularly after sexual exposure, childbirth, or pelvic surgery.
 - Unusual vaginal discharge or odor.
 - Pain, abnormal bleeding, delayed menses, faintness, dizziness, and shoulder pain (symptoms may indicate ectopic pregnancy).
- Relate how to reach primary provider with questions or complications.
- State time and date of follow-up medical appointments, therapy, and testing.
 - State that a gynecologic examination should be performed at least once a year.
- Identify sources of support (e.g., friends, relatives, faith community).
- Identify the contact details for support services for patients and their caregivers/families.
- Identify the need for health promotion, disease prevention, and screening activities.

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

Nursing Management

The nurse assesses for both the physical and emotional effects of PID. The patient may feel well one day and experience vague symptoms and discomfort

the next. She may also suffer from constipation and menstrual difficulties.

If the patient is hospitalized, the nurse prepares the patient for further diagnostic evaluation and surgical intervention as prescribed. Accurate recording of vital signs, intake and output, and the characteristics and amount of vaginal discharge is necessary as a guide to therapy.

The nurse administers analgesic agents as prescribed for pain relief. Adequate rest and a healthy diet are encouraged. In addition, the nurse minimizes the transmission of infection by adhering to appropriate infection control practices and performing meticulous hand hygiene.

Promoting Home, Community-Based, and Transitional Care



Educating Patients About Self-Care

The patient must be informed of the need for precautions and must be encouraged to take part in procedures to prevent infecting others and protect herself from reinfection. The use of condoms is essential to prevent infection and sequelae. If reinfection occurs or if the infection spreads, symptoms may include abdominal pain, nausea and vomiting, fever, malaise, malodorous purulent vaginal discharge, and leukocytosis. Patient education consists of explaining how pelvic infections occur, how they can be controlled and avoided, and the associated signs and symptoms. Guidelines and instructions provided to the patient are summarized in [Chart 51-3](#).

All patients who have had PID need to be informed of the signs and symptoms of ectopic pregnancy (pain, abnormal bleeding, delayed menses, faintness, dizziness, and shoulder pain), because they are prone to this complication. See [Chapter 50](#) for a discussion of ectopic pregnancy.

Human Immune Deficiency Virus Infection and Acquired Immune Deficiency Syndrome

Any discussion of vulvovaginal infections and STIs must include the topic of HIV and acquired immune deficiency syndrome (AIDS). Although the incidence of HIV diagnosis among women has declined in recent years, more than 7000 (19%) of all new HIV diagnoses are adolescent and adult women (CDC, 2019c). Because HIV infection may be detected during prenatal testing and screening for STIs, nurses and other women's health care clinicians may be the first professionals to provide care for a woman with HIV infection. Thus, clinicians need to be knowledgeable about this disorder and sensitive to women's issues and concerns.

After informed consent is obtained, women who are at risk for HIV are offered testing by a nurse or counselor. Because patients may be reluctant to

discuss risk-taking behavior, routine screening should be offered to all women between the ages of 13 and 64 years in all health care settings (CDC, 2019d). Early detection permits early treatment to delay progression of the disease. The nurse needs to remember that many women do not see themselves as at risk for acquiring HIV infection. See [Chapter 32](#) for further discussion of HIV infection and AIDS.

STRUCTURAL DISORDERS

Fistulas of the Vagina

A **fistula** is an abnormal opening between two internal hollow organs or between an internal hollow organ and the exterior of the body. The name of the fistula indicates the two areas that are connected abnormally—for example, a vesicovaginal fistula is an opening between the bladder and the vagina, and a rectovaginal fistula is an opening between the rectum and the vagina (see [Fig. 51-2](#)). Fistulas may be congenital in origin but are most common in developing countries due to obstructed labor complications. In developed countries, they occur most often as a result of injury during pelvic surgery, vaginal delivery, radiation therapy, complications from surgical insertion of vaginal mesh, or disease processes such as carcinoma (El-Azab, Abolella, & Farouk, 2019).

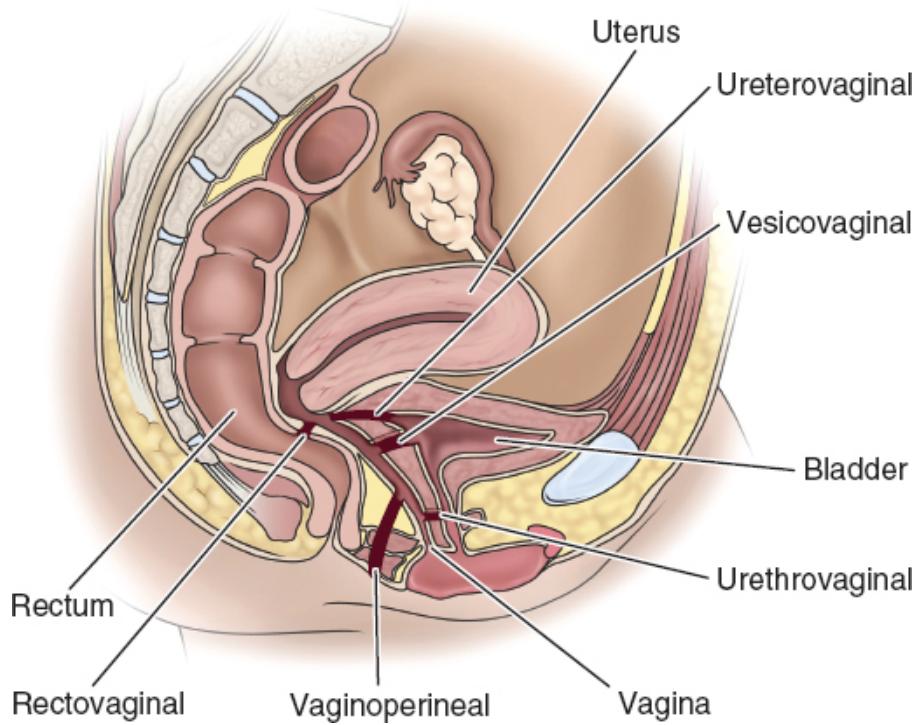


Figure 51-2 • Common sites for vaginal fistulas. *Vesicovaginal*—bladder and vagina. *Urethrovaginal*—urethra and vagina. *Vaginoperineal*—vagina and perineal area. *Ureterovaginal*—ureter and vagina. *Rectovaginal*—rectum and vagina.

Clinical Manifestations

Symptoms depend on the specific defect. For example, in a patient with a vesicovaginal fistula, urine escapes continuously into the vagina. With a rectovaginal fistula, there is fecal incontinence, and flatus is discharged through the vagina. The combination of fecal discharge with leukorrhea results in malodor that is difficult to control.

Assessment and Diagnostic Findings

A history of the symptoms experienced by the patient is important to identify the structural alterations and to assess the impact of the symptoms on the patient's quality of life. Although there is no reported specificity for its use, methylene blue dye is commonly used to help delineate the course of the fistula (El-Azab et al., 2019). In a vesicovaginal fistula, the dye is instilled into the bladder along with placement of vaginal packing known as the “tampon test”; stained vaginal packing can be indicative of a fistula (El-Azab et al., 2019). Cystourethroscopy is useful in identifying fistula while cystoscopy or IV pyelography may then be used to determine the exact location.

Medical Management

The goal is to eliminate the fistula and to treat infection and excoriation. A fistula may heal without surgical intervention, but surgery is often required. If the primary provider determines that a fistula will heal without surgical intervention, care is planned to relieve discomfort, prevent infection, and improve the patient's self-concept and self-care abilities. Measures to promote healing include proper nutrition, cleansing douches and enemas, rest, and administration of prescribed intestinal antibiotic agents. A rectovaginal fistula heals faster when the patient eats a low-residue diet and when the affected tissue drains properly. Warm perineal irrigations promote healing.

Sometimes, a fistula does not heal and cannot be surgically repaired. In this situation, care must be planned and implemented on an individual basis. Cleanliness, frequent sitz baths, and deodorizing douches are required, as are perineal pads and protective undergarments. Meticulous skin care is necessary to prevent excoriation. Applying bland creams or lightly dusting with cornstarch may be soothing. In addition, attending to the patient's social and psychological needs is an essential aspect of care.

If the patient is to have a fistula repaired surgically, preoperative treatment of any existing vaginitis is important to ensure success. Usually, the vaginal approach is used to repair vesicovaginal and urethrovaginal fistulas; the abdominal approach is used to repair fistulas that are large or complex. Fistulas that are difficult to repair or very large may require surgical repair with a urinary or fecal diversion. Tissue transfer techniques (skin or tissue grafting) may be used (El-Azab et al., 2019).

Because fistulas usually are related to obstetric, surgical, or radiation trauma, occurrence in a patient without previous vaginal delivery or a history of surgery must be evaluated carefully. Crohn's disease and lymphogranuloma venereum are other possible causes.

Despite the best surgical intervention, fistulas may recur. After surgery, medical follow-up continues for at least 2 years to monitor for a possible recurrence.

Pelvic Organ Prolapse: Cystocele, Rectocele, Enterocle

Age and parity can put strain on the ligaments and structures that make up the female pelvis and pelvic floor. Childbirth can result in tears of the levator sling musculature, resulting in structural weakness. Hormone deficiency also may play a role. Some degree of prolapse (weakening of the vaginal walls allowing the pelvic organs to descend and protrude into the vaginal canal) may be found in older women. Risk factors include age, parity (particularly vaginal

delivery), menopause, previous pelvic surgery, and possibly a genetic predisposition (ACOG, 2017b; Casanova et al., 2019).

Cystocele is a downward displacement of the bladder toward the vaginal orifice (see Fig. 51-3) from damage to the anterior vaginal support structures. It usually results from injury and strain during childbirth. The condition usually appears years later when genital atrophy associated with aging occurs, but younger women who are multiparous and premenopausal may also be affected.

Rectocele is an upward pouching of the rectum that pushes the posterior wall of the vagina forward. Both rectoceles and perineal lacerations, which occur because of muscle tears below the vagina, may affect the muscles and tissues of the pelvic floor and may occur during childbirth. Sometimes, the lacerations may completely sever the fibers of the anal sphincter (complete tear). An **enterocele** is a protrusion of the intestinal wall into the vagina. Prolapse results from a weakening of the support structures of the uterus itself; the cervix drops and may protrude from the vagina. If complete prolapse occurs (cervix descending beyond vulva), it may also be referred to as procidentia.

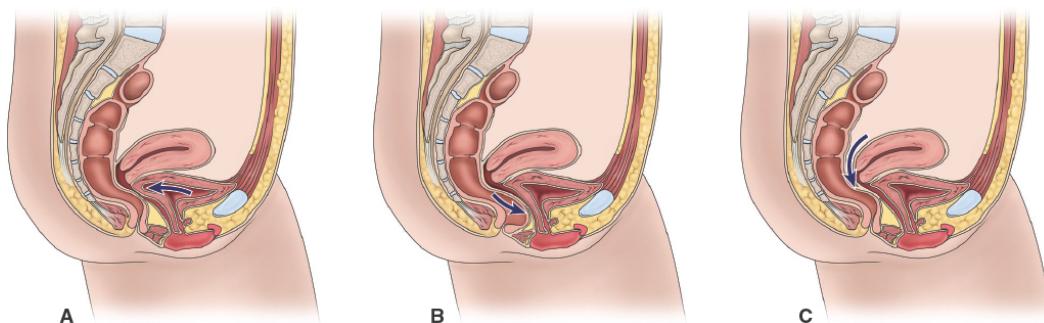


Figure 51-3 • Diagrammatic representation of the three most common types of pelvic floor relaxation. **A.** Cystocele. **B.** Rectocele. **C.** Enterocoele. Arrows depict sites of maximum protrusion.

Clinical Manifestations

Because a cystocele causes the anterior vaginal wall to bulge downward, the patient may report a sense of pelvic pressure and urinary problems such as incontinence, frequency, and urgency. Back pain and pelvic pain may occur as well. The symptoms of rectocele resemble those of cystocele, with one exception: Instead of urinary symptoms, patients may experience rectal pressure. Constipation, uncontrollable gas, and fecal incontinence may occur in patients with complete tears. Prolapse can result in feelings of pressure and ulcerations and bleeding. Dyspareunia may occur with these disorders.

Medical Management

Kegel exercises, which involve contracting or tightening the vaginal muscles, are prescribed to help strengthen these weakened muscles (Good & Solomon, 2019). The exercises are more effective in the early stages of a cystocele. Kegel exercises are easy to perform and are recommended for all women, including those with strong pelvic floor muscles (see [Chart 51-4](#)). Pelvic floor PT is another treatment option for early-stage pelvic organ prolapse. It often requires multiple visits and use of manometers and internal examinations, which can be distressing to some (Good & Solomon, 2019).

Chart 51-4



PATIENT EDUCATION

Performing Kegel (Pelvic Muscle) Exercises

Purposes: To strengthen and maintain the tone of the pubococcygeal muscle, which supports the pelvic organs; reduce or prevent stress incontinence and uterine prolapse; enhance sensation during penile–vaginal intercourse; and hasten postpartum healing.

The nurse instructs the patient to:

1. Become aware of pelvic muscle function by “drawing in” the perivaginal muscles and anal sphincter as if to control urine or defecation, but not contracting the abdominal, buttock, or inner thigh muscles.
2. Sustain contraction of the muscles for up to 10 seconds, followed by at least 10 seconds of relaxation.
3. Perform these exercises 30–80 times a day.

A pessary can be used alone or in conjunction with other treatments to avoid surgery (ACOG, 2017b; Good & Solomon, 2019). This device is inserted into the vagina and positioned to keep an organ, such as the bladder, uterus, or intestine, properly aligned when a cystocele, rectocele, or prolapse has occurred. Pessaries are usually ring- or doughnut shaped and are made of various materials, such as rubber or plastic (see [Fig. 51-4](#)). Rubber pessaries must be avoided in women with latex allergy. The size and type of pessary are selected and fitted by a gynecologic health care provider. The patient should have the pessary removed, examined, and cleaned by her health care provider at prescribed intervals. At these checkups, vaginal walls should be examined for pressure points or signs of irritation. Normally, the patient experiences no pain, discomfort, or discharge with a pessary, but if chronic irritation, excessive discharge, or bleeding occur, alternative measures may be needed (ACOG, 2017b; Good & Solomon, 2019).

A Colpexin Sphere is another nonsurgical device used to treat pelvic organ prolapse. This intravaginal device is similar to a pessary, but it supports the pelvic floor muscles and facilitates exercise of these muscles. It is removed daily for cleaning.

Surgical Management

In many cases, surgery helps correct structural abnormalities. The procedure to repair the anterior vaginal wall is called anterior colporrhaphy, repair of a rectocele is referred to as a posterior colporrhaphy, and repair of perineal lacerations is called a perineorrhaphy. These repairs are frequently performed laparoscopically, resulting in short hospital lengths of stay and good outcomes. A laparoscope is inserted through a small abdominal incision, the pelvis is visualized, and surgical repairs are performed. Transvaginal surgical mesh as a treatment option has been associated with the complications of vaginal erosion, pain and infection leading to the U.S. Food and Drug Administration (FDA) ordering manufacturers of surgical mesh to stop selling and distributing these products (FDA, 2019).

Uterine Prolapse

Usually, the uterus and the cervix lie at right angles to the long axis of the vagina with the body of the uterus inclined slightly forward. The uterus is normally freely movable on examination. Individual variations may result in an anterior, middle, or posterior uterine position. A backward positioning of the uterus, known as retroversion and retroflexion, is not uncommon (see Fig. 51-5).

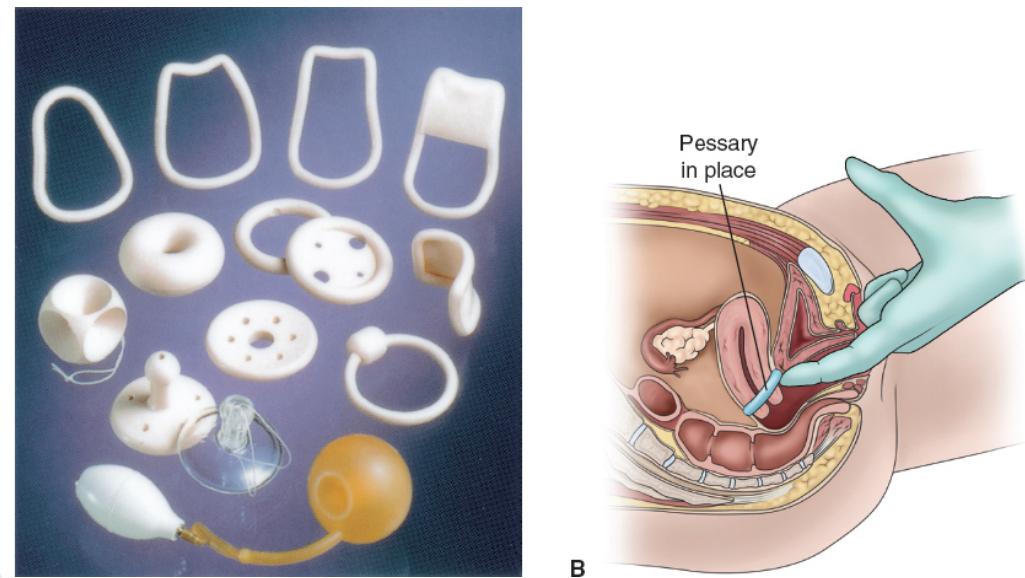


Figure 51-4 • Examples of pessaries. A. Various shapes and sizes of pessaries available. **B.** Insertion of one type of pessary.

If the structures that support the uterus weaken (typically from childbirth), the uterus may prolapse, or move down the vaginal canal; in severe prolapse, called procidentia, the uterus may appear outside the vaginal orifice (see Fig. 51-6). As the uterus descends, it may pull the vaginal walls and even the bladder and rectum with it. Symptoms include pressure and urinary problems (incontinence or retention) from displacement of the bladder. The symptoms are aggravated when a woman coughs, lifts a heavy object, or stands for a long time. Normal activities, even walking up stairs, may aggravate the symptoms.

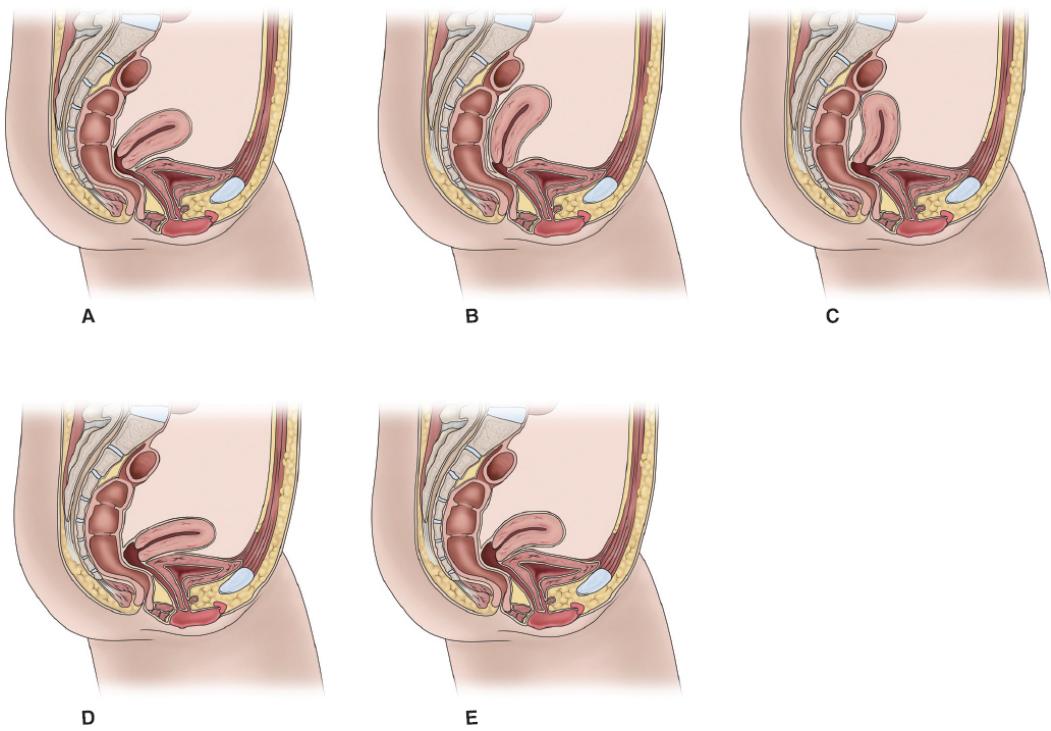


Figure 51-5 • Positions of the uterus. **A.** The most common position of the uterus detected on palpation. **B.** In *retroversion*, the uterus turns posteriorly as a whole unit. **C.** In *retroflexion*, the fundus bends posteriorly. **D.** In *anteversion*, the uterus tilts forward as a whole unit. **E.** In *anteflexion*, the uterus bends anteriorly.

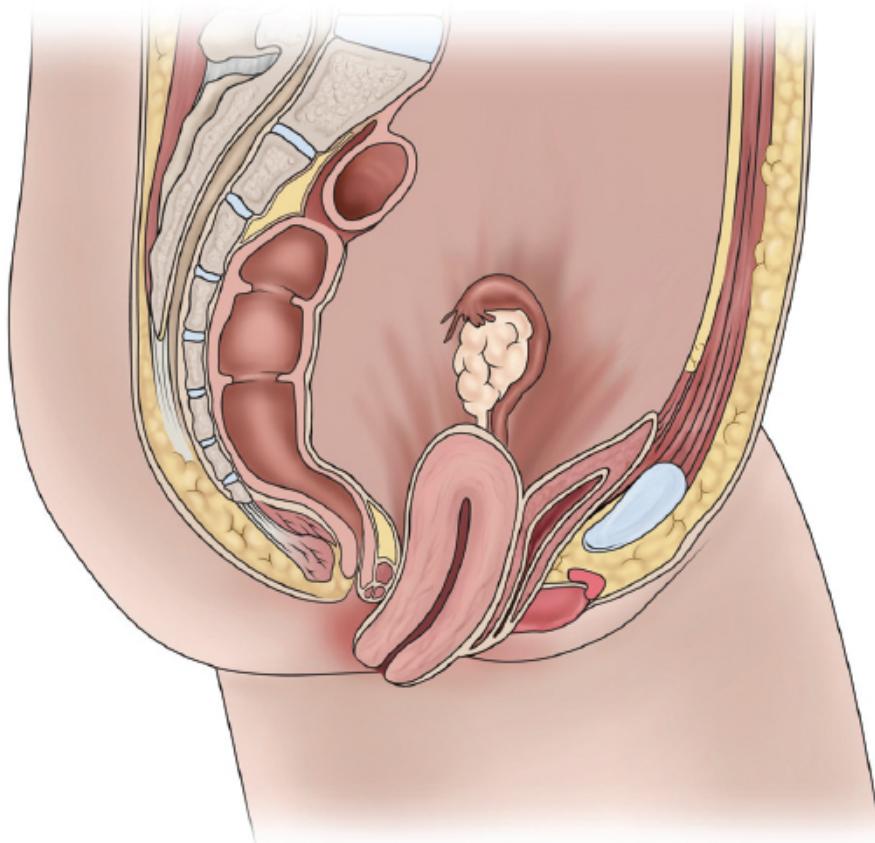


Figure 51-6 • Complete prolapse of the uterus through the introitus.

Medical Management

There are surgical and nonsurgical options for treatment. With surgery, the uterus is sutured back into place and repaired to strengthen and tighten the muscle bands. In women who are postmenopausal, the uterus may be removed by hysterectomy or repaired by colpopexy. Colpocleisis, or vaginal closure, may be an option for women who do not wish to have penile–vaginal intercourse or to bear children. Conservative treatments and mechanical options, including lifestyle changes, pessaries, and pelvic floor muscle training, can usually result in symptomatic improvement. These options may be the treatment of choice for women with a mild prolapse, who desire additional children, or who are unable to tolerate surgery (Meriwether, Antosh, Olivera, et al., 2018).

Nursing Management

Implementing Preventive Measures

Some disorders related to “relaxed” pelvic muscles (cystocele, rectocele, and uterine prolapse) may be prevented. During pregnancy, early visits to the primary provider permit early detection of problems. During the postpartum period, the woman can be educated to perform pelvic muscle exercises (see [Chart 51-4](#)) to increase muscle mass and strengthen the muscles that support the uterus and then to continue them as a preventive action (Good & Solomon, 2019).

Delays in obtaining evaluation and treatment may result in complications such as infection, cervical ulceration, cystitis, and hemorrhoids. The nurse encourages the patient to obtain prompt treatment for these structural disorders.

Implementing Preoperative Nursing Care

Before surgery, the patient needs to know the extent of the proposed surgery, the expectations for the postoperative period, and the effect of surgery on future sexual function. In addition, the patient having a rectocele repair needs to know that before surgery, a laxative and a cleansing enema may be prescribed. She may be asked to administer these at home the day before surgery. The patient is usually placed in a lithotomy position for surgery, with special attention given to moving both legs in and out of the stirrups simultaneously to prevent muscle strain and excess pressure on the legs and thighs. Other preoperative interventions are similar to those described in [Chapter 14](#).

Initiating Postoperative Nursing Care

Immediate postoperative goals include preventing infection and pressure on any existing suture line. This may require perineal care and may preclude using dressings. The patient is encouraged to void within a few hours after surgery for cystocele and complete tear. If the patient does not void within this period and reports discomfort or pain in the bladder region after 6 hours, catheterization is needed. An indwelling catheter may be indicated for 2 to 4 days, so some women may return home with a catheter in place. Various other bladder care methods are described in [Chapter 49](#). After each voiding or bowel movement, the perineum may be cleaned with warm, sterile saline solution and dried with sterile absorbent material if a perineal incision has been made.

After an external perineal repair, the perineum is kept as clean as possible. Commercially available sprays containing combined antiseptic and anesthetic solutions are soothing and effective, and an ice pack applied locally may relieve discomfort. However, the weight of the ice bag must rest on the bed, not on the patient.

Routine postoperative care is similar to that given after abdominal surgery. The patient is positioned in bed with the head and knees elevated slightly. The

patient may go home the day of or the day after surgery; the length of hospital stay depends on the surgical approach used.

After surgery for a complete perineal laceration (through the rectal sphincter), special care and attention are required. The bladder is drained through the catheter to prevent strain on the sutures. Throughout recovery, stool-softening agents are given nightly after the patient begins a soft diet.

Promoting Home, Community-Based, and Transitional Care



Educating Patients About Self-Care

Prior to discharge, education is provided about cleanliness, prevention of constipation, recommended exercises, and avoiding lifting heavy objects or standing for prolonged periods. The patient is instructed to report any pelvic pain, unusual discharge, inability to carry out personal hygiene, and vaginal bleeding.

Continuing and Transitional Care

The patient is advised to continue with perineal exercises, which are recommended to improve muscle strength and tone. She is reminded to return to the gynecologist for a follow-up visit and to consult with the primary provider about when it is safe to resume sexual activity.

BENIGN DISORDERS

Vulvitis and Vulvodynia

Vulvitis (an inflammation of the vulva) may occur with other disorders, such as diabetes, dermatologic problems, or poor hygiene, or it may be secondary to irritation from a vaginal discharge related to a specific vaginitis.

Vulvodynia is a chronic vulvar pain syndrome. Symptoms may include burning, stinging, irritation, or stabbing pain. The syndrome has been described as primary, with onset at first tampon insertion or sexual experience, or secondary, beginning months or years after first tampon insertion or sexual experience. Women affected by this are usually between 18 and 25 years of age. The cause of vulvodynia is not well understood; many believe it is multifactorial. Future research is critical to understanding the pathophysiology and cause of vulvodynia. It can be chronic or unremitting, intermittent or episodic, or may occur only in response to contact (Stenson, 2017). The pathophysiology is unknown. Vestibulodynia is the most frequent type of vulvodynia, producing sharp pain on pressure on the vestibule or posterior aspect of the vaginal opening.

Medical Management

Treatment methods for vulvodynia vary and depend on cause. Topical treatments, self-management care (strict vulvar care/hygiene), surgery, as well as biofeedback and dietary changes, have been used. Some cases seem to be similar to peripheral neuralgia and may respond to treatment with tricyclic antidepressant agents. Patients with dyspareunia may benefit from referral to a behavioral or mental health professional. Psychotherapy is a validated noninvasive treatment option (Stenson, 2017).

Vulvar Cysts

Bartholin cyst results from the obstruction of a duct in one of the paired Bartholin or vestibular mucous-secreting glands located in the posterior third of the vulva, near the vestibule. This cyst is the most common vulvar disorder. A simple cyst may be asymptomatic, but an infected cyst or abscess may cause discomfort. Infection may be due to a gonococcal organism, *Escherichia coli*, or *Staphylococcus aureus* and can cause an abscess with or without involving the inguinal lymph nodes. Skene duct cysts may result in pressure, dyspareunia, altered urinary stream, and pain, especially if infection is present. Vestibular cysts, located inferior to the hymen, may also occur. Cysts can be treated by resection or with laser, ablation with silver nitrate, and puncture. Asymptomatic cysts do not require treatment. Malignancy can occur, usually in women older than 40 years, so drainage and biopsy may be considered (Mahonski & Hu, 2019).

Medical Management

The usual treatment for a symptomatic Bartholin cyst or abscess is drainage. If a cyst is asymptomatic, treatment is unnecessary. Moist heat or sitz baths may promote drainage and resolution.

If drainage is necessary, several techniques are available. The simplest technique is incision and drainage. Using a Word catheter provides another method. This catheter, which is a short latex stem with an inflatable bulb at the distal end, creates a tract that preserves the gland and allows for drainage. A nonopioid analgesic agent may be given before this outpatient procedure. A local anesthetic agent is injected, and the cyst is incised or lanced and irrigated with normal saline; the catheter is inserted and inflated with 2 to 3 mL of water. The catheter stem is then tucked into the vagina to allow freedom of movement. The catheter is left in place for 4 to 6 weeks (Mahonski & Hu, 2019). The patient is informed that discharge should be expected because the catheter allows drainage of the cyst. She is instructed to contact her primary provider if pain occurs, in which case the bulb may be too large for the cavity

and fluid may need to be removed. Routine hygiene is encouraged. Marsupialization (creation of small pouch) and gland removal are additional treatment options (Mahonski & Hu, 2019).

Vulvar Dystrophy

Vulvar dystrophy is a condition found in older women that causes dry, thickened skin on the vulva or slightly raised, whitish papules, fissures, or macules. Symptoms usually consist of varying degrees of itching, but some patients have no symptoms. A few patients with vulvar cancer have associated dystrophy (vulvar cancer is discussed later in this chapter). Biopsy with careful follow-up is the standard intervention. Benign dystrophies include lichen planus, lichen simplex chronicus, lichen sclerosus (benign disorder of the vulva), squamous cell hyperplasia, vulvar **vestibulitis** (inflammation of the vulvar vestibule), and other dermatoses (Chibnall, 2017).

Medical Management

Topical corticosteroids (i.e., hydrocortisone creams) are the usual treatment. Petrolatum jelly may relieve pruritus. Use is decreased as symptoms resolve. Topical corticosteroids are effective in treating squamous cell hyperplasia. Treatment is often complete in 2 to 3 weeks, but ongoing assessment for vulvar atrophy should occur at least annually (Chibnall, 2017).

If malignant cells are detected on biopsy, local excision, laser therapy, local chemotherapy, and immunologic treatment are used. Vulvectomy is avoided, if possible, to spare the patient from the stress of disfigurement and possible sexual dysfunction.

Nursing Management

Key nursing responsibilities for patients with vulvar dystrophies focus on education. Important topics include hygiene and self-monitoring for signs and symptoms of complications.

Promoting Home, Community-Based, and Transitional Care



Educating Patients About Self-Care

Education for patients with benign vulvar dystrophies includes the importance of maintaining good personal hygiene and keeping the vulva dry. Lanolin or hydrogenated vegetable oil is recommended for relief of dryness. Sitz baths may help but should not be overused because dryness may result or increase.

The patient is instructed to notify the primary provider about any change or ulceration because biopsy may be necessary to rule out squamous cell carcinoma.

By encouraging all patients to perform genital self-examinations regularly and have any itching, lesions, or unusual symptoms assessed by a primary provider, nurses can help prevent complications and progression of vulvar lesions. Ongoing assessment should occur at least annually.

Ovarian Cysts

The ovary is a common site for cysts, which may be simple enlargements of normal ovarian constituents, the graafian follicle, or the corpus luteum, or they may arise from abnormal growth of the ovarian epithelium. Ovarian cysts are often detected on routine pelvic examination. Although these cysts are typically benign, they nevertheless should be evaluated to exclude ovarian cancer, particularly in women who are postmenopausal (Casanova et al., 2019).

The patient may or may not report acute or chronic abdominal pain. Symptoms of a ruptured cyst mimic various acute abdominal emergencies, such as appendicitis or ectopic pregnancy. Larger cysts may produce abdominal swelling and exert pressure on adjacent abdominal organs.

Postoperative nursing care after surgery to remove an ovarian cyst is similar to that after abdominal surgery, with one exception. The marked decrease in intra-abdominal pressure resulting from removal of a very large cyst usually leads to considerable abdominal distention. This may be prevented to some extent by applying a snug-fitting abdominal binder.

Some surgeons discuss the option of a hysterectomy when a woman is undergoing bilateral ovary removal because of a suspicious mass; it may increase life expectancy and avoid a later second surgery. Patient preference is a priority in determining its appropriateness.

Polycystic ovary syndrome (PCOS) is a type of hormonal imbalance or cystic disorder that affects the ovaries. This complex endocrine condition involves a disorder in the hypothalamic-pituitary and ovarian network or axis, resulting in chronic anovulation and hyperandrogenism, often along with multiple small ovarian cysts. It is common and occurs in approximately 6% to 20% of women of childbearing age (Pfieffer, 2019). Features can include obesity, insulin resistance, glucose intolerance, dyslipidemia, sleep apnea, and infertility. Symptoms are related to androgen excess. Irregular menstrual periods, resulting from lack of regular ovulation, infertility, obesity, and hirsutism, may be a presenting complaint. Cysts form in the ovaries because the hormonal milieu cannot cause ovulation on a regular basis.

Diagnosis is based on clinical criteria, including hyperandrogenism, chronic anovulation, and polycystic ovaries on ultrasound examination. Two out of three of these criteria must be present to make the diagnosis (ACOG, 2018b; Pfieffer, 2019). Women with PCOS are at increased risk for diabetes, increased blood lipids, cardiovascular disease, nonalcoholic fatty liver disease as well as anxiety and depression (Pfieffer, 2019).

Medical Management

The treatment of polycystic ovary syndrome consists of lifestyle changes including weight loss and pharmacotherapy. Oral contraceptive agents are often prescribed to treat PCOS (ACOG, 2018b; Pfieffer, 2019). When pregnancy is desired, medications to stimulate ovulation (clomiphene citrate) are often effective. Lifestyle modification is critical, and weight management is part of the treatment plan.

Weight loss as little as 5% to 10% of total body weight can help with hormone imbalance and infertility. Metformin often regulates periods and can help with weight loss (ACOG, 2018b; Pfieffer, 2019). Women with this diagnosis are at increased risk for endometrial cancer due to anovulation.

Benign Tumors of the Uterus: Fibroids (Leiomyomas, Myomas)

Most women will develop myomatous or **fibroid tumors** of the uterus at some point in their life. It is estimated that by the age of 50, up to 70% of White women and 80% of African American women will experience uterine fibroids (National Institutes of Health [NIH], 2018). It is thought that women are genetically predisposed to develop this condition, which is almost always benign. Fibroids arise from the muscle tissue of the uterus and can be solitary or multiple, intracavitory (in the lining of the uterus), intramural (in the muscle wall), and serosal (in the outside surface). They usually develop slowly in women between 25 and 40 years of age and may become quite large. A growth spurt with enlargement of the fibroid tumor may occur in the decade before menopause, possibly related to anovulatory cycles and high levels of unopposed estrogen. Fibroids are a common reason for hysterectomy because they often result in menorrhagia, which can be difficult to control.

Clinical Manifestations

Fibroids may cause no symptoms, or they may produce abnormal vaginal bleeding. Other symptoms result from pressure on the surrounding organs and include pain, backache, pressure, bloating, constipation, and urinary problems.

Menorrhagia (excessive bleeding) and metrorrhagia (irregular bleeding) may occur because fibroids may distort the uterine lining (see Fig. 51-7). Fibroids may interfere with fertility.

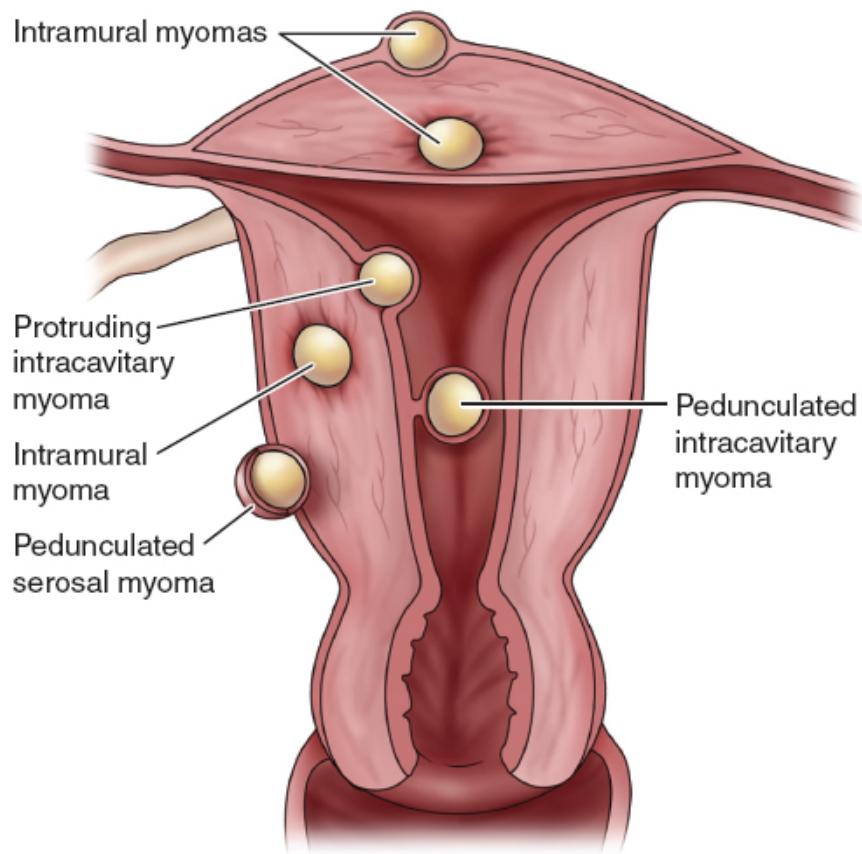


Figure 51-7 • Myomas (fibroids). Those that impinge on the uterine cavity are called *intracavitary myomas*.

Medical Management

Treatment of uterine fibroids may include medical or surgical intervention and depends to a large extent on the size, symptoms, and location, as well as the woman's age and her reproductive plans. Fibroids usually shrink and disappear during menopause, when estrogen is no longer produced. Simple observation and follow-up may be all the management that is necessary. The patient with minor symptoms is closely monitored. If she plans to have children, treatment is as conservative as possible. As a rule, **myomectomy** (surgical removal of uterine fibroids) is performed for large tumors that produce pressure symptoms. A hysterectomy may be performed if symptoms are severe and childbearing is completed (see later discussion of nursing care for a patient having a hysterectomy).

Several alternatives to hysterectomy have been developed for the treatment of excessive bleeding due to fibroids (Fortin, Flyckt, & Falcone, 2017). These include the following:

- *Hysteroscopic resection of myomas*: A laser is used through a hysteroscope passed through the cervix; no incision or overnight stay is needed.
- *Laparoscopic myomectomy*: Removal of a fibroid through a laparoscope inserted through a small abdominal incision.
- *Laparoscopic myolysis*: The use of a laser or electrical needles to cauterize and shrink the fibroid.
- *Laparoscopic cryomyolysis*: Electric current is used to coagulate the fibroid.
- *Uterine artery embolization (UAE)*: Polyvinyl alcohol or gelatin particles are injected into the blood vessels that supply the fibroid via the femoral artery, resulting in infarction and resultant shrinkage. This percutaneous image-guided therapy offers an alternative to hormone therapy or surgery. UAE may result in infrequent but serious complications such as pain, infection, amenorrhea, necrosis, and bleeding. Although rare, deaths and ovarian failure may occur. Women need to weigh the risks and benefits carefully, especially if they have not completed childbearing.
- *Magnetic resonance-guided focused ultrasound surgery (MRgFUS)*: Ultrasonic energy is passed through the abdominal wall to target and destroy the fibroid. This noninvasive procedure is approved by the FDA for women who are premenopausal with bothersome symptoms due to fibroids and who do not want more children. It is an outpatient treatment.

Medications (e.g., leuprolide) or other gonadotropin-releasing hormone (GnRH) analogues, which induce a temporary menopause like environment, may be prescribed to shrink the fibroids. This treatment consists of monthly injections, which may cause hot flashes and vaginal dryness. Treatment is usually short term (i.e., before surgery) to shrink the fibroids, allowing easier surgery, and to alleviate anemia, which may occur as a result of heavy menstrual flow. This treatment is used on a temporary basis because it leads to vasomotor symptoms and loss of bone density.

Antifibrotic agents are under investigation for long-term treatment of fibroids. Mifepristone, a progesterone antagonist, is also utilized.

Endometriosis

Endometriosis is a chronic disease affecting between 7% and 10% of women of reproductive age, occurring more frequently in women who have never had children (Casanova et al., 2019). **Endometriosis** consists of a benign lesion or lesions that contain endometrial tissue (similar to that lining the uterus) found in the pelvic cavity outside the uterus. Extensive endometriosis may cause few symptoms, or an isolated lesion may produce severe symptoms. It is a major cause of chronic pelvic pain and infertility.

Endometriosis has been diagnosed more frequently as a result of the increased use of laparoscopy. There is a high incidence among patients who bear children late and among those who have fewer children. In countries where tradition favors early marriage and early childbearing, endometriosis is rare. There also appears to be a familial predisposition to endometriosis; it is more common in women whose close female relatives are affected. Other factors that may suggest increased risk include a shorter menstrual cycle (less than every 27 days), flow longer than 7 days, outflow obstruction, and younger age at menarche.

Pathophysiology

Misplaced endometrial tissue responds to and depends on ovarian hormonal stimulation. During menstruation, this ectopic tissue bleeds, mostly into areas having no outlet, which causes pain and adhesions. The lesions are typically small and puckered, with a blue/brown/gray powder-burn appearance and brown or blue-black appearance, indicating concealed bleeding.

Endometrial tissue contained within an ovarian cyst has no outlet for the bleeding; this formation is referred to as a pseudocyst or chocolate cyst. Adhesions, cysts, and scar tissue may result, causing pain and infertility (Casanova et al., 2019). Endometriosis may increase the risk of ovarian cancer.

Currently, the best-accepted theory regarding the origin of endometrial lesions is the transplantation theory, which suggests that a backflow of menses (retrograde menstruation) transports endometrial tissue to ectopic sites through the fallopian tubes. Why some women with retrograde menstruation develop endometriosis and others do not is unknown. Endometrial tissue can also be spread by lymphatic or venous channels.

Clinical Manifestations

Symptoms vary but include dysmenorrhea (menstrual pain), dyspareunia, and pelvic discomfort or pain. Dyschezia (pain with bowel movements) and radiation of pain to the back or leg may occur. Depression, loss of work due to pain, and relationship difficulties may result. Infertility may occur because of fibrosis and adhesions or because of a variety of substances (prostaglandins,

cytokines, other factors) produced by the implants of endometriosis and scar tissue on anatomic sites.

Assessment and Diagnostic Findings

A health history, including an account of the menstrual pattern, is necessary to elicit specific symptoms. On bimanual pelvic examination, fixed tender nodules are sometimes palpated, and uterine mobility may be limited, indicating adhesions. Laparoscopic examination confirms the diagnosis and helps stage the disease. In stage 1, patients have superficial or minimal lesions; stage 2, mild involvement; stage 3, moderate involvement; and stage 4, extensive involvement and dense adhesions, with obliteration of the cul-de-sac. Ultrasonography, magnetic resonance imaging (MRI), and CT scans may also be useful to visualize endometriosis (Casanova et al., 2019).

Medical Management

Treatment depends on the symptoms, the patient's desire for pregnancy, and the extent of the disease. If the woman does not have symptoms, routine examination may be all that is required. Other therapy for varying degrees of symptoms may be NSAIDs, oral contraceptive agents, GnRH agonists, or surgery. Pregnancy often alleviates symptoms, because neither ovulation nor menstruation occurs.

Pharmacologic Therapy

Palliative measures include the use of medications, such as analgesic agents and prostaglandin inhibitors, for pain. Hormonal therapy is effective in suppressing endometriosis and relieving dysmenorrhea. Oral contraceptive agents provide effective pain relief and may prevent disease progression (Casanova et al., 2019). Infrequently, side effects may occur with oral contraceptives, such as fluid retention, weight gain, and nausea. These can usually be managed by changing brands or formulations.

Several types of hormonal therapy are also available in addition to oral contraceptive agents. A synthetic androgen, danazol, causes atrophy of the endometrium and subsequent amenorrhea. The medication inhibits the release of gonadotropin with minimal overt sex hormone stimulation. The drawbacks of this medication are that it is expensive and may cause troublesome side effects such as fatigue, depression, weight gain, oily skin, decreased breast size, mild acne, hot flashes, and vaginal atrophy (Casanova et al., 2019; Comerford & Durkin, 2020). GnRH agonists decrease estrogen production and cause subsequent amenorrhea. Side effects are related to low estrogen levels (e.g., hot flashes and vaginal dryness). Loss of bone density is often offset by concurrent use of estrogen. If side effects from GnRH develop, treatment is

needed long term or repeated treatments are necessary, additional therapy should be considered. Norethindrone acetate (low-dose hormone) given along with GnRH agonist will mitigate the bone density side effects as well as not affect the drug's control of pelvic pain. Aromatase inhibitor therapy is emerging as an alternative therapy (Casanova et al., 2019). Most women continue treatment despite side effects, and symptoms diminish for 80% to 90% of women with mild to moderate endometriosis. Hormonal medications are not used in patients with a history of abnormal vaginal bleeding or liver, heart, or kidney disease. Bone density is followed carefully because of the risk of bone loss; hormone therapy is usually short term.

Surgical Management

If conservative measures are not helpful, surgery may be necessary to relieve pain and improve the possibility of pregnancy. Surgery may be combined with the use of medical therapy. The procedure selected depends on the patient. Laparoscopy may be used to fulgurate (cut with high-frequency current) endometrial implants and to release adhesions. Laser surgery is another option made possible by laparoscopy. Laser therapy vaporizes or coagulates the endometrial implants, thereby destroying this tissue. Other surgical options include endocoagulation and electrocoagulation, laparotomy, abdominal hysterectomy, **oophorectomy** (removal of the ovary), bilateral **salpingo-oophorectomy** (removal of the ovary and its fallopian tube), and appendectomy. Many women need further intervention following conservative surgeries; therefore, total hysterectomy is the definitive procedure (Casanova et al., 2019).

Nursing Management

The health history and physical examination focus on specific symptoms (e.g., pelvic pain), the effect of prescribed medications, and the woman's reproductive plans. This information helps in determining the treatment plan. Explaining the various diagnostic procedures may help to alleviate the patient's anxiety. Patient goals include relief of pain, dysmenorrhea, dyspareunia, and avoidance of infertility.

As the treatment progresses, the woman with endometriosis and her partner may find that pregnancy is not easily possible, and the psychosocial impact of this realization must be recognized and addressed. Alternatives, such as assisted reproductive technologies or adoption, may be discussed at an appropriate time and referrals offered.

The nurse's role in patient education is to dispel myths and encourage the patient to seek care if dysmenorrhea or dyspareunia occur. The Endometriosis Association (see the Resources section) is a helpful resource for patients

seeking further information and support for this condition, which can cause disabling pain and severe emotional distress.

Chronic Pelvic Pain

Chronic pelvic pain is a common disorder of women that may be related to several of the previously discussed gynecologic disorders. Chronic pelvic pain is defined as noncyclic pain concentrated in the pelvis, anterior abdominal wall, and buttock or lumbosacral region for a period greater than 6 months (Andrew & Pickett, 2019). Causes may be of reproductive, genitourinary, or gastrointestinal origin. A history of sexual abuse, IPV, PID, endometriosis, interstitial cystitis, musculoskeletal disorders, irritable bowel syndrome, and previous surgery resulting in abdominal adhesions may be associated with chronic pelvic pain. Dysmenorrhea, dyspareunia, and lower abdominal pain may also be associated with sexual abuse and IPV.

Chronic pelvic pain is often difficult to treat. Treatment depends on physical and diagnostic test results and may include antidepressant, analgesic, anxiolytic, and oral contraceptive agents; GnRH agonists; exercise; diet modification; and various surgical procedures (Andrew & Pickett, 2019).

Adenomyosis

In adenomyosis, the tissue that lines the endometrium invades the uterine wall. Symptoms include hypermenorrhea (excessive and prolonged bleeding), dysmenorrhea, polymenorrhea (abnormally frequent bleeding), and pelvic pain. Physical examination findings on palpation include a symmetrically enlarged, tender, and boggy uterus (Casanova et al., 2019). Treatment depends on the severity of bleeding and pain. Hysterectomy may be the best option in providing relief of symptoms.

Endometrial Hyperplasia

Endometrial hyperplasia (a buildup of endometrial tissue) is the most common precursor to endometrial cancer and often results from unopposed estrogen from any source. Estrogen therapy alone without progesterone in a woman with a uterus can cause this condition. Women with anovulatory cycles, PCOS, or obesity may have high circulating levels of estrogen. Tamoxifen may also be a causative factor. Diagnosis is by biopsy or ultrasound findings of thickness of the endometrium. Hyperplasia with atypia on a pathology or biopsy report indicates risk of progression. Progestin treatment may be

effective, but hysterectomy may be advised if pathology from an endometrial biopsy shows atypia. Abnormal bleeding is the most common symptom.

MALIGNANT CONDITIONS

Gynecologic cancer is any cancer that starts in a woman's reproductive organs (CDC, 2019e). According to the American Cancer Society (ACS, 2019a), the projected incidence for female reproductive cancers in the United States includes about 61,880 new cases of uterine cancer; 22,530 new cases of ovarian cancer; 13,170 new cases of cervical cancer; 6070 new cases of vulvar cancer; and 5350 new cases of vaginal cancer per year. Ovarian cancer is responsible for 5% of all cancer deaths in women and is the leading cause of death in female reproductive cancers.

Although some cancers are difficult to detect or prevent, annual pelvic examination with a Pap smear is a painless and relatively inexpensive method of early detection (CDC, 2019e). Primary providers can encourage women to follow this health practice by providing examinations that are educational and supportive and offer women an opportunity to ask questions and clarify misinformation.

Women diagnosed with gynecologic malignancies experience anxiety related to their prognosis. The occurrence of physical symptoms may cause more psychological distress. Intervention directed toward physical and psychological symptoms requires a multidisciplinary approach.

Nurses should be aware of ongoing clinical trials to identify options for many conditions. They are often able to answer questions about clinical trials and to encourage patients to consider participation if appropriate. Women's participation in cancer research may not occur in part because women are unaware of ongoing relevant research (see [ClinicalTrials.gov](#) in the Resources section).

Cancer of the Cervix

Death from cervical cancer is less common due to early detection of cell changes by Pap smear (ACS, 2019b). However, it is still the third most common female reproductive cancer in the United States (ACS, 2019b). Risk factors are presented in [Chart 51-5](#).

Preventive measures include regular pelvic examinations and Pap tests for all women, especially older women past childbearing age. Preventive counseling should encourage delaying first penile–vaginal intercourse, avoiding HPV infection, engaging only in safer sex, ceasing smoking, and receiving HPV immunization.

Chart 51-5



RISK FACTORS

Cervical Cancer

Chronic cervical infection

- Early childbearing
- Exposure to diethylstilbestrol in utero
- Exposure to human papillomavirus, types 16 and 18
- Family history of cervical cancer
- HIV infection and other causes of immune deficiency
- Low socioeconomic status (may be related to early marriage and early childbearing)
- Nutritional deficiencies (folate, beta-carotene, and vitamin C levels are lower in women with cervical cancer than in women without it)
- Overweight status
- Prolonged use of oral contraceptives
- Sexual activity:
 - Multiple sex partners
 - Early age (<20 years) at first coitus (exposes the vulnerable young cervix to potential viruses from a partner)
 - Sexual contact with men whose partners have had cervical cancer
 - Sex with uncircumcised men
 - Smoking and exposure to secondhand smoke

HIV, human immune deficiency virus.

Adapted from American Cancer Society. (2019b). *Cervical cancer*. Retrieved on 10/28/2019 at: www.cancer.org/cancer/cervical-cancer/about/key-statistics.html; Casanova, R., Chuang, A., Goepfert, A. R., et al. (Eds.). (2019). *Beckman and Ling's obstetrics and gynecology* (8th ed.). Philadelphia, PA: Wolters Kluwer.

There are several different types of cervical cancer. Most of these cancers are squamous cell carcinomas, and the rest are adenocarcinomas or mixed adenosquamous carcinomas. Adenocarcinomas begin in mucous-producing glands and are often due to HPV infection. Most cervical cancers, if not detected and treated, spread to regional pelvic lymph nodes, and local recurrence is not uncommon (ACS, 2019b).

Clinical Manifestations

Early cervical cancer rarely produces symptoms. If symptoms are present, they may go unnoticed as a thin, watery vaginal discharge often noticed after penile–vaginal intercourse or douching. When symptoms such as discharge, irregular bleeding, or pain or bleeding after penile–vaginal intercourse occur, the disease may be advanced. Advanced disease should not occur if all women

have access to gynecologic care and avail themselves to it. The nurse's role in access to care and its utilization is crucial.

In advanced cervical cancer, the vaginal discharge gradually increases and becomes watery and, finally, dark and foul smelling from necrosis and infection. The bleeding, which occurs at irregular intervals between periods (metrorrhagia) or after menopause, may be slight (just enough to spot the undergarments) and occurs usually after mild trauma or pressure (e.g., penile-vaginal intercourse, douching, or bearing down during defecation). As the disease continues, the bleeding may persist and increase. Leg pain, dysuria, rectal bleeding, and edema of the extremities signal advanced disease.

As the cancer advances, it may invade the tissues outside the cervix, including the lymph glands anterior to the sacrum. In one third of patients with invasive cervical cancer, the disease involves the fundus. The nerves in this region may be affected, producing excruciating pain in the back and the legs that is relieved only by large doses of opioid analgesic agents. If the disease progresses, it often produces extreme emaciation and anemia that usually is accompanied by fever (due to secondary infection and abscesses in the ulcerating mass) and by fistula formation. Because the survival rate for *in situ* cancer is 100% and the rate for women with more advanced stages of cervical cancer decreases dramatically, early detection is essential.

Assessment and Diagnostic Findings

Diagnosis may be made on the basis of abnormal Pap smear results, followed by biopsy results identifying severe dysplasia (cervical intraepithelial neoplasia type III [CIN III], high-grade squamous intraepithelial lesions [HGSILs, also referred to as HSILs], or carcinoma *in situ*). HPV infections are usually implicated in these conditions. Carcinoma *in situ* is technically classified as severe dysplasia and is defined as cancer that has extended through the full thickness of the epithelium of the cervix, but not beyond. This is often referred to as preinvasive cancer.

In its very early stages, cervical cancer is found microscopically by Pap smear. In later stages, pelvic examination may reveal a large, reddish growth or a deep, ulcerating lesion. The patient may report spotting or bloody discharge.

When the patient has been diagnosed with invasive cervical cancer, clinical staging estimates the extent of the disease so that treatment can be planned more specifically, and prognosis reasonably predicted. Staging is based on the International Federation of Gynecology and Obstetrics (FIGO) Staging Classification (Casanova et al., 2019):

- Stage I, the carcinoma is strictly confined to the cervix.
- Stage II, the carcinoma invades beyond the uterus but not the pelvic wall or vagina.

- Stage III, the tumor spreads to the pelvic wall and/or the vagina, and/or causes hydronephrosis of the kidneys.
- Stage IV, the tumor has extended beyond the pelvis and involves the bladder or rectum.

Signs and symptoms are evaluated, and x-rays, laboratory tests, and special examinations, such as biopsy and colposcopy, are performed (Casanova et al., 2019). Depending on the stage of the cancer, other tests and procedures may be performed to determine the extent of disease and appropriate treatment. These tests may include dilation and curettage (D&C), CT scan, MRI scan, IV urography, cystography, positron emission tomography (PET) scan, and barium x-ray studies. Treatment depends on the stage of the disease.

Medical Management

Precursor or Preinvasive Lesions

When precursor lesions, such as low-grade squamous intraepithelial lesions (LGSILs, also referred to as LSILs; CIN I and II or mild to moderate dysplasia), are found by colposcopy and biopsy, careful monitoring by frequent Pap smears or conservative treatment is possible. Conservative treatment may consist of monitoring, **cryotherapy** (freezing with liquid nitrogen), or laser therapy. A **loop electrocautery excision procedure (LEEP)** may also be used to remove abnormal cells. In this procedure, a thin wire loop with laser is used to cut away a thin layer of cervical tissue. LEEP is an outpatient procedure that usually is performed in a gynecologist's office; it takes only a few minutes. Analgesia is given before the procedure, and a local anesthetic agent is injected into the area. This procedure allows the pathologist to examine the removed tissue sample to determine if the borders of the tissue are disease free. Another procedure referred to as a cone biopsy or conization (removing a cone-shaped portion of the cervix) is performed when biopsy findings demonstrate CIN III or HGSIL (equivalent to severe dysplasia) and carcinoma in situ.

If preinvasive cervical cancer (carcinoma in situ) occurs when a woman has completed childbearing, a simple hysterectomy (removal of the uterus only) is usually recommended (Casanova et al., 2019). If a woman is pregnant or wishes to have children and invasion is less than 1 mm, conization may be sufficient. Frequent follow-up examinations are necessary to monitor for recurrence (Casanova et al., 2019).

Patients who have precursor or premalignant lesions need reassurance that they do not have invasive cancer. However, the importance of close follow-up is emphasized because the condition, if untreated for a long time, may progress to cancer. Patients with cervical cancer in situ also need to know that this is

usually a slow-growing and nonaggressive type of cancer that is not expected to recur after appropriate treatment.

Invasive Cancer

Treatment of invasive cervical cancer depends on the stage of the lesion, the patient's age and general health. Surgery and radiation treatment (intracavitary and external) are most often used. Surgical procedures that may be used to treat cervical cancer are summarized in [Chart 51-6](#). Robot-assisted technology for the treatment of cervical cancer is a rapidly growing alternative to more invasive surgical options with decreased length of stay, recovery time, decreased blood loss, and increase in total number of retrievable lymph nodes (ACOG, 2017c).

Chart 51-6

Surgical Procedures for Cervical Cancer

- Total hysterectomy—removal of the uterus, cervix, and ovaries
- Radical hysterectomy—removal of the uterus, ovaries, fallopian tubes, proximal vagina, and bilateral lymph nodes through an abdominal incision (*Note:* “Radical” indicates that an extensive area of the paravaginal, paracervical, parametrial, and uterosacral tissues is removed with the uterus.)
- Radical vaginal hysterectomy—vaginal removal of the uterus, ovaries, fallopian tubes, and proximal vagina
- Bilateral pelvic lymphadenectomy—removal of the common iliac, external iliac, hypogastric, and obturator lymphatic vessels and nodes
- Pelvic exenteration—removal of the pelvic organs, including the bladder or rectum and pelvic lymph nodes, and construction of diversional conduit, colostomy, and vagina
- Radical trachelectomy—removal of the cervix and selected nodes to preserve childbearing capacity in a woman of reproductive age with cervical cancer

Adapted from American Cancer Society. (2019b). *Cervical cancer*. Retrieved on 10/28/2019 at: www.cancer.org/cancer/cervical-cancer/about/key-statistics.html; Casanova, R., Chuang, A., Goepfert, A. R., et al. (Eds.). (2019). *Beckman and Ling's obstetrics and gynecology* (8th ed.). Philadelphia PA: Wolters Kluwer.

Frequent follow-up after surgery is imperative because the risk of recurrence is high and usually occurs within the first 2 years. Recurrences are often in the upper quarter of the vagina, and ureteral obstruction may be a sign. Weight loss, leg edema, and pelvic pain may be signs of lymphatic obstruction and metastasis.

Radiation, which is often part of treatment to reduce recurrent disease, may be delivered by an external beam or by **brachytherapy** (method by which the radiation source is placed near the tumor in a sealed source) or both. The field to be irradiated as well as the dose and method of radiation are determined by stage, volume of tumor, and lymph node involvement (Casanova et al., 2019).

A variety of chemotherapeutic approaches are used to treat advanced cervical cancer. They are often used in combination with surgery and radiation. Vaginal stenosis is a frequent side effect of radiation. Preventive therapy (i.e., vaginal dilator) can be used to avoid severe permanent vaginal stenosis.

Some patients with recurrences of cervical cancer are considered for **pelvic exenteration**, in which several pelvic organs are removed. This is a complex, extensive surgical procedure that is reserved for women with a high likelihood of cure. Unilateral leg edema, sciatica, and ureteral obstruction indicate likely disease progression. Patients with these symptoms have advanced disease and are not considered candidates for this major surgical procedure. Surgery is complex because it is performed close to the bowel, bladder, ureters, and great vessels. Possible complications include pulmonary embolism (PE), pulmonary edema, myocardial infarction, cerebrovascular disease, hemorrhage, sepsis, small bowel obstruction, fistula formation, obstruction of the ileal conduit, bladder dysfunction, and pyelonephritis, most often in the first 18 months postoperatively. Vein constriction must be avoided postoperatively. Patients with varicose veins or a history of thromboembolic disease may be treated prophylactically with heparin. Anti-embolism stockings are prescribed to reduce the risk of deep vein thrombosis (DVT). Nursing care of these patients is complex and requires coordination and care by experienced health care professionals. Pelvic exenteration is discussed in further detail later in this chapter.

Cancer of the Uterus (Endometrium)

Over the last decade there has been an increase in both the incidence and death rates of cancer of the uterine endometrium (fundus or corpus), possibly because of increased lifespan and coexisting comorbidities. This cancer is the most frequently occurring gynecologic cancer in the United States. After breast, lung, and colorectal cancer, endometrial cancer is the fourth most common cancer in women. Most women are diagnosed after menopause, with only 15% diagnosed before age 50 (ACOG, 2019). Many women with endometrial cancer have obesity, which increases the risk of morbidity and mortality from this disease. Cumulative exposure to estrogen is considered the major risk factor (see [Chart 51-7](#)). This exposure occurs with the use of estrogen therapy without the use of progestin, early menarche, late menopause, nulliparity, and anovulation. Other risk factors include infertility, diabetes, and

the use of tamoxifen. Tamoxifen, which is taken for treatment or prevention of breast cancer, may cause proliferation of the uterine lining (ACOG, 2019). Women who take tamoxifen should be monitored by their oncologists and/or gynecologic health care providers.

Chart 51-7



RISK FACTORS

Uterine Cancer

- Age—usually >50 years; average age, 63 years
- Obesity that results in increased estrone levels (related to excess weight) resulting from conversion of androstenedione to estrone in body fat, which exposes the uterus to unopposed estrogen
- Unopposed estrogen therapy (estrogen used without progesterone, which offsets the risk of unopposed estrogen)
- Other—nulliparity, truncal obesity, early menarche, late menopause (after 52 years of age) and the use of tamoxifen

Adapted from American College of Obstetricians and Gynecologists. (2015, reaffirmed 2019). Practice Bulletin No. 149: Endometrial cancer. *Obstetrics and Gynecology*, 125(4), 1006–1026.

Pathophysiology

Most uterine cancers are endometrioid (i.e., originating in the lining of the uterus). There are two types. Type 1, which accounts for about 90% of cases, is estrogen dependent. It is usually low grade with a favorable prognosis. Type 2, which occurs in about 10% of cases, is high grade and usually serous cell or clear cell. Type 2 is considered to be estrogen independent. Older and African American women are at higher risk for type 2 (ACOG, 2019; Casanova et al., 2019).

Assessment and Diagnostic Findings

All women should be encouraged to have annual checkups, including a gynecologic examination. Any woman who is experiencing irregular bleeding should be evaluated promptly. If a menopausal woman experiences bleeding, an endometrial aspiration or biopsy is performed to rule out hyperplasia, which is a possible precursor of endometrial cancer. The procedure is quick and usually not painful. Transvaginal ultrasound can also be used to measure the thickness of the endometrium (ACOG, 2019). (Women who are postmenopausal should have a very thin endometrium due to low levels of estrogen; a thicker lining warrants further investigation.) A biopsy or aspiration for tissue pathology is diagnostic.

Medical Management

Treatment for endometrial cancer consists of surgical staging, total or radical hysterectomy (discussed later in this chapter), and bilateral salpingo-oophorectomy and lymph node sampling. Laparoscopy or a robot-assisted laparoscopic surgery is less invasive than abdominal surgery (ACOG, 2019). Lymph node sampling and visualization of the peritoneum can be accomplished in many women in this manner. Cancer antigen 125 (CA-125) levels must be monitored, because elevated levels are a significant predictor of extrauterine disease or metastasis. Depending on the stage, the therapeutic approach is individualized and is based on stage, type, differentiation, degree of invasion, and node involvement. Radiation may be used in the form of external-beam radiation or vaginal brachytherapy (ACOG, 2019). Whole pelvis radiotherapy may be used if there is any spread beyond the uterus. Recurrent cancer usually occurs inside the vaginal vault or in the upper vagina, and metastasis usually occurs in lymph nodes or the ovary. Recurrent lesions in the vagina are treated with surgery and radiation. Recurrent lesions beyond the vagina are treated with hormonal therapy or chemotherapy. Progestin therapy is used frequently. Patients should be prepared for such side effects as nausea, depression, rash, or mild fluid retention with progestin therapy.

Cancer of the Vulva

Primary cancer of the vulva is rare, representing less than 1% of all cancers (Weinberg & Gomez-Martinez, 2019). It is most common in women who are postmenopausal, although its incidence in younger women is increasing. Possible risk factors include smoking, HPV infection, HIV infection, and immunosuppression. Squamous cell carcinoma accounts for most primary vulvar tumors. Less common are Bartholin gland cancer, vulvar sarcoma, and malignant melanoma. Little is known about what causes this disease; however, increased risk may be related to chronic vulvar irritation. In younger women, HPV infection may be implicated, especially types 16, 18, and 31. Prevention includes delaying onset of sexual activity to avoid early exposure to HPV, administration of the HPV vaccine, and avoidance of smoking. Regular pelvic examinations, Pap smears, and vulvar self-examination are helpful in early detection. Women with persistent irritation or itching should be encouraged to seek evaluation.

Clinical Manifestations

Vulvar cancers are rarely asymptomatic (Weinberg & Gomez-Martinez, 2019). Long-standing pruritus and soreness are the most common symptoms of vulvar cancer. Itching occurs in half of all patients with vulvar malignancy. Bleeding,

dysuria, foul-smelling discharge, and pain may also be present and are usually signs of advanced disease. Cancerous lesions of the vulva are visible and accessible and grow relatively slowly. Early lesions appear as a chronic dermatitis; later, patients may note a lump that continues to grow and becomes a hard, ulcerated, cauliflowerlike growth. Biopsy should be performed on any vulvar lesion that persists, ulcerates, or fails to heal quickly with proper therapy. Vulvar malignancies may appear as a lump or mass, redness, or a lesion that fails to heal.

Medical Management

Vulvar intraepithelial lesions are preinvasive and are also called *vulvar carcinoma in situ*. They may be treated by local excision, laser ablation, application of chemotherapeutic creams, or cryosurgery.

When invasive vulvar carcinoma exists, treatment may include wide excision of the vulva and **vulvectomy** (removal of the vulva). An effort is made to individualize treatment, depending on the extent of the disease. A wide excision is performed only if lymph nodes are normal. More pervasive lesions require vulvectomy with deep pelvic node dissection. Vulvectomy is very effective at prolonging life but is frequently followed by complications (i.e., scarring, wound breakdown, leg swelling, vaginal stenosis, or rectocele). To reduce complications, only necessary tissue is removed. External-beam radiation may be used, resulting in sunburnlike irritation that usually resolves in 6 to 12 months. Laser therapy and chemotherapy are other possible treatment options.

If a widespread area is involved or the disease is advanced, a radical vulvectomy with bilateral groin dissection may be performed. Antibiotic and heparin prophylaxis may be prescribed preoperatively and continued postoperatively to prevent infection, DVT, and PE. Sequential compression devices (SCDs) are applied to reduce the risk of venous thromboembolism (VTE).

Although the role of systemic chemotherapy in the treatment of vulvar cancer remains to be determined, chemotherapy may be helpful when used in combination with radiation therapy in treatment for advanced disease. The combination of radiation and chemotherapy may reduce the size of the cancer, resulting in less extensive subsequent surgery (Weinberg & Gomez-Martinez, 2019).

Clinical trials to determine the most effective treatment are difficult to conduct because there are few patients with this condition. Morbidity with recurrence of the disease is high, and patterns of recurrence vary. Reconstruction after vulvectomy is performed by plastic surgeons when appropriate and desired.

Nursing Management

Obtaining the Health History

The health history is a valuable tool for establishing rapport with the patient. The reason the patient is seeking health care is apparent. What the nurse can tactfully elicit is the reason a delay, if any, occurred in seeking health care—for example, because of modesty, economics, denial, neglect, or fear (partners who are abusive sometimes prevent women from seeking health care). Factors involved in any delay in seeking health care and treatment may also affect recovery. The patient's health habits and lifestyle are assessed, and her receptivity to education is evaluated. Psychosocial factors are also assessed. Preoperative preparation and psychological support begin at this time.

Providing Preoperative Care

Relieving Anxiety

Prior to surgery, the patient must be allowed time to talk and ask questions. Fear often decreases when a woman who is to undergo wide excision of the vulva or vulvectomy learns that the possibility for subsequent sexual relations is good. The nurse reinforces the information the surgeon has given to the patient and addresses the patient's questions and concerns.

Preparing Skin for Surgery

Skin preparation may include cleansing the lower abdomen, inguinal areas, upper thighs, and vulva with chlorhexidine for several days before the surgical procedure. The patient may be instructed to do this at home.

Providing Postoperative Care

Relieving Pain

Because of the wide excision, the patient may experience severe pain and discomfort even with minimal movement. Therefore, analgesic agents are given preventively (i.e., around the clock at designated times) to relieve pain, increase the patient's comfort level, and allow mobility. Patient-controlled analgesia (see [Chapter 9](#)) may be used to relieve pain and promote patient comfort. Careful positioning using pillows usually increases comfort, as do soothing backrubs. A low Fowler position or, occasionally, a pillow placed under the knees reduces pain by relieving tension on the incision; however, efforts must be made to avoid pressure behind the knees, which increases the risk of DVT. Positioning the patient on her side, with pillows between her legs and against the lumbar region, provides comfort and reduces tension on the surgical wound.

Improving Skin Integrity

A pressure-reducing mattress may be used to prevent pressure injuries. Moving from one position to another requires time and effort; the use of an overbed trapeze bar may help the patient move herself more easily. The extent of the surgical incision and the type of dressing are considered when choosing strategies to promote skin integrity. Intact skin needs to be protected from drainage and moisture. Dressings are changed as needed to ensure patient comfort, to perform wound care and irrigation (if prescribed), and to permit observation of the surgical site.

The wound is usually cleansed daily with warm, normal saline irrigations or other antiseptic solutions as prescribed, or a transparent dressing may be in place over the wound to minimize exposure to the air and subsequent pain. The appearance of the surgical site and the characteristics of drainage are assessed and documented. After the dressings are removed, a bed cradle may be used to keep the bed linens away from the surgical site.

Supporting Positive Sexuality and Sexual Function

The patient who undergoes vulvar surgery usually experiences concerns about body image, sexual attractiveness, and functioning. Establishing a trusting nurse–patient relationship is important for the patient to feel comfortable with expressing her concerns and fears. The patient is encouraged to discuss her concerns with her sexual partner as well.

Because alterations in sexual sensation and functioning depend on the extent of surgery, the nurse needs to know about any structural and functional changes resulting from the surgery. Referral of the patient and her partner to a sex counselor may help them address these changes and resume satisfying sexual activity.

Monitoring and Managing Potential Complications

Location, extent, and exposure of the surgical site and incision put the patient at risk for contamination of the site, infection, and sepsis. The patient is monitored closely for local and systemic signs and symptoms of infection: purulent drainage, redness, increased pain, fever, and increased white blood cell count. The nurse assists in obtaining specimens for culture if infection is suspected and administers antibiotic agents as prescribed. Hand hygiene—always a crucial infection-preventing measure—is of particular importance along with wearing masks whenever there is an extensive area of exposed tissue. Catheters, drains, and dressings are handled carefully with gloves on to avoid cross-contamination. A low-residue diet prevents straining on defecation and wound contamination.

The patient is at risk for complications of VTE, which include DVT and PE, because of the positioning required during surgery, postoperative edema, and the immobility needed to promote healing. SCDs are applied, and other

prophylactic measures may be prescribed for patients at high risk. The patient is encouraged and reminded to perform ankle exercises to minimize venous pooling, which leads to VTE. The patient is encouraged and assisted in changing positions by using the overbed trapeze bar. Pressure behind the knees is avoided when positioning the patient, because this may increase venous pooling. The patient is assessed for signs and symptoms of DVT (leg pain, redness, warmth, edema) and PE (chest pain, tachycardia, dyspnea). Fluid intake is encouraged to prevent dehydration, which also increases the risk of DVT.

The extent of the surgical incision and possibly wide excision of tissue increase the risk of postoperative bleeding and hemorrhage. Pressure dressings are applied after surgery to minimize this risk.



Quality and Safety Nursing Alert

The patient must be monitored closely for signs of hemorrhage and resulting hypovolemic shock. These signs may include decreased blood pressure; increased pulse rate; decreased urine output; decreased mental status; and cold, clammy skin.

If hemorrhage and shock occur, interventions include fluid replacement, blood component therapy, and vasopressor medications. Laboratory results (e.g., hematocrit and hemoglobin levels) and hemodynamic monitoring are used to assess the patient's response to treatment. Depending on the specific cause of hemorrhage, the patient may be returned to the operating room. See [Chapter 11](#) for a detailed discussion of shock.

Promoting Home, Community-Based, and Transitional Care



Educating Patients About Self-Care

Preparing the patient for hospital discharge begins before hospital admission. The patient and family are informed about what to expect during the immediate postoperative and recovery periods. Depending on the changes resulting from the surgery, the patient and her family may need education about wound care, urinary catheterization, and possible complications. The patient is encouraged to share her concerns and to assume increasing responsibility for her own care. She is encouraged and assisted in learning to care for the surgical site. A referral for transitional, home, or community-based care is made as indicated.

Nurses are in an ideal position to educate women about performing regular vulvar self-examinations. Using a mirror, patients can see what constitutes

normal female anatomy and learn about changes that should be reported (e.g., lesions, ulcers, masses, persistent itching). Nurses must urge women to seek health care if they notice anything abnormal, because vulvar cancer is one of the most curable of all malignant conditions.

Continuing and Transitional Care

Patients may be discharged early in their postoperative recovery to home or a subacute facility. During this phase, the patient's physical status and psychological responses to the surgery are assessed. In addition, the patient is assessed for complications and healing of the surgical site. During home visits, the nurse assesses the home to determine if modifications are needed to facilitate care. The home visit is used to reinforce previous education and to assess the patient's and the family's understanding of and adherence to the prescribed treatment strategies. Follow-up phone calls by the nurse to the patient between home visits are usually reassuring to the patient and family, who may be responsible for performing complex care procedures. Attention to the patient's psychological responses is important because the patient may become discouraged and depressed because of alterations in body image and a slow recovery. Communication between the nurse involved in the patient's immediate postoperative care and the home health nurse is essential to ensure continuity of care.

Cancer of the Vagina

Cancer of the vagina is uncommon, representing 1% to 3% of gynecologic cancers; it is usually squamous in origin (Casanova et al., 2019). Malignant melanoma and sarcomas can occur. Most vaginal cancers are secondary and invasive at the time of diagnosis. Risk factors include previous cervical cancer, in utero exposure to diethylstilbestrol, previous vaginal or vulvar cancer, previous radiation therapy, history of HPV, or pessary use. Any patient with previous cervical cancer should be examined regularly for vaginal lesions.

Vaginal pessaries, which are used to support prolapsed tissues, can be a source of chronic irritation. As such, they have been associated with vaginal cancer, but only when the devices were not cared for properly (i.e., the device was not cleaned regularly or the patient did not return to the primary provider regularly for vaginal examinations).

Patients often do not have symptoms but may report slight bleeding after penile–vaginal intercourse, spontaneous bleeding, vaginal discharge, pain, and urinary or rectal symptoms (or both). Diagnosis is often by Pap smear. Encouraging close follow-up is the focus of nursing interventions with women who were exposed to diethylstilbestrol in utero. Emotional support for mothers

who received diethylstilbestrol before its risks were discovered and their daughters who were exposed to diethylstilbestrol in utero is essential.

Medical Management

Treatment of early lesions may include local excision, topical chemotherapy, or laser. Laser therapy is a common treatment option in early vaginal and vulvar cancer. Surgery for more advanced lesions depends on the size and the stage of the cancer. If radical vaginectomy is required, a vagina can be reconstructed with tissue from the intestine, muscle, or skin grafts. After vaginal reconstructive surgery and radiation, regular penile–vaginal intercourse may be helpful in preventing vaginal stenosis. Water-soluble lubricants are helpful in reducing dyspareunia.

Following surgery, radiation therapy may be given by a variety of methods, including external-beam radiation, which is usually an outpatient procedure, or brachytherapy, which is internal radiation therapy. Internal radiation may be given with intracavitary radioactive material contained in a seed, wire, needle, or tube, which is placed into a cavity such as the uterus or vagina. Interstitial radiation is another type of internal radiation treatment in which the radioactive material is placed in or near the cancer but not into a body cavity and is used in cervical and ovarian malignancies. These treatments may be high dose for a short period or low dose, which may take longer. Treatment during hospitalization or during outpatient therapy depends on several factors, including the status of the patient and the mode of delivery.

Cancer of the Fallopian Tubes

Malignancies of the fallopian tube are the least common type of genital cancer (ACS, 2019a). Although this type of cancer can occur at any age, it is most common in women who are postmenopausal. Symptoms are often minimal, causing diagnosis to be made at an advanced stage (Casanova et al., 2019). Symptoms include abdominal pain, abnormal bleeding, and vaginal discharge. An enlarged fallopian tube may be found on sonogram if dilated and fluid filled, or it may appear or be palpated as a mass. Surgery followed by radiation therapy is the usual treatment.

Cancer of the Ovary

Ovarian cancer is the leading cause of gynecologic cancer deaths in the United States, and the fifth deadliest cancer for women following lung, breast, colorectal, and pancreatic (Casanova et al., 2019; Stewart, Ralyea, &

Lockwood, 2019). Despite careful physical examination, ovarian tumors are often difficult to detect because they are usually deep in the pelvis. Often called the “Silent Killer,” about 70% of ovarian cancers are not diagnosed until stage III or IV. Tumor-associated antigens are helpful in determining follow-up care after diagnosis and treatment and to evaluate for recurrent disease but are not useful in early general screening (Casanova et al., 2019).

Epidemiology

One in 70 women will develop ovarian cancer in her lifetime. The incidence of this type of cancer increases with age until 70 years, with most cases diagnosed by age 60 (Stewart et al., 2019). The frequency of ovarian cancer is highest in industrialized countries and affects women of all races and ethnic backgrounds.

Family history is the most significant risk factor. Most cases are random, but 8% to 13% of ovarian cancers are familial (Casanova et al., 2019). In most cases, the mutations are in the *BRCA1* gene and sometimes in the *BRCA2* gene. A family history in a first-degree relative (mother, daughter, or sister), older age, early menarche, late menopause, and obesity may increase the risk of ovarian cancer. However, most women who develop ovarian cancer have no known risk factors, and no definitive causative factors have been determined.

Patients with concerns about their family history should be referred to a cancer genetics center to obtain information and testing, if indicated (see [Chapter 6](#)). Women with inherited types of ovarian cancer tend to be younger when the diagnosis is made than the average age at the time of diagnosis. Hereditary non-polyposis colorectal cancer (HNPCC, also known as Lynch syndrome) increases the risk of ovarian cancer by 5% to 10% (Casanova et al., 2019). Lifetime risk of developing ovarian cancer has been shown to be decreased by 40% to 50% with long-term suppression (greater than 5 years) of ovulation through use of oral contraceptives (Stewart et al., 2019).

Pathophysiology

Types of tumors include germ cell tumors, which arise from the cells that produce eggs and are the most common cause of ovarian cancer in women younger than 20 years (Casanova et al., 2019); stromal cell tumors, which arise in connective tissue cells that produce hormones; and epithelial tumors, which originate from the outer surface of the ovary. Most ovarian cancers are epithelial in origin. Of the many different cell types in ovarian cancer, epithelial tumors constitute 90%. Germ cell and stromal tumors make up the other 10% (Casanova et al., 2019).

Primary peritoneal carcinoma is closely related to ovarian cancer. Extraovarian primary peritoneal carcinoma (EOPPC) resembles ovarian cancer

histologically and can occur in women with and without ovaries. Symptoms and treatment are similar. Because of the possibility of EOPPC, oophorectomy lessens the chance but does not guarantee that the patient will not develop carcinoma.

Clinical Manifestations

Symptoms of ovarian cancer are nonspecific and may include increased abdominal girth, pelvic pressure, bloating, back pain, constipation, abdominal pain, urinary urgency, indigestion, flatulence, increased waist size, leg pain, and pelvic pain. Symptoms are often vague, so many women tend to ignore them. Ovarian cancer is often silent, but enlargement of the abdomen from an accumulation of fluid is a common sign. All women with gastrointestinal symptoms without a known cause must be evaluated for potential ovarian cancer. Vague, undiagnosed, persistent gastrointestinal symptoms should alert the nurse to the possibility of an early ovarian malignancy. A palpable ovary in a woman who has gone through menopause is investigated immediately, because ovaries normally become smaller and less palpable after menopause.

Assessment and Diagnostic Findings

Any enlarged ovary must be investigated. Pelvic examination often does not detect early ovarian cancer, and pelvic imaging techniques are not always definitive. Ovarian tumors are classified as benign if there is no proliferation or invasion, borderline if there is proliferation but no invasion, and malignant if there is invasion. Of all new cases of ovarian tumors, 20% are classified as borderline and have low malignancy potential. However, by the time of diagnosis, most ovarian cancers are advanced (Casanova et al., 2019; Stewart et al., 2019).

Diagnostic test may include an MRI scan, transvaginal and pelvic ultrasound, chest x-rays, and a blood test for CA-125. An abdominal CT scan with and without contrast may be used to rule out metastasis (Casanova et al., 2019).

Medical Management

Surgical Management

Surgical staging, exploration, and reduction of tumor mass are the basics of treatment. Surgical removal is the treatment of choice. Staging the tumor by the FIGO staging system is performed to guide treatment (see [Chart 51-8](#)). Likely treatment involves a total abdominal hysterectomy with removal of the fallopian tubes and ovaries and possibly the omentum (bilateral salpingo-oophorectomy and omentectomy), tumor debulking, para-aortic and pelvic

lymph node sampling, diaphragmatic biopsies, random peritoneal biopsies, and cytologic washings. Postoperative management may include taxanes or platinum-based chemotherapy (discussed in the next section).

Chart 51-8

Main Stages of Ovarian Cancer

- I. Cancer is contained within the ovary (or ovaries).
- II. Cancer is in one or both ovaries and has involved other organs (i.e., uterus, fallopian tubes, bladder, the sigmoid colon, or the rectum) within the pelvis.
- III. Cancer involves one or both ovaries, and one or both of the following are present: (1) cancer has spread beyond the pelvis to the lining of the abdomen; (2) cancer has spread to lymph nodes.
- IV. The most advanced stage of ovarian cancer. Cancer is in one or both ovaries. There is distant metastasis to the liver, lungs, or other organs outside the peritoneal cavity; ovarian cancer cells in the pleural cavity are evidence of stage IV disease.

Adapted from Casanova, R., Chuang, A., Goepfert, A. R., et al. (Eds.). (2019). *Beckman and Ling's obstetrics and gynecology* (8th ed.). Philadelphia, PA: Wolters Kluwer.

Borderline tumors resemble ovarian cancer but have much more favorable outcomes. Women diagnosed with this type of cancer tend to be younger (early 40s). A conservative surgical approach is used. The affected ovary is removed, but the uterus and the contralateral ovary may remain in place. Adjuvant therapy may not be warranted.

Pharmacologic Therapy

Chemotherapy is usually administered IV on an outpatient basis using a combination of platinum and taxane agents. Paclitaxel plus carboplatin are most often used because of their excellent clinical benefits and manageable toxicity. Leukopenia, neurotoxicity, and fever may occur.

Because paclitaxel often causes leukopenia, patients may need to take granulocyte colony-stimulating factor as well. Paclitaxel is contraindicated in patients with hypersensitivity to medications formulated in polyoxyethylated castor oil and in patients with baseline neutropenia. Because of possible adverse cardiac effects, paclitaxel is not used in patients with cardiac disorders. Hypotension, dyspnea, angioedema, and urticaria indicate severe reactions that usually occur soon after the first and second doses are given. Nurses who administer chemotherapy are prepared to assist in treating anaphylaxis. Patients should be prepared for inevitable hair loss.

Carboplatin may be used in the initial treatment and in patients with recurrence. It is used with caution in patients with renal impairment. Usually,

six cycles are given. A positive clinical response is normalization of the tumor marker CA-125, negative CT results, and a normal physical and gynecologic examination.

Liposomal therapy, delivery of chemotherapy in a liposome, allows the highest possible dose of chemotherapy to the tumor target with a reduction in adverse effects. Liposomes are used as drug carriers because they are nontoxic, biodegradable, easily available, and relatively inexpensive. This encapsulated chemotherapy allows increased duration of action and better targeting. The encapsulation of doxorubicin lessens the incidence of nausea, vomiting, and alopecia. Patients must be monitored for bone marrow suppression and gastrointestinal and cardiac effects.

Combination IV and intraperitoneal chemotherapy is an option for some patients. However, this treatment is more toxic and side effects are more severe than regular chemotherapy (ACS, 2018). Intraperitoneal chemotherapy is reserved for women with good kidney function (ACS, 2018).

Genetic engineering and identification of cancer genes may make gene therapy a future possibility; gene therapy is under investigation. Emerging proteomic technologies (tissue-based protein analysis) look promising; they may allow earlier diagnosis and treatment decision making. New biomarkers need further validation, but protein signature patterns are now being tested. These technologies may result in individualized treatment strategies for epithelial ovarian cancer (ACS, 2018).

Recurrence of ovarian cancer is common, and many patients may require treatment with multiple agents. Treatment is directed toward control of the cancer, maintenance of quality of life, and palliation. Liposomal preparations, intraperitoneal drug administration, anticancer vaccines, monoclonal antibodies directed against cancer antigens, gene therapy, and antiangiogenic treatments (to prevent formation of new blood vessels in an effort to halt growth of ovarian cancer) may be used in the treatment for recurrence.

Nursing Management

Nursing measures involve those related to the patient's treatment plan, which may include surgery, chemotherapy, palliative care, or a combination of these. Nursing interventions after pelvic surgery to remove the tumor are similar to those after other abdominal surgeries. If ovarian cancer occurs in a young woman and the tumor is unilateral, it is removed. Childbearing, if desired, is encouraged in the near future. After childbirth, surgical re-exploration may be performed, and the remaining ovary may be removed. If both ovaries are involved, bilateral oophorectomy is performed and chemotherapy follows.

Patients with advanced ovarian cancer may develop ascites and pleural effusion. Nursing care may include administering IV fluids prescribed to alleviate fluid and electrolyte imbalances, administering parenteral nutrition to

provide adequate nutrition, providing postoperative care after intestinal bypass to alleviate any obstruction, controlling pain, and managing drainage tubes. Comfort measures for women with ascites may include providing small frequent meals, decreasing fluid intake, administering diuretic agents, and providing rest. Patients with pleural effusion may experience shortness of breath, hypoxia, pleuritic chest pain, and cough. Thoracentesis is usually performed to relieve these symptoms. The patient with ovarian cancer often has complex needs and benefits from the assistance and support of an oncology clinical nurse specialist.

Hysterectomy

Hysterectomy is the surgical removal of the uterus to treat cancer, dysfunctional uterine bleeding, endometriosis, nonmalignant growths, persistent pain, pelvic relaxation and prolapse, and previous injury to the uterus. Hysterectomies have been steadily declining over the last decade as the number of other therapeutic options (i.e., laser therapy, endometrial ablation, UAE, medications to shrink fibroid tumors) has increased (Morgan, Kamdar, Swenson, et al., 2017). Despite the decline in hysterectomies, it is still the second most common gynecologic procedure; 90% of all hysterectomies are for benign causes (ACOG, 2017d).

A total hysterectomy involves removal of the uterus and the cervix. Hysterectomy can be supracervical or subtotal, in which the uterus is removed but the cervix is spared. Radical hysterectomy involves removal of the uterus as well as the surrounding tissue, including the upper third of the vagina and pelvic lymph nodes. The procedure can be performed through the vagina, through an abdominal incision, or laparoscopically (in which the uterus is removed in sections through small incisions using a laparoscope). Malignant conditions usually require a total abdominal hysterectomy and bilateral salpingo-oophorectomy.

A laparoscopically assisted approach can also be used for vaginal hysterectomy. This procedure is performed as a short-stay procedure or ambulatory surgery in patients who are carefully selected. Robot-assisted hysterectomies are performed in more than 20% of cases, with similar outcomes compared to laparoscopic and vaginal methods at a higher cost (ACOG, 2017d).

Preoperative Management

Patients are advised to discontinue anticoagulant medications, NSAIDs such as aspirin, and vitamin E prior to surgery to reduce the risk of bleeding. Pregnancy is ruled out on the day of surgery. Prophylactic antibiotic agents

may be given prior to surgery and discontinued the next day. Prevention of thromboembolic events is critical, and methods depend on the risk profile of the patient.

Postoperative Management

The principles of general postoperative care for abdominal surgery apply. Major risks are infection and hemorrhage. In addition, because the surgical site is close to the bladder, voiding problems may occur, particularly after a vaginal hysterectomy. Edema or nerve trauma may cause temporary bladder atony (loss of bladder tone), and an indwelling catheter may be inserted.

NURSING PROCESS

The Patient Undergoing a Hysterectomy

Assessment

The health history and the physical and pelvic examination are completed, and laboratory tests are performed. Additional assessment data include the patient's psychosocial responses, because the need for a hysterectomy may elicit strong emotional reactions. If the hysterectomy is performed to remove a malignant tumor, anxiety related to fear of cancer and its consequences adds to the stress of the patient and her family. Women who have had a hysterectomy may be at risk for psychological and physical symptoms. Alternatively, women may note improved physical and mental health after hysterectomy as troublesome symptoms may be alleviated.

Diagnosis

NURSING DIAGNOSES

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

- Anxiety associated with the diagnosis of cancer, fear of pain, possible perception of loss of femininity or childbearing potential
- Disturbed body image associated with altered body function
- Acute pain associated with surgery and other adjuvant therapy
- Lack of knowledge of the perioperative aspects of hysterectomy and postoperative self-care

COLLABORATIVE PROBLEMS/POTENTIAL COMPLICATIONS

Potential complications may include the following:

- Hemorrhage
- VTE
- Bladder dysfunction
- Infection

Planning and Goals

The major goals may include relief of anxiety, acceptance of loss of the uterus, absence of pain or discomfort, increased knowledge of self-care requirements, and absence of complications.

Nursing Interventions

RELIEVING ANXIETY

Anxiety stems from several factors: unfamiliar environment; the effects of surgery on body image and reproductive ability; fear of pain and other discomfort; and, possibly, feelings of embarrassment about exposure in the perioperative period. The nurse determines what the experience means to

the patient and encourages her to verbalize her concerns. Throughout the preoperative, postoperative, and recovery periods, explanations are given about physical preparations and procedures that are performed.

IMPROVING BODY IMAGE

The patient may have strong emotional reactions to having a hysterectomy and personal feelings related to the diagnosis, views of significant others who may be involved (family, partner), religious beliefs, and fears about prognosis. Concerns such as the inability to have children and the effect on femininity may surface, as may questions about the effects of surgery on sexual relationships, function, and satisfaction. The patient needs reassurance that she will still have a vagina and that she can experience sexual activity after temporary postoperative abstinence while tissues heal. Information that sexual satisfaction and orgasm arise from clitoral stimulation rather than from the uterus reassures many women. Most women note some change in sexual feelings after hysterectomy, but they vary in intensity. In some cases, the vagina is shortened by surgery, and this may affect sensitivity or comfort.

When hormonal balance is upset, as often occurs with reproductive system disorders, the patient may experience depressed mood and heightened emotional sensitivity to people and situations. The nurse needs to approach and evaluate each patient individually in light of these factors. A nurse who exhibits interest, concern, and willingness to listen to the patient's fears will help the patient progress through the surgical experience.

RELIEVING PAIN

Postoperative pain and discomfort are common. Therefore, the nurse assesses the intensity of the patient's pain and assists the patient with analgesia as prescribed. If the patient has abdominal distention or flatus, a rectal tube and application of heat to the abdomen may be prescribed. When abdominal auscultation reveals return of bowel sounds and peristalsis, additional fluids and a soft diet are permitted. Early ambulation facilitates the return of normal peristalsis.

ADDRESSING LEARNING NEEDS

Patient education should address learning needs specific to the surgical procedure being performed. Research indicates that women undergoing robotic or laparoscopic surgeries have different learning needs (Kurt, Loerzel, Hines, et al., 2018). See the Nursing Research Profile in [Chart 51-9](#).



Gynecologic Surgery Learning Needs

Kurt, G., Loerzel, V. W., Hines, R. B., et al. (2018). Learning needs of women who undergo robotic versus open gynecologic surgery. *Journal of Obstetric, Gynecologic, and Neonatal Nursing: JOGNN*, 47(4), 490–497.

Purpose

The purpose of this study was to determine and compare the specific learning needs of women who undergo open gynecologic surgery via laparotomy or robotic surgery.

Design

The study used a descriptive exploratory design. The sample consisted of 226 women who underwent laparotomy ($n = 71$) or robotic surgery ($n = 155$) in one hospital. Participants were 18 years of age or older, able to speak, understand and read English or Spanish and scheduled for a laparotomy or robotic surgical procedure. Learning needs were measured using a 50-item patient learning needs scale (PLNS).

Findings

Study findings reported that at the time of discharge, participants in the robotic surgery group had significantly more learning needs overall on the PLNS, with means of 179.67 in the group that had robotic surgery compared to 159.66 in the group that had laparotomy ($p < 0.001$). Specifically, learning needs were greater in the topics of medications, activities of daily living, feelings related to condition, treatment and complications, skin care, and enhancing quality of life.

Nursing Implications

Nurses need to be proactive in educating women about postoperative care following robotic surgery for gynecologic conditions. Nurses caring for these women should consider providing education earlier in the surgical process, ideally prior to surgery. A learning needs assessment done prior to surgery will help the nurse develop an individualized education plan.

Patient education also addresses the outcomes of surgery, possible feelings of loss, and options for management of any symptoms that occur. Women vary in their preferences for information and participation in decision making, including choice of treatment options, accurate and useful information at the appropriate time, support from their health care providers, and access to professional and lay support systems.

Monitoring and Managing Potential Complications

HEMORRHAGE

Vaginal bleeding and hemorrhage may occur after hysterectomy. To detect these complications early, the nurse counts the perineal pads used or checks the incision site, assesses the extent of saturation with blood, and monitors vital signs. Abdominal dressings are monitored for drainage if an abdominal surgical approach has been used. In preparation for hospital discharge, the nurse gives prescribed guidelines for activity restrictions to promote healing and to prevent postoperative bleeding. Because many women may go home the day of surgery or within a day or two, they are instructed to contact the nurse or surgeon if bleeding is beyond what is expected, which should be minimal.

VENOUS THROMBOEMBOLISM

Because of positioning during surgery, postoperative edema, and decreased activity postoperatively, the patient is at risk for DVT and PE. To minimize the risk, anti-embolism stockings are applied. In addition, the patient is encouraged and assisted to change positions frequently, although pressure under the knees is avoided, and to exercise her legs and feet while in bed. The nurse helps the patient ambulate early in the postoperative period. The nurse also assesses for DVT (leg pain, redness, warmth, edema) and PE (chest pain, tachycardia, dyspnea). If the patient is being discharged home soon after surgery, she is instructed to avoid prolonged sitting in a chair with pressure at the knees, sitting with crossed legs, and inactivity. Furthermore, she is instructed to contact her primary provider if symptoms of DVT or PE occur.

BLADDER DYSFUNCTION

Because of possible difficulty in voiding postoperatively, occasionally an indwelling catheter may be inserted before or during surgery and is left in place in the immediate postoperative period. If a catheter is in place, it is usually removed shortly after the patient begins to ambulate. After the catheter is removed, urinary output is monitored; additionally, the abdomen is assessed for distention. If the patient does not void within a prescribed time, measures are initiated to encourage voiding (e.g., assisting the patient to the bathroom, pouring warm water over the perineum). If the patient cannot void, catheterization may be necessary. On rare occasions, the patient may be discharged home with the catheter in place and is instructed in its management.

PROMOTING HOME, COMMUNITY-BASED, AND TRANSITIONAL CARE



Educating Patients About Self-Care. The information provided to the patient is tailored to her needs. She must know what limitations or restrictions, if any, to expect. She is instructed to check the surgical incision daily and to contact her primary provider if redness or purulent drainage or discharge occurs. She is reminded that her periods are now over but that she may have a slightly

bloody discharge for a few days; if bleeding recurs after this time, it should be reported immediately. The patient is educated about the importance of an adequate oral intake and of maintaining bowel and urinary tract function. The patient is informed that she is likely to recover quickly but that postoperative fatigue is not unusual.

The patient should resume activities gradually. This does not mean sitting for long periods, because doing so may cause blood to pool in the pelvis, increasing the risk of VTE. The nurse explains that showers are preferable to tub baths to reduce the possibility of infection and to avoid the dangers of injury that may occur when getting in and out of the bathtub. The patient is instructed to avoid straining, lifting, having penile–vaginal intercourse, or driving until permitted. Vaginal discharge, foul odor, excessive bleeding, any leg redness or pain, or an elevated temperature should be reported, and the nurse reinforces education regarding activities and restrictions.

Continuing and Transitional Care. Follow-up telephone contact provides the nurse with the opportunity to determine whether the patient is recovering without problems and to answer any questions that may have arisen. The patient is reminded about postoperative follow-up appointments. If the patient's ovaries were removed and she finds vasomotor symptoms troublesome, hormone therapy may be considered at a low dose for a short amount of time. The patient is reminded to discuss risks and benefits of hormone therapy and alternative therapies with her primary provider and gynecologic care provider. Decisions about use of hormone therapy need to be made individually in consultation with these providers.

Evaluation

Expected patient outcomes may include:

1. Experiences decreased anxiety
 - a. Has improved body image
 - b. Discusses changes resulting from surgery with her partner
 - c. Verbalizes understanding of her disorder and the treatment plan
2. Displays minimal depression or anxiety
3. Experiences minimal pain and discomfort
 - a. Reports relief of abdominal pain and discomfort
 - b. Ambulates without pain
4. Verbalizes knowledge and understanding of self-care
 - a. Practices deep-breathing, turning, and leg exercises as instructed
 - b. Increases activity and ambulation daily
 - c. Reports adequate fluid intake and adequate urinary output
 - d. Identifies reportable symptoms

- e. Schedules and keeps follow-up appointments
- 5. Absence of complications
 - a. Has minimal vaginal bleeding and exhibits normal vital signs
 - b. Ambulates early
 - c. Notes no chest or calf pain and no redness, tenderness, or swelling in the extremities
 - d. Reports no urinary problems or abdominal distention

Unfolding Patient Stories: Doris Bowman • Part 2



Recall from [Chapter 12](#) Doris Bowman, who is undergoing a total abdominal hysterectomy with bilateral salpingo-oophorectomy. What are potential postoperative complications that the nurse should consider? What assessments and interventions are done by the nurse to monitor for early detection or to prevent these complications? Describe the discharge education provided by the nurse on self-care monitoring required of the patient at home and what should be reported to the health care provider.

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

Radiation Therapy

Radiation may be used in the treatment of cervical, uterine, and less frequently in ovarian cancers either alone or in combination with surgery and chemotherapy. Several approaches are used to deliver radiation to the female reproductive system: external radiation, intraoperative radiation therapy (IORT), and internal (intracavitary) irradiation or brachytherapy (Smith & Jhingran, 2017). The cervix and uterus can serve as a receptacle for radioactive sources for internal radiation therapy.

Methods of Radiation Therapy

External Radiation Therapy

This method of delivering radiation destroys cancerous cells at the skin surface or deeper in the body. Other methods of delivering radiation therapy are more

commonly used to treat cancer of the female reproductive system than this method.

Intraoperative Radiation Therapy

IORT allows radiation to be applied directly to the affected area during surgery. An electron beam is directed at the disease site. This direct-view irradiation may be used when para-aortic nodes are involved or for unresectable (inoperable) or partially resectable neoplasms. Benefits include accurate beam direction (which precisely limits the radiation to the tumor) and the ability during treatment to block sensitive organs from radiation. IORT is usually combined with external-beam irradiation pre- or postoperatively.

Internal (Intracavitary) Irradiation

After the patient receives an anesthetic agent and an examination, specially prepared applicators are inserted into the endometrial cavity and vagina. These devices are not loaded with radioactive material until the patient returns to her room. X-rays are obtained to verify the precise relationship of the applicator to the normal pelvic anatomy and to the tumor. When this step is completed, the radiation oncologist loads the applicators with predetermined amounts of radioactive material. This procedure, called *afterloading*, allows for precise control of the radiation exposure received by the patient, with minimal exposure of physicians, nurses, and other health care personnel. A patient undergoing internal radiation treatment remains isolated in a private room until the application is completed. Adjacent rooms may need to be evacuated and a lead shield placed at the doorway to the patient's room.

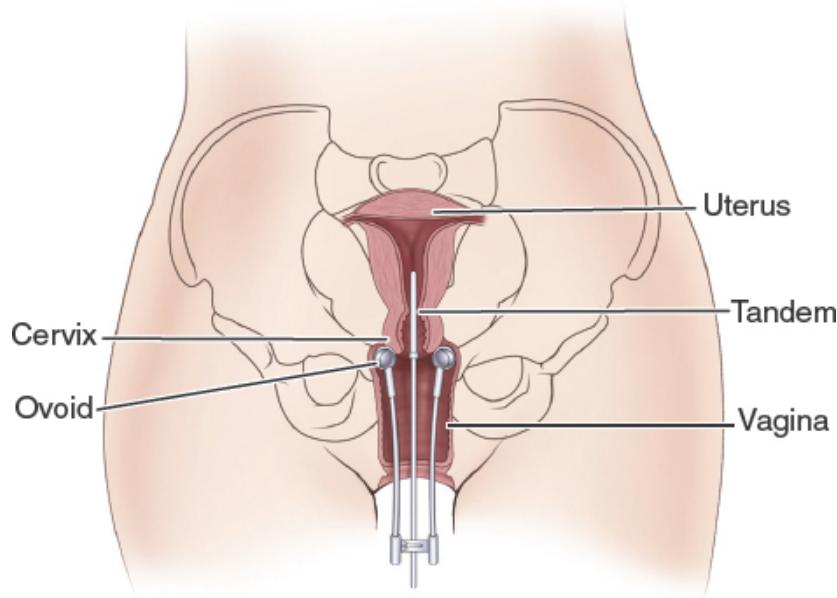


Figure 51-8 • Placement of tandem and ovoids for internal radiation therapy.

Of the various applicators developed for intracavitary treatment, some are inserted into the endometrial cavity and endocervical canal as multiple small irradiators (e.g., Heyman capsules). Others consist of a central tube (a tandem or intrauterine “stem”) placed through the dilated endocervical canal into the uterine cavity, which remains in a fixed relationship with the irradiators placed in the upper vagina on each side of the cervix (vaginal ovoids) (see Fig. 51-8).

When the applicator is inserted, an indwelling urinary catheter is also inserted. Vaginal packing is inserted to keep the applicator in place and to keep other organs, such as the bladder and rectum, as far from the radioactive source as possible. The objective of the internal treatment is to maintain the distribution of internal radiation at a fixed dosage throughout the application, which may last 24 to 72 hours, depending on dose calculations made by the radiation physicist.

Automated high-dose rate intracavitary brachytherapy systems have been developed that allow outpatient radiation therapy. Treatment time is shorter, thereby decreasing patient discomfort. Staff exposure to radiation is also avoided. Isotopes of radium and cesium are used for intracavitary irradiation.

Nursing Considerations for Radiation Safety

Special precautions for the safety of the patient and the nurse are important considerations when the patient is receiving radiation therapy. The radiation safety department will identify specific safety precautions to those people who will be in contact with the patient, including health care providers and family.

Nursing concerns include providing the patient with emotional support and physical comfort. Further details about nursing management are provided in Chapter 12.

CRITICAL THINKING EXERCISES

1  ebp A 48-year-old woman with a diagnosis of fibroid tumors presents to the outpatient clinic with increased pain. What is the evidence base for medical and surgical treatment of fibroids? Specify the criteria used to evaluate the strength of the evidence for the practices you have identified.

2  pq Identify the priorities, approach, and techniques you would use to provide care for a 20-year-old woman who is being seen in an outpatient clinic for a new diagnosis of vulvovaginal infection. How will your priorities, approach, and techniques differ if the patient says she is not in a monogamous relationship? If the patient is from a culture with very different values from your own? Describe your priorities, approach, and techniques to prevent reinfection or spread of the infection.

3  ipc A 32-year-old woman has been admitted to your unit for a radical vulvectomy after a new diagnosis of vulvar cancer. Describe the preoperative education for her and the postoperative care that can be anticipated. What modifications in postoperative education and discharge planning may be necessary if the patient tells you she is a newlywed and is anxious about future sexual experiences? Describe how you will collaborate with her physician during her recovery process. What other professionals might you wish to include as part of her interdisciplinary care team?

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Resources

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- American Sexual Health Association, www.ashasexualhealth.org
- Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN), www.awhonn.org
- Centers for Disease Control and Prevention (CDC), Office of Women's Health, www.cdc.gov/women
- ClinicalTrials.gov, National Institutes of Health, www.clinicaltrials.gov
- Endometriosis Association, www.endometriosisassn.org
- Foundation for Women's Cancer (formerly the Gynecologic Cancer Foundation), www.foundationforwomenscancer.org
- Gay and Lesbian Medical Association (GLMA), www.glma.org
- Herpes Hotline, 1-919-361-8488
- National Ovarian Cancer Coalition (NOCC), www.ovarian.org
- National STD Hotline, 1-800-232-4636
- Office on Women's Health, www.womenshealth.gov/patient-materials/health-topic/reproductive-health
- Oncology Nursing Society (ONS), www.ons.org
- Ovarian Cancer Research Alliance, www.ocrahope.org
- Planned Parenthood Federation of America, Inc. www.plannedparenthood.org
- RESOLVE: The National Infertility Association, www.resolve.org
- The American College of Obstetricians and Gynecologists (ACOG), www.acog.org

52 Assessment and Management of Patients with Breast Disorders

LEARNING OUTCOMES

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

1. Describe the anatomy and physiology of the breast as well as identify the assessment and diagnostic studies used to diagnose breast disorders.
2. Compare and contrast the pathophysiology of benign and malignant breast disorders.
3. Summarize evidence-based guidelines for the early detection of breast cancer and develop a plan for educating patients and consumer groups about breast self-awareness.
4. Use the nursing process as a framework for care of the patient undergoing surgery for the treatment of breast cancer.
5. Recognize the physical, psychosocial, and rehabilitative needs of the patient who has had breast surgery for the treatment of breast cancer.

NURSING CONCEPTS

Assessment
Cellular Regulation
Comfort
Family
Infection
Inflammation
Mobility
Patient Education
Reproduction
Sexuality

GLOSSARY

adjuvant chemotherapy: the use of anticancer medications in addition to other treatments to delay or prevent a recurrence of the disease

adjuvant hormonal therapy: the use of synthetic hormones or other medications given after primary treatment to increase the chances of a cure by stopping or slowing the growth of certain cancers that are affected by hormone stimulation, also called endocrine or antiestrogen therapy

aromatase inhibitors: medications that block the production of estrogens by the adrenal glands

atypical hyperplasia: abnormal increase in the number of cells in a specific area within the ductal or lobular areas of the breast; this abnormal proliferation increases the risk for cancer

benign proliferative breast disease: various types of atypical, yet noncancerous, breast tissue that increase the risk of breast cancer

brachytherapy: delivery of radiation therapy through internal implants placed inside or adjacent to a tumor

BRCA1 and BRCA2: genes on chromosome 17 that, when damaged or mutated, increase a person's risk for breast or ovarian cancer compared with people without the mutation

breast conservation treatment: surgery to remove a breast tumor and a margin of tissue around the tumor without removing any other part of the breast; may or may not include lymph node removal and radiation therapy

dose-dense chemotherapy: administration of chemotherapeutic agents at standard doses with shorter time intervals between each cycle of treatment

ductal carcinoma in situ (DCIS): cancer cells starting in the ductal system of the breast but not penetrating surrounding tissue

fibrocystic breast changes: term used to describe certain benign changes in the breast, typically palpable nodularity, lumpiness, swelling, or pain

fine-needle aspiration (FNA): removal of fluid for diagnostic analysis from a cyst or cells from a mass using a needle and syringe

gynecomastia: firm, overdeveloped breast tissue typically seen in adolescent boys

HER-2/neu: a protein that, when found in larger amounts, indicates an aggressive tumor

lobular carcinoma in situ (LCIS): atypical change and proliferation of the lobular cells of the breast

lymphedema: chronic swelling of an extremity due to interrupted lymphatic circulation, typically from an axillary lymph node dissection

mammoplasty: surgery to reconstruct or change the size or shape of the breast; can be performed for reduction or augmentation

mastalgia: breast pain, usually related to hormonal fluctuations or irritation of a nerve

mastectomy: removal of the breast tissue and nipple–areola complex

mastitis: inflammation or infection of the breast

modified radical mastectomy: removal of the breast tissue, nipple–areola complex, and a portion of the axillary lymph nodes

Paget disease: form of breast cancer that begins in the ductal system and involves scaly changes in the nipple, areola, and surrounding skin

sentinel lymph node: first lymph node(s) in the lymphatic basin that receives drainage from the primary tumor in the breast; identified by a radioisotope or blue dye

stereotactic core biopsy: computer-guided method of core needle biopsy that is useful when masses or calcifications in the breast cannot be felt but can be visualized using mammography

surgical biopsy: surgical removal of all or a portion of a mass for microscopic examination by a pathologist

transverse rectus abdominal myocutaneous (TRAM) flap: method of breast reconstruction in which a flap of skin, fat, and muscle from the lower abdomen, with its attached blood supply, is rotated to the mastectomy site

Nurses care for patients with breast disorders in many settings. To care for these patients effectively, nurses require an understanding of the assessment, diagnostic testing, nursing management, and rehabilitation needs of patients with multiple processes that affect the breasts. A breast disorder, whether benign or malignant, can cause great anxiety and fear of potential disfigurement, loss of sexual attractiveness, and even death. Nurses, therefore, must have expertise in the assessment and management of not only the physical symptoms but also the psychosocial symptoms associated with various breast disorders.

BREAST ASSESSMENT

Anatomic and Physiologic Overview

Male and female breasts mature comparably until puberty, when estrogen and other hormones initiate breast development in females. This development usually occurs from 10 to 16 years of age, although the range can vary from 9 to 18 years. Stages of breast development are described as Tanner stages 1 through 5:

- Stage 1 describes a prepuberty breast.
- Stage 2 is breast budding, the first sign of puberty in a female.
- Stage 3 involves further enlargement of breast tissue and the areola (a darker tissue ring around the nipple).
- Stage 4 occurs when the nipple and areola form a secondary mound on top of the breast tissue.
- Stage 5 is the continued development of a larger breast with a single contour.

The breasts are located between the second and sixth ribs over the pectoralis muscle from the sternum to the midaxillary line. An area of breast tissue, called the *tail of Spence*, extends into the axilla (Bland, Copeland, & Klimberg, 2018). Fascial bands, called *Cooper ligaments*, support the breast on the chest wall. The inframammary fold (or crease) is a ridge of fat at the bottom of the breast.

Each breast contains 12 to 20 cone-shaped lobes, which are made up of glandular elements (lobules and ducts) and separated by fat and fibrous tissue that binds the lobes together. Milk is produced in the lobules and then carried through the ducts to the nipple. [Figure 52-1](#) shows the anatomy of the fully developed breast.

Assessment

Breast assessment includes a targeted health history and physical examination.

Health History

When a patient presents with a breast problem, the nurse conducts a general health assessment, including history of medical disorders and previous surgery; family history of diseases, particularly cancer; gynecologic and obstetric history; present medications (including prescriptions, vitamins, and herbals); past and present use of hormonal contraceptives, hormone therapy (HT) (formerly referred to as hormone replacement therapy [HRT]), or fertility treatments; and social habits (e.g., smoking, drinking alcohol, illicit drug use). Psychosocial information, such as the patient's marital status, occupation, and availability of resources and support people, is obtained. Any recent x-rays or other diagnostic tests are noted. Focused questions pertaining to the breast disorder are asked concerning the onset of the disorder and the length of time it has been present. In addition, the patient is asked if any masses are palpable and if there is any associated pain, swelling, redness, nipple discharge, or change in the skin. Knowledge and comfort related to breast self-awareness, which can include breast self-examination (BSE), should also be ascertained from the patient.

Physical Assessment: Female Breast

A female breast examination can be conducted during any general physical or gynecologic examination or whenever the patient reports an abnormality. While the American Cancer Society (ACS) no longer recommends regular clinical breast examinations for average-risk women, this doesn't mean that the examination should never be performed. Providers may still examine women's breasts, offer education about breast awareness to all women, and women should get screening imaging based upon their risks (see later discussion) (American Cancer Society [ACS], 2019).

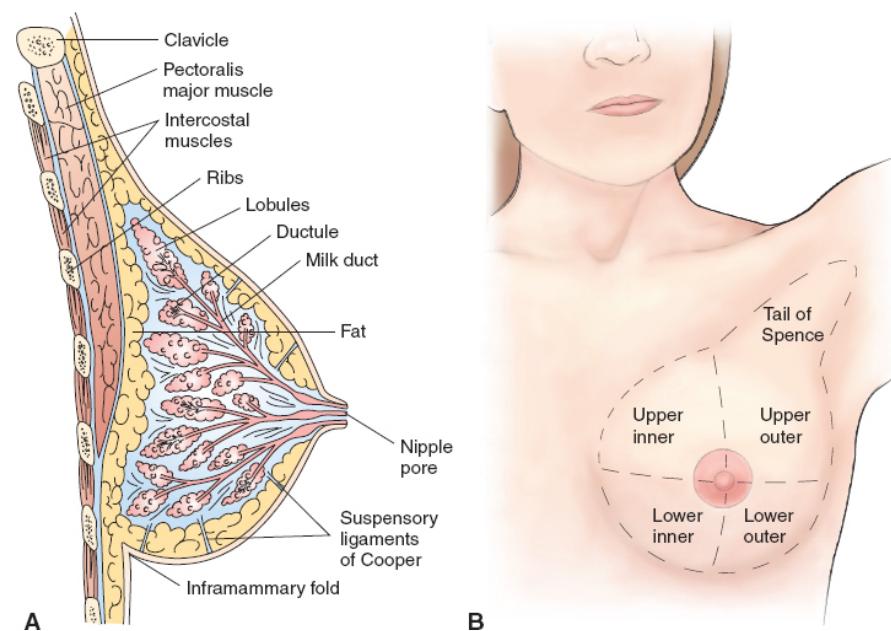


Figure 52-1 • A. Anatomy of the breast. **B.** Areas of breast, including the tail of Spence.

Inspection

Examination begins with inspection. The patient is asked to disrobe to the waist and sit in a comfortable position facing the examiner. The breasts are inspected for size and symmetry. A slight variation in the size of each breast is common and generally normal. The skin is

inspected for color, venous pattern, thickening, or edema. Erythema (redness) may indicate benign local inflammation or superficial lymphatic invasion by a neoplasm. A prominent venous pattern can signal increased blood supply required by a tumor. Edema and pitting of the skin may result from a neoplasm blocking lymphatic drainage, giving the skin an orange peel appearance; this is called peau d'orange—a classic sign of advanced breast cancer. Nipple inversion of one or both breasts is not uncommon and is significant only when of recent origin. Ulceration, rashes, or spontaneous nipple discharge requires evaluation. Examples of abnormal breast findings on inspection can be found in [Chart 52-1](#).

To elicit skin dimpling or retraction that may otherwise go undetected, the examiner instructs the patient to raise both arms overhead. This maneuver normally elevates both breasts equally. The patient is then instructed to place her hands on her waist and push in. These movements, which cause contraction of the pectoral muscles, do not normally alter the breast contour or nipple direction. Any dimpling or retraction during these position changes suggests an underlying mass. The clavicular and axillary regions are inspected for swelling, discoloration, lesions, or enlarged lymph nodes (Mallory & Golshan, 2018).

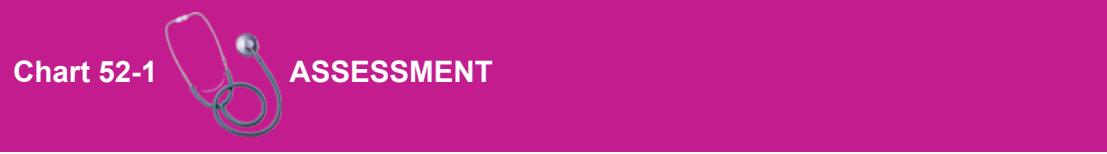
Palpation

The breasts are palpated with the patient upright (sitting up) and supine (lying down). In the supine position, the patient's shoulder is first elevated with a small pillow to help balance the breast on the chest wall. Failure to do this allows the breast tissue to slip laterally and a breast mass may be missed. The entire surface of the breast and the axillary tail is systematically palpated using the flat part (pads) of the second, third, and fourth fingertips, held together, making dime-size circles. The examiner may choose to proceed in a clockwise direction, following imaginary concentric circles from the outer limits of the breast toward the nipple. Other acceptable methods are to palpate from each number on the face of the clock toward the nipple in a clockwise fashion or along imaginary vertical lines on the breast (see [Fig. 52-2](#)).

Palpation of the axillary and clavicular areas is easily performed with the patient seated (see [Fig. 52-3](#)). To examine the axillary lymph nodes, the examiner gently abducts the patient's arm from the thorax. With the left hand, the patient's right forearm is grasped and supported. The right hand is then free to palpate the axilla. Any lymph nodes that may be lying against the thoracic wall are noted. Normally, these lymph nodes are not palpable, but if they are enlarged, their location, size, mobility, and consistency are noted. During palpation, the examiner notes any patient-reported tenderness or masses. If a mass is detected, it is described by its location (e.g., right breast, 2 cm from the nipple at 2 o'clock position). Size, shape, consistency, border delineation, and mobility are included in the description (Mallory & Golshan, 2018). The examiner then modifies these steps to use the right hand to grasp the patient's left forearm, and then uses the left hand to palpate the axilla of the left breast.

The breast tissue of the adolescent is usually firm and lobular, whereas that of the postmenopausal woman is more likely to feel thinner and fattier. During pregnancy and lactation, the breasts are firmer and larger with lobules that are more distinct. Hormonal changes cause the areola to darken.

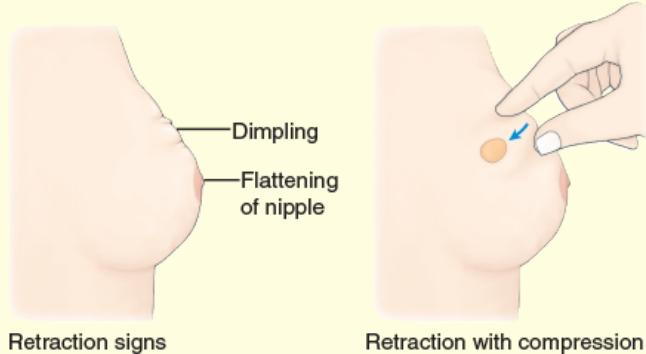
 Obesity may have a proinflammatory effect on the breast that can contribute to increased rates of atypia. Atypia in breast ductal lavage and C-reactive protein levels in the nipple are significantly correlated with body mass index (BMI). Excessive body weight, as reflected by a BMI of 25 kg/m² or higher, is associated with postmenopausal breast cancer and increases the risk of dying of this disease; conversely, being overweight or having obesity seems to provide protection to women aged 40 to 49 (ACS, 2019).



Abnormal Assessment Findings during Inspection of the Breasts

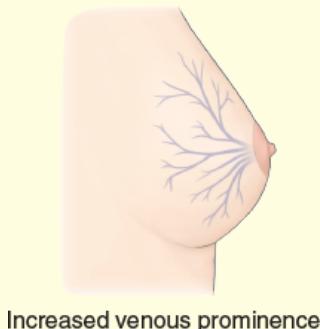
Retraction Signs

- Signs include skin dimpling, creasing, or changes in the contour of the breast or nipple
- They may be secondary to contraction of fibrotic tissue that can occur with underlying malignancy
- They may be secondary to scar tissue formation after breast surgery
- Retraction signs may appear only with position changes



Increased Venous Prominence

- Unilateral localized increase in venous pattern associated with malignant tumors
- Normal with bilateral and symmetrical breast enlargement associated with pregnancy and lactation



Increased venous prominence

Peau d'Orange (Edema)

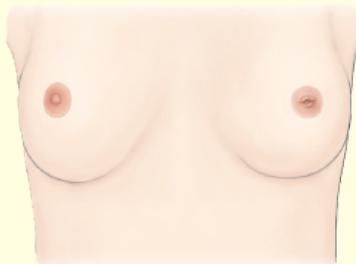
- Associated with inflammatory breast cancer
- Caused by interference with lymphatic drainage
- Breast skin has orange peel appearance
- Skin pores enlarge
- May be noted on the areola
- Skin becomes thick, hard, and immobile



Peau d'orange

Nipple Inversion

- Considered normal if long-standing
- Associated with fibrosis and malignancy if recent development



Nipple inversion

Acute Mastitis (Inflammation of the Breasts)

- Associated with lactation but may occur at any age
- Nipple cracks or abrasions noted
- Breast skin reddened and warm to touch
- Tenderness
- Systemic signs include fever and increased pulse

Paget Disease (Malignancy of Mammary Ducts)

- Early signs—erythema of nipple and areola
- Late signs—thickening, scaling, and erosion of the nipple and areola



Paget's disease

Adapted from Stanford Medicine 25. (2020). Breast exam. Retrieved on 5/13/2020 at: www.stanfordmedicine25.stanford.edu/the25/BreastExam.html and Newton, E., & Grethlein, S. (2018). Breast examination. Retrieved on 5/13/2020 at: <https://emedicine.medscape.com/article/1909276-overview>.

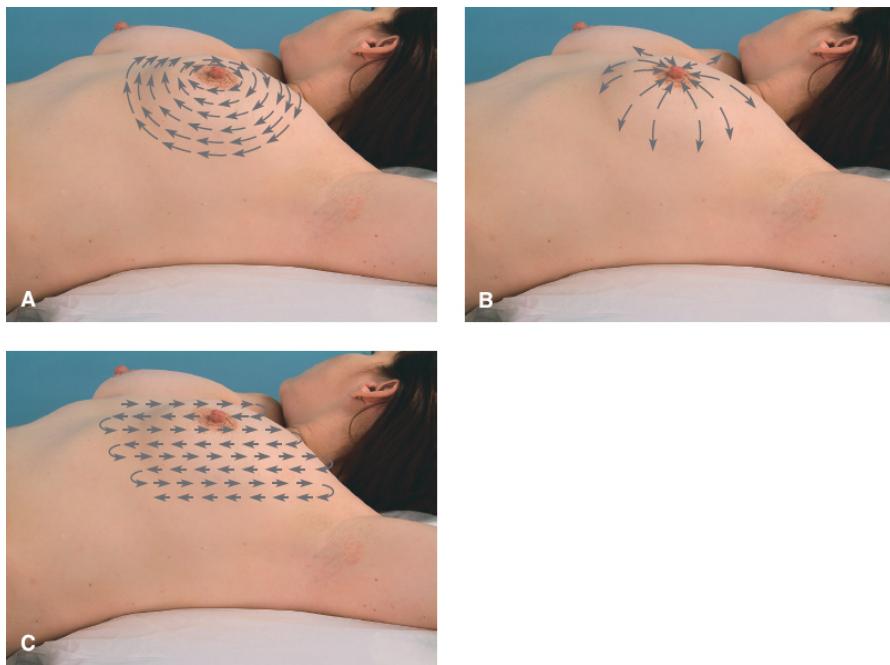


Figure 52-2 • Breast examination with the woman in a supine position. The entire surface of the breast is palpated from the outer edge of the breast to the nipple; palpation patterns are circular or clockwise (**A**), wedge (**B**), and vertical strip (**C**).

Cysts are commonly found in women who are menstruating and are usually well defined and freely movable. In the premenstrual period, cysts may be larger and more tender. Malignant tumors, on the other hand, tend to be hard, poorly defined, and nontender. A clinician should further evaluate any abnormalities detected during inspection and palpation.

Physical Assessment: Male Breast

Breast cancer can occur in men. Assessment of the male breast and axilla is brief but important and should be included in a physical examination. The nipple and areola are inspected for swelling, nodules, ulcerations, and nipple discharge. The flat disc of undeveloped breast tissue under the nipple is palpated. The same procedure for palpating the female breast is used to assess the male breast (Canadian Cancer Society, 2020).

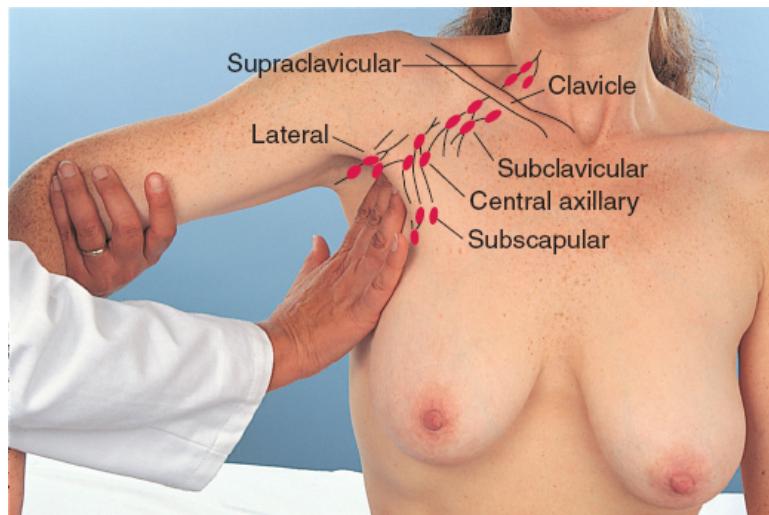


Figure 52-3 • Palpating axillary nodes in breast examination.

Gynecomastia is the firm enlargement of glandular tissue beneath and immediately surrounding the areola of the male (see later discussion). This is different from the enlargement of soft, fatty tissue, which is caused by obesity.

Diagnostic Evaluation

A wide range of diagnostic studies may be performed in patients with breast conditions. The nurse should educate the patient about the purpose, what to expect, and any possible side effects related to these examinations prior to testing. The nurse should note trends in the patient's test results, because they often provide information about disease progression as well as the patient's response to therapy.

Breast Self-Examination

The nurse plays a critical role in breast awareness education—a modality used for the early detection of breast cancer. BSE can be taught in a variety of settings, either on a one-to-one basis or in a group. It can also be initiated by a health care provider during a patient's routine physical examination. Regular self-examinations may result in early identification of problems and may also result in more diagnostic workups for benign or malignant problems.

Variations in breast tissue occur during the menstrual cycle, pregnancy, and the onset of menopause. Women on HT can also experience fluctuations. Normal changes must be distinguished from those that may signal disease. Most women notice increased tenderness and lumpiness before their menstrual periods; therefore, BSE is best performed after menses (day 5 to day 7, counting the first day of menses as day 1). In addition, many women have grainy-textured breast tissue, but such areas are usually less nodular after menses. Younger women may find BSE particularly difficult because of the density of their breast tissue. As women age, their breasts become fattier and may be easier to examine.

Current practice is shifting from educating about BSE to promoting breast self-awareness, which is a woman's attentiveness to the normal appearance and feel of her breasts. However, self-examination still may be appropriate for some women who are at high risk and for those who prefer it. Breast self-awareness can include self-examination. For every woman, knowing how her breasts normally feel helps detect any changes or signs of a problem. BSE

may play an important role in screening, especially for women who develop cancer in the interval after a negative result on mammography or clinical breast examination or who have a false-negative imaging or clinical examination result. It can also promote detection in women who have not been screened. The goal, with or without BSE, is to report any breast changes to a primary provider.

Family history can increase the risk of breast cancer in men, particularly if other men in the family have had breast cancer. The risk is also higher if there is a breast cancer gene abnormality in the family. *BRCA2* mutations are much more common than *BRCA1* mutations in males (Jain & Gradishar, 2018). Instructions about BSE should be provided to men if they have a family history of breast cancer.

Patients who elect to perform BSE should receive proper instruction on technique (see [Chart 52-2](#)). They should be informed that routine, monthly BSE will help them become familiar with their “normal abnormalities.” If a change is detected, they should seek medical attention.

Patients should be instructed about optimal timing for BSE (5 to 7 days after menses begin for women who are premenopausal and once monthly for women who are postmenopausal or not menstruating). When demonstrating examination techniques, the feel of normal breast tissue should be reviewed and ways to identify breast changes discussed. Patients should then perform a BSE demonstration on themselves or on a breast model. Patients who have had breast cancer surgery should be instructed to examine their breast or chest wall for any new changes or nodules that may indicate a recurrence of the disease.

Mammography

The ACS has changed the mammography recommendations to state that healthy women should have mammography every year beginning at age 45; women aged 40 to 44 have the option to begin yearly screening early (ACS, 2019). Women 55 and older may continue yearly screening or transition to every 2 years. This change was based on calculations that starting annual screening mammography later and getting it less often would cause less harm and be as safe as starting it earlier and getting it more often. Screening every other year may, however, result in a missed diagnosis and a small increase in the probability of being diagnosed with later-stage cancer.

Mammography is a breast imaging technique using a low-dose x-ray system to visualize the anatomy of the breasts; this aids in the early detection and diagnosis of malignant or benign disease (American College of Radiology [ACR], 2019). The procedure takes about 30 minutes and can be performed in a hospital radiology department or independent imaging center. Two views are taken of each breast. The breast is mechanically compressed from top to bottom (craniocaudal view) (see [Fig. 52-4](#)) and side to side (mediolateral oblique view). Women may experience some discomfort because maximum compression is necessary for proper visualization. The new mammogram is compared with previous mammograms, and any changes may indicate a need for further investigation. Mammography may detect a breast tumor before it is clinically palpable. Younger women, or those taking HTs, may have dense breast tissue, making it more difficult to detect lesions with mammography.

Patients scheduled for a mammogram may voice concern about exposure to radiation. The radiation exposure is equivalent to about 7 weeks of natural background radiation exposure (ACR, 2019), so patients would have to have many mammograms in a year to increase their cancer risk. To ensure that a mammogram is reliable, it is important that a woman find a reputable facility. Mammographic facilities are certified by the U.S. Food and Drug Administration (FDA), and the machines are accredited by either the American College of Radiology or the States of Arkansas, Iowa or Texas (U.S. Food and Drug Administration [FDA], 2018).

Additional techniques for breast screening include digital mammography and 3D mammography. Digital mammography records x-ray images on a computer instead of on film, thus allowing radiologists to adjust the contrast and focus on an image without having to take additional x-rays. Although the accuracy of both film and digital screening mammography is similar for most women, digital mammography has been shown to be better at detecting estrogen receptor-negative tumors and cancer in extremely dense breasts. Both of these subgroups are more common in younger women, who may therefore choose digital mammography if they wish to have screening mammography. The 3D mammography obtains multiple projections of the compressed breast and results in lower false-positive interpretation rates and improved cancer detection rates (Bassett & Lee-Felker, 2018). Computer-aided detection (CAD) is an option for radiologists and can be helpful in finding abnormal areas that should be checked more closely for early cancers. Refinements and improvements have been made to CAD software with a focus on increasing sensitivity for masses and reducing false-positive rates.

Contrast Mammography

A contrast mammography (i.e., ductogram, galactogram) is a diagnostic procedure that involves injection of less than 1 mL of radiopaque material through a cannula inserted into a ductal opening on the areola, which is followed by a mammogram (Bassett & Lee-Felker, 2018). It is performed to evaluate an abnormality within the duct when the patient has bloody nipple discharge on expression, spontaneous nipple discharge, or a solitary dilated duct noted on mammography.

Ultrasonography

Ultrasonography (ultrasound) is used as a diagnostic adjunct to mammography to help distinguish fluid-filled cysts from other lesions. A thin coating of lubricating jelly is spread over the area to be imaged. A transducer is then placed on the breast. The transducer transmits high-frequency sound waves through the skin toward the area of concern. The sound waves are reflected back from a two-dimensional image, which is then displayed on a computer screen. No radiation is emitted during the procedure. Ultrasound is also used as an adjunct to mammography in women with dense breast tissue. Ultrasound may be used as an aid for interventional procedures.

Chart 52-2



PATIENT EDUCATION

Breast Self-Examination

The nurse instructs the patient to perform the following steps:

Step 1

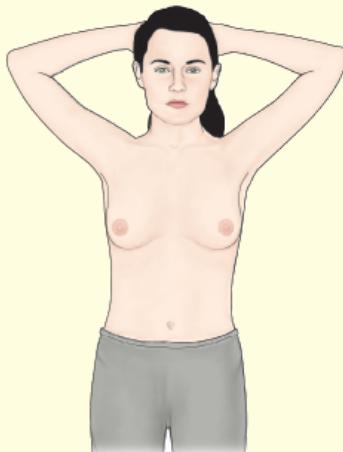
1. Stand in front of a mirror.
2. Check both breasts for anything unusual.
3. Look for discharge from the nipple, puckering, dimpling, or scaling of the skin.



Step 2

Steps 2 and 3 are done to check for any changes in the contour of your breasts. As you do them, you should be able to feel your muscles tighten.

1. Watch closely in the mirror as you clasp your hands behind your head and press your hands forward.
2. Note any change in the contour of your breasts.



Step 3

1. Next, press your hands firmly on your hips and bow slightly toward the mirror as you pull your shoulders and elbows forward.
2. Note any change in the contour of your breasts.



Step 4

Some women do step 4 of the examination in the shower. Your fingers will glide easily over soapy skin, so you can concentrate on feeling for changes inside the breast.

1. Raise your left arm.
2. Use three or four fingers of your right hand to feel your left breast firmly, carefully, and thoroughly.
3. Beginning at the outer edge, press the flat part of your fingers in small circles, moving the circles slowly around the breast.
4. Gradually work toward the nipple.
5. Be sure to cover the whole breast.
6. Pay special attention to the area between the breast and the underarm, including the underarm itself.
7. Feel for any unusual lumps or masses under the skin.
8. If you have any spontaneous discharge during the month—whether or not it is during your breast self-examination—see your primary provider.
9. Repeat the examination on your right breast.



Step 5

Step 4 should be repeated lying down.

1. Lie flat on your back with your left arm over your head and a pillow or folded towel under your left shoulder. (This position flattens your breast and makes it easier to check.)
2. Use the same circular motion described earlier.
3. Repeat on your right breast.



Adapted from Boraas, M., & Gupta, S. (2019). Breast self-exam. Retrieved on 5/14/2020 at: www.breastcancer.org/symptoms/testing/types/self_exam

Ultrasonography has advantages and disadvantages. Although it can diagnose cysts with great accuracy, it cannot definitively rule out malignant lesions. Microcalcifications, which are detectable on mammography, cannot be identified on ultrasonography. Finally, examination techniques and interpretation criteria are not standardized.

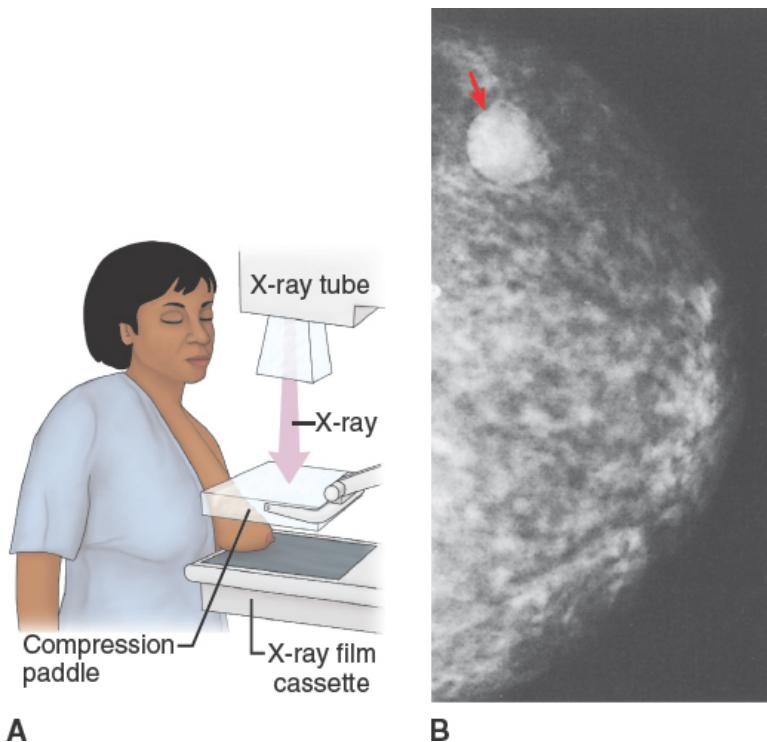


Figure 52-4 • The mammography procedure (A) relies on x-ray imaging to produce the mammogram (B), which in this case reveals a breast lump (see arrow).

Magnetic Resonance Imaging

Magnetic resonance imaging (MRI) of the breast is a highly sensitive test that has become a useful diagnostic adjunct to mammography. A magnet is linked to a computer that creates detailed images of the breast without exposure to radiation. An intravenous (IV) injection of gadolinium, a contrast dye, is given to improve visibility. The patient lies face down, and the breast is placed through a depression in the table. A coil is placed around the breast, and the patient is placed inside the MRI machine. The entire procedure takes about 30 to 40 minutes.

Breast MRI is useful for evaluation of contralateral disease, invasive lobular carcinoma, and assessment of chemotherapeutic response. Additionally, screening guidelines provided by the National Comprehensive Cancer Network (NCCN) recommend an annual MRI scan in addition to mammography in women at high risk for breast cancer (i.e., those with greater than 20% lifetime risk). Candidates include women who have a *BRCA1* or *BRCA2* mutation, a first-degree relative with either of these mutations, certain rare genetic syndromes, or radiation to the chest between 10 and 30 years of age (National Comprehensive Cancer Network [NCCN], 2019). MRI should be used in addition to mammography, not instead of it.

Some disadvantages of MRI include high cost, variations in technique and interpretation, and the potential for patient claustrophobia. The procedure cannot always accurately distinguish between malignant and benign breast conditions, so false-positive results may occur. MRI is contraindicated in patients with implantable metal devices (e.g., aneurysm clips, ports of tissue expanders). Patients with any type of cardiac implantable electronic device need to be screened to see if it is safe for them to undergo an MRI (Indik, Gimpel, Abe, et al., 2017). Foil-backed medication patches (e.g., nicotine, nitroglycerin, fentanyl) must be removed prior to MRI to avoid burns to the skin.

Procedures for Tissue Analysis

Percutaneous Biopsy

Percutaneous biopsy is performed on an outpatient basis to sample palpable and nonpalpable lesions. Less invasive than a surgical biopsy, percutaneous biopsy is a needle or core biopsy that obtains tissue by making a small puncture in the skin. [Table 52-1](#) outlines the different types of biopsies that can be performed to obtain a tissue diagnosis.



Concept Mastery Alert

It is important to understand the differences between common procedures used for patients with breast disorders. Mammography is used to detect breast abnormalities, whereas biopsy is performed to confirm a diagnosis of breast cancer.

TABLE 52-1 Types of Breast Biopsies

Procedure	Palpable Mass	Health Professional Who Performs Procedure	Nature of Breast Tissue Removed
Fine-needle aspiration	Yes	Surgeon	Cellular material
Core needle biopsy	Yes	Surgeon	Tissue core
Stereotactic core biopsy	No	Radiologist	Tissue core
Ultrasound-guided core biopsy	No	Radiologist	Tissue core
Magnetic resonance imaging (MRI)-guided core biopsy	No	Radiologist	Tissue core
Excisional biopsy	Yes	Surgeon	Entire mass
Incisional biopsy	Yes	Surgeon	Tissue core
Wire needle localization biopsy; may be guided by mammogram, ultrasound, or MRI	No	Radiologist inserts wire; surgeon performs biopsy	Entire mass

Fine-Needle Aspiration

Fine-needle aspiration (FNA) is a biopsy technique that is generally well tolerated by most women. A local anesthetic may or may not be used. A small-gauge needle (20- to 27-gauge) attached to a syringe is inserted into the mass or area of nodularity. Suction is applied to the syringe, and multiple passes are made through the mass. A simple cyst often disappears on aspiration, and the fluid is usually discarded if it is nonbloody. If the material is bloody, however, it most likely indicates malignancy and should be sent for cytology; this is performed either directly as a smear or after the fluid is centrifuged (Obeng-Gyasi, Grimm, Hwang, et al., 2018). For nonpalpable masses, the same procedure can be performed by a radiologist using ultrasound guidance (ultrasound-guided FNA).

FNA is less expensive than other diagnostic methods, and results are usually available quickly. However, false-negative or false-positive results are possible, and appropriate follow-up depends on the clinical judgment of the treating physician.

Core Needle Biopsy

Core needle biopsy is similar to FNA, except that a larger-gauge needle is used (usually 11- to 18-gauge). A local anesthetic is applied, and tissue cores are removed via a spring-loaded device. This procedure allows for a more definitive diagnosis than FNA, because actual tissue, not just cells, is removed. It is often performed for relatively large tumors that are close to the skin surface, but is also utilized for smaller, deeper lesions that are visible on ultrasound.

Stereotactic Core Biopsy

Stereotactic core biopsy is performed on nonpalpable lesions detected by mammography. The patient lies prone on the stereotactic table. The breast is suspended through an opening in the table and compressed between two x-ray plates. Images are then obtained using digital mammography. The exact coordinates of the lesion to be sampled are located with the aid of a computer. Next, a local anesthetic is injected into the entry site on the breast. A small nick is made in the skin, a core needle is inserted, and samples of the tissue are taken for pathologic examination. Often, several passes are taken to ensure that the lesion is well sampled. Postbiopsy images are then taken to check that sampling has been adequate. A small titanium clip is almost always placed at the biopsy site so that the site can easily be located if further treatment is indicated (Obeng-Gyasi et al., 2018). Stereotactic biopsy is quite accurate and often allows the patient to avoid a surgical biopsy. However, there is a small false-negative rate. Appropriate follow-up depends on the final pathologic diagnosis and the clinical judgment of the primary provider. The use of a titanium clip does not preclude subsequent MRIs.

Ultrasound-Guided Core Biopsy

The principles for ultrasound-guided core biopsy are similar to those of stereotactic core biopsy, but by using ultrasound guidance, computer coordination and mammographic compression are not necessary. An ultrasound-guided core biopsy does not use radiation and is also usually faster and less expensive than stereotactic core biopsy.

Magnetic Resonance Imaging–Guided Core Biopsy

MRI-guided core biopsy can be performed by a radiologist and technologist when the abnormal area in the breast is too small to be felt but is visible on MRI.

Surgical Biopsy

Surgical biopsy is usually performed using local anesthesia and IV sedation. After an incision is made, the lesion is excised and sent to a laboratory for pathologic examination.

Surgical biopsy is usually preceded by a core biopsy or stereotactic biopsy for pathologic determination.

Types of Surgical Breast Biopsy

There are several types of procedures used for a surgical breast biopsy including an excisional or incisional biopsy, and a wire needle localization.

Excisional Biopsy

Excisional biopsy is the standard procedure for complete pathologic assessment of a palpable breast mass. The entire mass, plus a margin of surrounding tissue, is removed. This type of biopsy may also be referred to as a lumpectomy. Depending on the clinical situation, a frozen-section analysis of the specimen may be performed at the time of the biopsy by the pathologist, who does an immediate reading intraoperatively and provides a provisional diagnosis. This can help confirm a diagnosis in a patient who has had no previous tissue analysis performed.

Incisional Biopsy

Incisional biopsy surgically removes a portion of a mass. This is performed to confirm a diagnosis and to conduct special studies (e.g., ER/PR, HER-2/neu [also referred to as ERBB2]; see later discussion for explanation of these terms) that will aid in determining treatment, which is discussed later in this chapter. Complete excision of the area may not be possible or immediately beneficial to the patient, depending on the clinical situation. This procedure is often performed on women with locally advanced breast cancer or on women with suspected cancer recurrence, whose treatment may depend on the results of these special studies. However, pathologic information may be easily obtained from core needle biopsy, and incisional biopsy is becoming less common.

Wire Needle Localization

Wire needle localization is a technique used to locate nonpalpable masses or suspicious calcium deposits detected on a mammogram, ultrasound, or MRI that require an excisional biopsy. The radiologist inserts a long, thin wire through a needle, which is then inserted into the area of abnormality using x-ray or ultrasound guidance (whichever imaging technique originally identified the abnormality). The wire remains in place after the needle is withdrawn to ensure the precise location. The patient is then taken to the operating room, where the surgeon follows the wire to the tip and excises the area.

Nursing Implications

During the preoperative or preprocedure visit, the nurse assesses the patient for any specific educational, physical, or psychosocial needs. This can be accomplished by reviewing the medical and psychosocial history and encouraging the patient to verbalize fears, concerns, and questions. Patients are often worried not only about the procedure but also about the potential implications of the pathology results. Providing a thorough explanation about what to expect in a supportive manner can help alleviate anxiety. Patients often have difficulty absorbing all the information given to them; therefore, written materials to take home are often provided to reinforce and clarify education.

The nurse instructs the patient to discontinue any agents that can increase the risk of bleeding, including products containing aspirin, nonsteroidal anti-inflammatory drugs, vitamin E supplements, herbal substances (such as ginkgo biloba and garlic supplements). Patients on prescription anticoagulants need to check with the prescriber prior to temporary cessation for the procedure, as biopsies done without cessation of these drugs can result in prolonged bleeding and hematomas. The patient may be instructed not to eat or drink for several hours prior to the procedure or after midnight the night before the procedure,

depending on the type of biopsy and anesthesia planned. Most breast biopsy procedures are performed with the use of the combination of sedation and local anesthesia.

Immediate assessment after the procedure includes monitoring the effects of the anesthesia and inspecting the surgical dressing for any signs of bleeding. Once the sedation has worn off, the nurse reviews the care of the biopsy site, pain management, and activity restrictions with the patient. Prior to discharge from the ambulatory surgical center or the office, the patient must be able to tolerate fluids, ambulate, and void. The patient must be accompanied home by an adult. The dressing covering the incision is usually removed after 48 hours, but the Steri-Strips, which are applied directly over the incision, should remain in place for approximately 7 to 10 days or until they fall off. The use of a supportive bra following surgery is encouraged to limit movement of the breast and reduce discomfort. A follow-up telephone call from the nurse 24 to 48 hours after the procedure can provide the patient with the opportunity to ask any questions and can be a source of great comfort and reassurance.

Most women return to their usual activities the day after the procedure but are encouraged to avoid jarring or high-impact activities for 1 week to promote healing of the biopsy site. Discomfort is usually minimal, and most women find acetaminophen sufficient for pain relief, although a mild opioid analgesic agent may be prescribed if needed.

Follow-up after the biopsy includes a return visit to the surgeon for discussion of the final pathology report and assessment of the healing of the biopsy site. Depending on the results of the biopsy, the nurse's role varies. If the pathology report is benign, the nurse reviews incision care and explains what the patient should expect as the biopsy site heals (i.e., changes in sensation may occur weeks or months after the biopsy due to nerve injury within the breast tissue). If a diagnosis of cancer is made, the nurse's role changes dramatically. This is discussed in depth later in this chapter.

CONDITIONS AFFECTING THE NIPPLE

Nipple Discharge

Nipple discharge in a woman who is not lactating may be related to many causes, such as carcinoma, papilloma, pituitary adenoma, cystic breasts, and various medications. Oral contraceptives, pregnancy, HT, chlorpromazine, and frequent breast stimulation may be contributing factors. In some women, nipple discharge may occur during running or aerobic exercises. Nipple discharge should be evaluated by a health care provider, but it is not often a cause for alarm. One in three women has clear discharge on expression, which is usually normal. A green discharge could indicate an infection. Any discharge that is spontaneous, persistent, or unilateral is of concern. Although bloody discharge can indicate a malignancy, it is often caused by a benign wartlike growth on the lining of the duct called an *intraductal papilloma*.

Nipple discharge should be evaluated for the presence of occult (hidden) blood by performing a guaiac test. A negative test can be reassuring as it indicates that there is no blood, but it does not prove there is no malignancy. A galactogram can also be performed to detect abnormalities within the duct that may be causing the discharge. If there is a high level of suspicion, an excisional biopsy may be indicated. (See procedures for tissue analysis earlier in this chapter.)

Fissure

A fissure is a longitudinal ulcer that may develop in women who are breast-feeding. If the nipple becomes irritated, a painful, raw area may form and become a site of infection. Daily washing with water, massage with breast milk or lanolin, and exposure to air are helpful. Breast-feeding can continue with the use of a nipple shield. However, if the fissure is severe or extremely painful, the woman may be advised to stop breast-feeding. A breast pump can be used until breast-feeding can be resumed. Persistent ulceration requires further diagnosis and therapy. Guidance from a nurse or lactation consultant may be helpful, because nipple irritation can result from improper positioning or poor latching on (i.e., the infant has not grasped the areola fully) during breast-feeding.

BREAST INFECTIONS

Mastitis

Mastitis, an inflammation or infection of breast tissue, occurs most commonly in women who are breast-feeding, although it may also occur in women who are nonlactating. The infection may result from a transfer of microorganisms to the breast by the patient's hands or from a breast-fed infant with an oral, eye, or skin infection. Mastitis may also be caused by bloodborne organisms. As inflammation progresses, the breast texture becomes tough or doughy, and the patient complains of dull to severe pain in the infected region. A nipple that is discharging purulent material, serum, or blood should be investigated promptly.

Treatment consists of antibiotics and local application of cold compresses to relieve discomfort. A broad-spectrum antibiotic agent may be prescribed for 7 to 10 days. The patient should wear a snug bra and perform personal hygiene carefully. Adequate rest and hydration are important aspects of management.

Lactational Abscess

A breast abscess may develop as a consequence of acute mastitis. The area affected becomes tender and red. Purulent matter can usually be aspirated with a needle, but incision and drainage may be required. Specimens of the aspirated material are obtained for culture so that an organism-specific antibiotic agent can be prescribed.

BENIGN CONDITIONS OF THE BREAST

Breast Pain

Mastalgia (breast pain) may be cyclical or noncyclical. Cyclical pain is usually related to hormonal fluctuations, usually during the menstrual cycle, and accounts for the majority of complaints. Noncyclical pain is far less common and does not vary with the menstrual cycle. Women who experience injury or trauma to the breast or those who have had a breast biopsy may experience noncyclical pain. Patients should be reassured that breast pain is rarely indicative of cancer. However, if the pain persists after menses begin, the patient should see her primary provider.

Nursing Management

The nurse may recommend that the patient wear a supportive bra both day and night for a week, avoiding the use of underwire bras, decrease her salt and caffeine intake, and take

ibuprofen as needed for its anti-inflammatory actions. Vitamin E supplements may also be helpful.

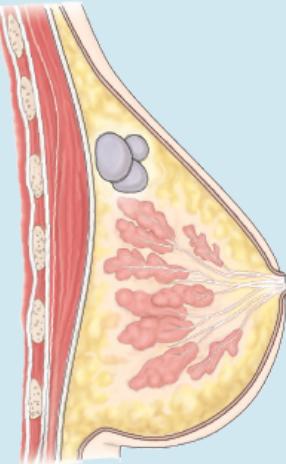
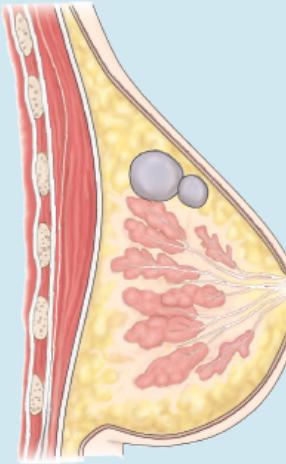
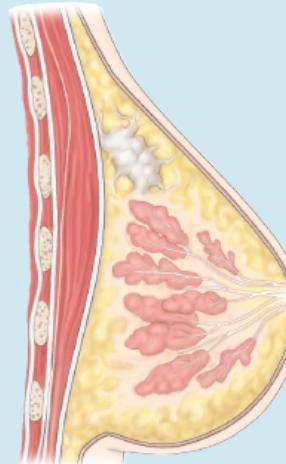
Cysts

Cysts are fluid-filled sacs that develop as breast ducts dilate. Cysts occur most commonly in women 30 to 55 years of age and may be exacerbated during perimenopause. Although their cause is unknown, cysts usually disappear after menopause, suggesting that estrogen is a factor. Cystic areas often fluctuate in size and are usually larger premenstrually. They may be painless or may become very tender premenstrually. Occasionally, a patient may report an intermittent shooting sensation or a dull ache. Various breast masses are compared in **Table 52-2**. Cysts that are confirmed on an ultrasound and are not bothersome can often be left alone. To confirm a diagnosis or to relieve pain, FNA can be performed. Cysts are rarely malignant (Sasaki, Geletzke, Kass, et al., 2018).

Fibrocystic breast changes, often incorrectly called *fibrocystic breast disease*, is a nonspecific term used to describe an array of benign findings including palpable nodularity, lumpiness, swelling, or pain. The changes do not necessarily indicate a cystic or disease process.

TABLE 52-2 Comparison of Various Breast Masses

The most common breast masses are due to cysts, fibroadenomas, or malignancy. Biopsy is usually needed for confirmation, but the following characteristics are diagnostic clues:

Characteristics	Cysts	Fibroadenomas	Malignancy
			
Age	30–55 yrs, regress after menopause except with use of estrogen therapy	Puberty to menopause	30–90 yrs; most common, 40–80 yrs
Number	Single or multiple	Usually single	Usually single
Shape	Round	Round, disc, or lobular	Irregular or stellate
Consistency	Soft to firm, usually elastic	Usually firm	Firm or hard
Mobility	Mobile	Mobile	May be fixed to skin or underlying tissues
Tenderness	Usually tender	Usually nontender	Usually nontender
Retraction signs	Absent	Absent	May be present

Adapted from Bland, K., Copeland, E., Klimberg, V., et al. (Eds.). *The breast: Comprehensive management of benign and malignant diseases* (5th ed.). Philadelphia, PA: Elsevier.

Fibroadenomas

Fibroadenomas are firm, round, movable, benign tumors. They can occur from puberty to menopause with a peak incidence at 30 years of age. These masses are nontender and are sometimes biopsied or removed for definitive diagnosis.

Benign Proliferative Breast Disease

The two most common types of **benign proliferative breast disease** (atypical, yet noncancerous, breast tissue) found on biopsy are atypical hyperplasia and lobular carcinoma in situ (LCIS). These diagnoses increase a woman's risk of breast cancer.

Atypical Hyperplasia

Atypical hyperplasia can be ductal or lobular and is a premalignant lesion of the breast. It is recognized as a precursor lesion to both noninvasive and invasive breast cancer. Imbalance in the normal regulation of cell proliferation is a defining feature. Women with atypical hyperplasia have a fourfold increased risk of breast cancer compared to women in the general population (Sasaki et al., 2018).

Lobular Carcinoma In Situ

Lobular carcinoma in situ (LCIS) is an incidental microscopic finding of abnormal tissue growth in the lobules of the breast. Many types of LCIS have been identified; some types are associated with a 4- to 10-fold increased risk of invasive breast cancer (Klimberg & Bland, 2018). Affected women should undergo rigorous breast cancer surveillance that consists of annual mammography and clinical breast examination every 6 months (NCCN, 2019). Patients should be offered information about chemoprevention with selective estrogen receptor modulators (SERMs), such as tamoxifen. See the discussion of chemoprevention later in this chapter.

Other Benign Conditions

Cystosarcoma phyllodes is a rare fibroepithelial tumor that tends to grow rapidly. It is rarely malignant and is treated with surgical excision. If it is malignant, mastectomy may follow. Lymph node removal is usually not performed, because metastasis is rare.

Fat necrosis is a condition of the breast that is often associated with a history of trauma. Surgical procedures such as a breast biopsy, lumpectomy, or mastectomy can cause fat necrosis. It may be indistinguishable from carcinoma, and the entire mass may be excised or biopsied. If excision is not indicated, it is followed with regular breast imaging.

Intraductal papilloma is a wartlike growth that often involves the large milk ducts near the nipple, causing bloody nipple discharge. Surgery usually involves removal of the papilloma and a segment of the duct where the papilloma is found.

Superficial thrombophlebitis of the breast (Mondor disease) is an uncommon condition that is usually associated with pregnancy, trauma, or breast surgery. Pain and redness occur as a result of a superficial thrombophlebitis in the vein that drains the outer part of the breast. The mass is usually linear, tender, and erythematous. Treatment consists of analgesic agents and heat.

MALIGNANT CONDITIONS OF THE BREAST



Breast cancer is a major health problem in the United States. Current statistics indicate that over a lifetime (birth to death), a woman's risk of developing breast cancer is about 12%, or one in eight. Currently, about 268,600 new cases of invasive breast cancer are diagnosed in women each year. Risk of developing breast cancer increases with increasing age. About two of three invasive breast cancers are found in women 55 years or older. About 5% to 10% of breast cancer cases are thought to be hereditary, resulting directly from gene defects (cell mutations) inherited from a biologic parent (ACS, 2019). Female breast cancer incidence rates vary substantially by race and ethnicity. Non-Hispanic African American women have higher incidence of breast cancer than non-Hispanic Caucasian women before the age of 40 and are more likely to die from breast cancer at every age. Higher death rates in African Americans have been attributed to later stage at diagnosis and poorer stage-specific survival (ACS, 2019).

Types of Breast Cancer

Ductal Carcinoma In Situ

Ductal carcinoma in situ (DCIS) is characterized by the proliferation of malignant cells inside the milk ducts without invasion into the surrounding tissue. Unlike invasive breast cancer, DCIS does not metastasize and a woman generally does not die of DCIS unless it develops into invasive breast cancer. DCIS can develop into invasive breast cancer if left untreated. The best estimates are that 14% to 53% of untreated DCIS progresses to invasive breast cancer over a period of 10 years or more. However, the natural history of DCIS is not well understood, and it is currently not possible to accurately predict which women with DCIS will go on to develop invasive breast cancer (ACS, 2019). DCIS is frequently manifested on a mammogram with the appearance of calcifications and is considered breast cancer stage 0.

Medical Management

Current management takes into account the assurance of an accurate diagnosis, assessment of DCIS size and grade, and careful margin evaluation. The pathologist analyzes the piece of breast tissue removed to determine the type and grade of the DCIS or how abnormal the cells look when compared with normal breast cells and how fast they are growing. Grade III (high-grade DCIS) cells tend to grow more quickly than grade I (low-grade) and grade II (moderate-grade) cells and look very different from normal breast cells. Accurate grading of DCIS is critical, because high nuclear grade and the presence of necrosis (the premature death of cells in living tissue) are highly predictive of the inability to achieve adequate margins or borders of healthy tissue around the cancer, of local recurrence, and of the probability of missed areas of invasion. The pros and cons of irradiating patients with DCIS who are treated conservatively should be carefully weighed on a case-by-case basis, considering recent trials have shown that radiation has a beneficial effect on distant recurrence, breast cancer-specific mortality, and overall survival. Breast conservation (treatment of a breast cancer without the loss of the breast) can be curative for well-defined subsets of women with DCIS, especially if the area of concern is very small (ACS, 2019).

Invasive Cancer

Invasive breast cancer includes several types of carcinoma and Paget disease.

Infiltrating Ductal Carcinoma

Infiltrating ductal carcinoma—the most common histologic type of breast cancer—accounts for 70% to 80% of all cases (Komen, 2019b). The tumors arise from the duct system and invade the surrounding tissues. They often form a solid irregular mass in the breast (Komen, 2019b).

Micropapillary invasive ductal carcinoma is a rare type of aggressive ductal cancer characterized by a high rate of axillary node metastasis and skin involvement (Komen, 2019b).

Infiltrating Lobular Carcinoma

Infiltrating lobular carcinoma accounts for 10% to 15% of breast cancers (Komen, 2019b). The tumors arise from the lobular epithelium and typically occur as an area of ill-defined thickening in the breast. They are often multicentric and can be bilateral (Komen, 2019b).

Medullary Carcinoma

Medullary carcinoma accounts for less than 1% of breast cancers (Komen, 2019b), and it tends to be diagnosed more often in women younger than 50 years. The tumors grow in a capsule inside a duct. They can become large and may be mistaken for a fibroadenoma. The prognosis is often favorable (Komen, 2019b).

Mucinous Carcinoma

Mucinous carcinoma accounts for about 2% of breast cancers and often presents in women who are postmenopausal and are 75 years and older (Komen, 2019b). A mucin producer, the tumor is also slow growing; thus, the prognosis is more favorable than in many other types (Komen, 2019b).

Tubular Carcinoma

Tubular carcinoma accounts for 1% to 5% of breast cancers (Komen, 2019b). Because axillary metastases are uncommon with this histology, prognosis is usually excellent.

Inflammatory Carcinoma

Inflammatory carcinoma is a rare (1% to 5%) (ACS, 2019; Komen, 2019b) and aggressive type of breast cancer that has unique symptoms. The cancer is characterized by diffuse edema and erythema of the skin, often referred to as peau d'orange. This is caused by malignant cells blocking the lymph channels in the skin. An associated mass may or may not be present; if there is a mass, it is often a large area of indiscrete thickening. Inflammatory carcinoma can be confused with an infection because of its presentation (Komen, 2019b). The disease can spread to other parts of the body rapidly. Chemotherapy often plays an initial role in controlling disease progression, but radiation and surgery may also follow (Komen, 2019b).

Paget Disease

Paget disease of the breast accounts for 1% to 4% of diagnosed cases of breast cancer; it is more common in men than in women (Komen, 2019b). Symptoms typically include a scaly, erythematous, pruritic lesion of the nipple. Paget disease often represents DCIS of the nipple but may have an invasive component. If no lump can be felt in the breast tissue and the biopsy shows DCIS without invasion, the prognosis is very favorable (Komen, 2019b).

Risk Factors

There is no single, specific cause of breast cancer. A combination of genetic, hormonal, and possibly environmental factors may increase the risk of its development (see Table 52-3). More than 80% of all cases of breast cancer are sporadic, meaning that patients have no known family history of the disease. The remaining cases are either familial (there is a family history of breast cancer, but it is not passed on genetically) or genetically acquired. Research suggests that obesity, alcohol use, and smoking (especially when started before the first pregnancy) may increase risk (ACS, 2019). There is some evidence that late-in-life weight gain, a sedentary lifestyle, and night shift work may increase the risk for breast cancer (ACS, 2019). There is no evidence that silicone breast implants, the use of antiperspirants, underwire bras, or abortion (induced or spontaneous) increases the risk of the disease (ACS, 2019).

As stated previously, breast cancer can be genetically inherited, resulting in significant risk. Approximately 5% to 10% of breast cancer cases have been linked to specific genetic mutations. Factors that may indicate a genetic link include multiple first-degree relatives with early-onset breast cancer, breast and ovarian cancer in the same family, male breast cancer, and Ashkenazi Jewish background. ***BRCA1*** and ***BRCA2*** are tumor suppressor genes that normally function to identify damaged deoxyribonucleic acid (DNA) and thereby restrain abnormal cell growth (O'Donnell, Axilbund, & Euhus, 2018). Mutations in these genes on chromosome 17 are responsible for the majority of hereditary breast cancer in the United States. *BRCA* mutations in women have been associated with an overall risk of breast cancer up to 70% (ACS, 2019). Currently, women who are *BRCA* positive are counseled to start screening, typically using mammography, once a year and then MRI 6 months after the yearly mammography by 25 years of age, or 5 to 10 years earlier than their youngest affected family member. Mutations in the *PALB2* gene confer similar risk. Males who carry the *BRCA2* mutation may have a lifetime risk of 6% to 7% of developing breast cancer (Jain & Gradishar, 2018).

Protective Factors

Certain factors may be protective against the development of breast cancer. Breast-feeding for at least 1 year, regular or moderate physical activity, and maintaining a healthy body weight are cited as protective (ACS, 2019). Some research suggests that the use of extra virgin olive oil, as is found in a Mediterranean diet, might be preventive, but recent research is inconclusive (Mayo Clinic, 2018).

TABLE 52-3 Risk Factors for Breast Cancer

Risk Factor	Comments
Female gender	99% of cases occur in women.
Increasing age	Increasing age is associated with an increased risk.
Personal history of breast cancer	Once treated for breast cancer, the risk of developing breast cancer in same or opposite breast is significantly increased.
Family history of breast cancer	Having first-degree relative with breast cancer (mother, sister, daughter) increases the risk twofold; having two first-degree relatives increases the risk fivefold. The risk is higher if the relative was premenopausal at the time of diagnosis. The risk is increased if a father or brother had breast cancer (exact risk is unknown).
Genetic mutation	<i>BRCA1</i> and <i>BRCA2</i> mutations account for majority of inherited cases of breast cancer (see additional information in text).
Hormonal Factors	
• Early menarche	Before 12 yrs of age
• Late menopause	After 55 yrs of age
• Nulliparity	No full-term pregnancies
• Late age at first full-term pregnancy	After 30 yrs of age
• Hormone therapy (formerly referred to as hormone replacement therapy)	Current or recent use of combined postmenopausal hormone therapy (estrogen and progesterone) Long-term use (several years or more)
Exposure to ionizing radiation during adolescence and early adulthood	The risk is highest if breast tissue was exposed while still developing (during adolescence), such as women who received mantle radiation (to the chest area) for treatment of Hodgkin lymphoma in their younger years.
History of benign proliferative breast disease	Having had atypical ductal or lobular hyperplasia or lobular carcinoma in situ increases the risk.
Obesity	Obesity and weight gain during adulthood increases the risk of postmenopausal breast cancer. During menopause, estrogen is primarily produced in fat tissue. More fat tissue can increase estrogen levels, thereby increasing breast cancer risk.
High-fat diet	More research is needed.
Alcohol intake (beer, wine, or liquor)	Two to five drinks daily increases the risk about one and a half times.

Adapted from National Comprehensive Cancer Network (NCCN). (2019). Clinical practice guidelines: Breast. Retrieved on 9/9/2019 at: www.nccn.org/professionals/physician_gls/pdf/breast_risk.pdf

Breast Cancer Prevention Strategies in the Patient Who Is at High Risk

Patients often over- or underestimate their risk of developing breast cancer. A consultation with a breast specialist is of paramount importance prior to embarking on any of the prevention strategies that follow. Once patients have an accurate assessment of their risk, along with the knowledge of the pros and cons of each prevention strategy, they can make a decision that is most appropriate for their situation.

Long-Term Surveillance

Long-term surveillance focuses on early detection. As recommended by the NCCN (2019), women at high risk for breast cancer benefit from additional screening using MRI along with a yearly mammogram. Clinical breast examinations may be performed twice a year starting as early as 25 years of age. Mammograms may also be performed as early as 25 years of age. Data concerning the effectiveness of BSE are limited. In addition to yearly mammography and MRI, other screening tests, including ultrasonography, may be useful.

Chemoprevention

Chemoprevention is the main modality that aims to prevent the disease. Several national, randomized clinical trials have led to FDA approval of tamoxifen and raloxifene as effective chemopreventive agents for use in women who are at high risk (Mayo Clinic, 2019a). Tamoxifen has been shown to reduce risk by up to 50% even in women in whom up to three first-degree relatives are also affected (O'Donnell et al., 2018). Because tamoxifen is associated with an increased risk for endometrial cancer and thromboembolic events, especially in postmenopausal women, it is more frequently recommended for premenopausal women. In women previously diagnosed with LCIS, who are at risk for developing invasive cancer, tamoxifen has been approved for use premenopausally, while raloxifene is recommended postmenopausally (Calhoun & Anderson, 2018). Postmenopausally, anastrozole and exemestane are also now used for chemoprevention (Mayo Clinic, 2019a). Nurses can help women who are considering chemoprevention by providing them with information about the benefits, risks, and possible side effects of these medications.

Prophylactic Mastectomy

Prophylactic mastectomy is another primary prevention modality that can reduce the risk of breast cancer by 90% to 95% (Mayo Clinic, 2019b) and is sometimes referred to as a “risk-reducing” mastectomy. The procedure consists of a total **mastectomy** (removal of breast tissue) and is usually accompanied by immediate breast reconstruction. Possible candidates include women with a strong family history of breast cancer, a diagnosis of LCIS or atypical hyperplasia, a mutation in a *BRCA* gene, and previous cancer in one breast. Because of physical and psychological ramifications including anxiety, depression, and altered body image, this procedure should be undertaken only after extensive counseling related to its risks and benefits. The procedure does not confer 100% protection against the development of breast cancer (Mayo Clinic, 2019b).

A multidisciplinary approach is used to help the patient arrive at a decision that is best for her. Consultation with a genetic counselor, plastic surgeon, medical oncologist, and psychiatrist can be invaluable. The patient needs to understand that this surgery is elective and not emergent. The nurse can play a valuable role in providing the patient with information, clarification, and support during the decision-making process.

Clinical Manifestations

Breast cancers can occur anywhere in the breast but are usually found in the upper outer quadrant, where the most breast tissue is located. In general, the lesions are nontender, fixed rather than mobile, and hard with irregular borders. Complaints of diffuse breast pain and tenderness with menstruation are usually associated with benign breast disease.

Because of mammography, more women are seeking treatment at earlier stages of the disease. These women often have no signs or symptoms other than a mammographic abnormality. Some women with advanced disease seek initial treatment after ignoring symptoms. Advanced signs may include skin dimpling, nipple retraction, or skin ulceration.

Assessment and Diagnostic Findings

Techniques to determine the diagnosis of breast cancer include various types of biopsy, which have been described previously. Tumor staging and analysis of additional prognostic factors are used to determine the prognosis and optimal treatment regimen (see below).

Staging

Staging involves classifying the cancer by the extent of the disease in the body. It is based on whether the cancer is invasive or noninvasive, the size of the tumor, how many lymph nodes are involved, and if it has spread to other parts of the body. The stage of a cancer is one of the most important factors in determining prognosis and treatment options. The most common system used to describe the stages of breast cancer is the American Joint Committee on Cancer (AJCC) TNM (tumor, nodes, metastasis) system (see [Chapter 12, Chart 12-3](#)). Other factors considered in staging include hormone receptors and genetic mutations.

Other diagnostic tests may be performed before or after surgery to help in the staging of the disease. The extent of testing often depends on the clinical presentation of the disease and may include chest x-rays, computed tomography (CT) scan, MRI scan, positron emission tomography (PET) scan, bone scans, and blood work (complete blood count, comprehensive metabolic panel, and tumor markers [i.e., carcinoembryonic antigen, cancer antigen 15-3]).

Prognosis

Several different factors must be taken into consideration when determining the prognosis of a patient with breast cancer. Two of the most important factors are tumor size and whether the tumor has spread to the axillary (underarm) lymph nodes.

In general, the smaller the tumor appears, the better the prognosis. A tumor starts with a genetic alteration in a single cell and takes time to divide and double in size. A carcinoma may double in size 30 times to become 1 cm or larger, at which point it becomes clinically apparent. Doubling time varies, but breast tumors are often present for several years before they become palpable. Nurses can reassure patients that once breast cancer is diagnosed, they have a safe period of several weeks to make decisions regarding treatment; however, a lengthy delay is not advisable.

Prognosis also depends on the extent of spread of the breast cancer. The 5-year survival rate is approximately 88% for a stage I breast cancer and 15% for a stage IV breast cancer (ACS, 2019). The most common route of regional spread is to the axillary lymph nodes. Other sites of lymphatic spread include the internal mammary and supraclavicular nodes (see [Fig. 52-5](#)). Distant metastasis can affect any organ, but the most common sites are bone, lung, liver, and brain ([Breastcancer.org](#), 2018).

In addition to the type of breast cancer and the stage, other factors may help determine prognosis (see [Chart 52-3](#)). Amplification (excessive number of copies of certain genes) or overexpression (excessive amounts of their protein product) may represent a poorer prognosis. The HER-2/neu (also known as *ERBB2*) oncogene is the classic example; approximately 20% of invasive breast cancers, which typically involve the more aggressive tumors, have amplification or overexpression of this gene (Mayo Clinic, 2020). The proliferative rate or rapidity in growth rate (S-phase fraction) and DNA content (ploidy) of a tumor are factors that are also associated with overall survival rate.

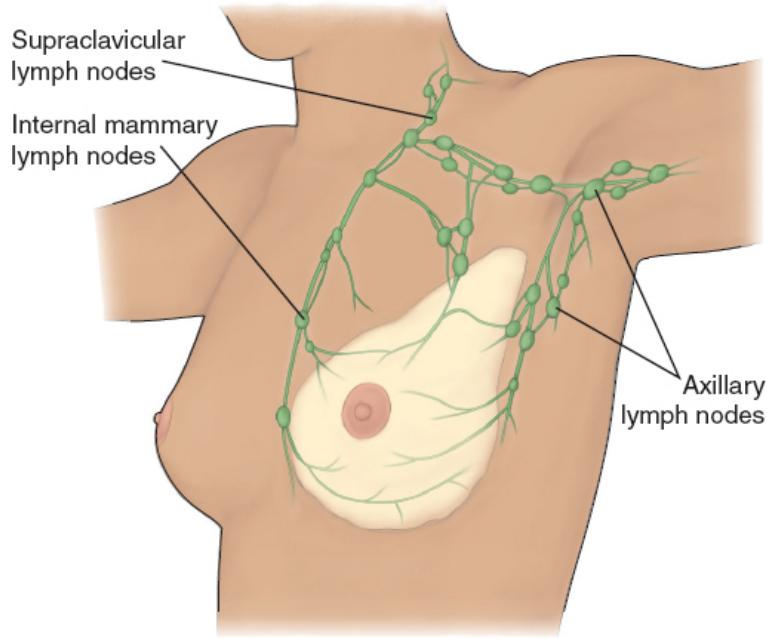


Figure 52-5 • Lymphatic drainage of the breast.

Chart 52-3

Factors Associated with Favorable Prognosis for Breast Cancer

- Noninvasive tumors or invasive tumors <1 cm
- Negative axillary lymph nodes
- Estrogen receptor (ER) and progesterone receptor (PR) proteins
- Well-differentiated tumors
- Low expression of HER-2/neu oncogene (also known as *ERBB2*)
- No vascular or lymphatic invasion
- Diploid tumors with low S-phase fraction

Adapted from Chalasani, P. (2020). Breast cancer. Retrieved on 5/14/2020 at: www.emedicine.medscape.com/article/1947145-overview#a8

Surgical Management

The main goal of surgery is to gain local control of the disease. With breast cancer being diagnosed today at earlier stages, options for less invasive, breast conserving surgical procedures are available. Surgical treatment options for noninvasive and invasive breast cancer are summarized in [Table 52-4](#).

Modified Radical Mastectomy

Modified radical mastectomy is performed to treat invasive breast cancer. The procedure involves removal of breast tissue, including the nipple–areola complex. In addition, a portion of the axillary lymph nodes are also removed in axillary lymph node dissection (ALND). If immediate breast reconstruction is desired, the patient is referred to a plastic surgeon prior to the mastectomy so that the patient has the opportunity to explore all available options (see

Chart 52-4). In modified radical mastectomy, the pectoralis major and pectoralis minor muscles are left intact, unlike in radical mastectomy, in which the muscles are removed.

TABLE 52-4 Surgical Treatment Options for Noninvasive and Invasive Breast Cancer

Noninvasive Breast Cancer	Invasive Breast Cancer
Breast conservation ^a alone	Breast conservation ^a with one of the following: Sentinel lymph node biopsy Axillary lymph node dissection
Total mastectomy alone	Total mastectomy with sentinel lymph node biopsy or Modified radical mastectomy

^aBreast conservation treatment includes lumpectomy, wide excision, partial or segmental mastectomy, and quadrantectomy. These are relatively synonymous terms that describe removal of varying amounts of breast tissue.

Total Mastectomy

Like modified radical mastectomy, total mastectomy (i.e., simple mastectomy) also involves removal of the breast and nipple–areola complex but does not include ALND. Total mastectomy may be performed in patients with noninvasive breast cancer (e.g., DCIS), which does not have a tendency to spread to the lymph nodes. It may also be performed prophylactically in patients who are at high risk for breast cancer (e.g., LCIS, *BRCA* mutation). A total mastectomy may also be performed in conjunction with sentinel lymph node biopsy (SLNB) for patients with invasive breast cancer.

Breast Conservation Treatment

The goal of **breast conservation treatment** (i.e., lumpectomy, wide excision, partial or segmental mastectomy, quadrantectomy) is to excise the tumor in the breast completely and obtain clear margins while achieving an acceptable cosmetic result. If the procedure is being performed to treat a noninvasive breast cancer, lymph node removal is not necessary. For an invasive breast cancer, lymph node removal (SLNB or ALND) is indicated. The lymph nodes are removed through a separate semicircular incision in the axilla.

Sentinel Lymph Node Biopsy

The status of the lymph nodes is the most important prognostic factor in breast cancer. The SLNB is a less invasive alternative to ALND and is considered a standard of care for the treatment of early-stage breast cancer. ALND is associated with potential morbidity, including lymphedema, cellulitis, decreased arm mobility, and sensory changes. Studies suggest that SLNB is highly accurate and is associated with a low axillary recurrence rate (Prati, Chang, & Chung, 2018). Table 52-5 compares SLNB and ALND.

The **sentinel lymph node**, which is the first node (or nodes) in the lymphatic basin that receives drainage from the primary tumor in the breast, is identified by injecting a radioisotope or blue dye into the breast; the radioisotope or dye then travels via the lymphatic pathways to the node. In SLNB, the surgeon uses a handheld probe to locate the sentinel lymph node, excises it, and sends it for pathologic analysis, which is often performed immediately during the surgery using frozen-section analysis. If the sentinel lymph node is positive, the surgeon can proceed with an immediate ALND, thus sparing the patient a return trip to the operating room and additional anesthesia. (The patient could also return for additional surgery at a later time.) If the sentinel lymph node is negative, a standard ALND is not needed, thus sparing the patient the possible complications of the procedure. After the procedure is complete, all specimens are sent to pathology for more thorough analysis.

Nursing Management

Patients who undergo SLNB in conjunction with breast conservation treatments are generally discharged the same day. Patients who undergo SLNB with total mastectomy usually stay in the hospital overnight, possibly longer if breast reconstruction is being performed. The patient must be informed that although frozen-section analysis is highly accurate, false-negative results can occur. A negative sentinel lymph node on frozen-section analysis may show metastatic disease on subsequent analysis, indicating that ALND is still necessary. The patient should also be reassured that the radioisotope and blue dye are generally safe. The nurse informs patients that they may notice a blue-green discoloration in the urine or stool for the first 24 hours as the blue dye is excreted. The incidence of lymphedema, decreased arm mobility, and seroma formation (collection of serous fluid) in the axilla is generally low, but the patient should be prepared for these possibilities. Women who have SLNB alone have neuropathic sensations similar to those who undergo ALND, although the prevalence and severity of these sensations and the resulting distress are lower with SLNB.

Chart 52-4 ETHICAL DILEMMA

What Is Acceptable Treatment for a Patient with Breast Cancer during a Pandemic?

Case Scenario

You work as a staff nurse on an oncology surgery unit. K.M. is a 37-year-old woman who is one day postoperative for a mastectomy for an invasive ductal carcinoma of her left breast. There is an outbreak of coronavirus disease 2019 (COVID-19) within your community. K.M. does not have COVID-19 and the surgical unit where you work has been designated to manage patients without COVID-19; nonetheless, a no visitor policy is enforced throughout your hospital and K.M. may not receive any visitors. When you enter K.M.'s room to perform your baseline assessment, you find her crying. She says to you, "This is terrible. When my sister had a mastectomy 3 years ago, she was able to have breast reconstruction done at the same time. I did not have that choice because only the mastectomy was considered essential—the reconstruction was considered elective! I have to wait before I can have that done and go through surgery all over again! It is so unfair! And it is so unfair that my husband had to drop me off at the curb and cannot be with me! He is worried sick!" K.M. is not the only patient you have cared for during this pandemic who has faced obstacles receiving what had previously been considered standard care. Additionally, many of your patients have voiced anger, frustration, anxiety, and fear because their loved ones are barred from being able to visit them postoperatively.

Discussion

Access to health care resources can drastically change during a pandemic. Resources may be scarce not only for patients who are directly infected by the pathogen responsible for the pandemic, but for all patients. For instance, access to the services rendered by health care personnel (e.g., surgeons), facilities (e.g., surgical centers, operating rooms), pharmacologic agents, medical devices, to name a few, may all be disrupted or delayed because of societal needs to divert maximum resources to mitigate the effects of the pandemic. Diversion of these resources can result in a scarcity of resources considered as standard therapy during other times. The COVID-19 pandemic has caused disruptions to and delays in access to care for many patients with breast cancer, as well as patients with other cancers.

Analysis

- Describe the ethical principles that are in conflict in this case (see [Chapter 1, Chart 1-7](#)). K.M. feels that she should have been eligible to have reconstruction done at the same time as her mastectomy. Her availability of choices and her personhood were arguably threatened by not being able to select her preferred surgical procedure. She might have elected to wait to have her mastectomy until such time as the breast reconstruction could have also been done; however, her risk of an adverse outcome related to her cancer would have been greater. Is it just to enforce these types of resource delays during a pandemic?
- K.M. expresses frustration at not being able to see her husband postoperatively. Are visitor prohibitions during a pandemic so much a threat to beneficence that they should not be enforced? Or are these types of universal prohibitions justifiable?
- What resources might be mobilized to assist you in caring for K.M. and other patients on your unit? How can you assure that your professional need to deliver quality care to your patients is not threatened? How can you preserve your own sense of self-worth?

References

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Resources

See Chapter 1, Chart 1-10 for Steps of an Ethical Analysis and Ethics Resources.

The nurse must not overlook the psychosocial needs of the patient who has undergone SLNB. Although SLNB is a less invasive procedure than ALND and results in a shorter recovery period, a patient who has undergone SLNB also has many difficult issues surrounding her breast cancer diagnosis and treatment. The nurse must listen, provide emotional support, and refer the patient to appropriate specialists when indicated.

TABLE 52-5 Comparison of Sentinel Lymph Node Biopsy and Axillary Lymph Node Dissection

Sentinel Lymph Node Biopsy	Axillary Lymph Node Dissection
Shorter operating room time (~15–30 mins)	Longer operating room time (~60–90 mins)
No surgical drain	Surgical drain
Local anesthesia with IV moderate sedation as outpatient surgery (unless being performed in conjunction with total mastectomy)	General anesthesia; usually overnight admission (sometimes done as outpatient surgery)
Lymphedema risk minimal	Lymphedema risk higher
Presence of neuropathic sensations postoperatively (prevalence lower than after axillary lymph node dissection)	Presence of neuropathic sensations postoperatively
Decreased range of motion in affected arm unlikely postoperatively but may occur	Decreased range of motion likely postoperatively
Seroma (collection of serous fluid in the axilla) may occur postoperatively, but less likely	Seroma may occur postoperatively

Adapted from [Breastcancer.org](https://www.breastcancer.org/treatment/surgery/lymph_node_removal). (2019). Lymph node removal. Retrieved on 5/13/2020 at: https://www.breastcancer.org/treatment/surgery/lymph_node_removal

NURSING PROCESS

The Patient Undergoing Surgery for Breast Cancer

Assessment

The health history is a valuable tool to assess the patient's reaction to the diagnosis and her ability to cope with it. Pertinent questions include the following:

- How is the patient responding to the diagnosis?
- What coping mechanisms does she find most helpful?
- What psychological or emotional supports does she have and use?
- Is there a partner, family member, or friend available to assist her in making treatment choices?
- What are her educational needs?
- Is she experiencing any discomfort?

Diagnosis

PREOPERATIVE NURSING DIAGNOSES

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

- Lack of knowledge about the planned surgical treatments
- Anxiety associated with the diagnosis of cancer
- Fear associated with specific treatments and body image changes
- Risk for difficulty with coping associated with the diagnosis of breast cancer and related treatment options
- Decisional conflict associated with treatment options

POSTOPERATIVE NURSING DIAGNOSES

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

- Acute pain and discomfort associated with surgical procedure
- Risk for impaired peripheral neurovascular function associated with nerve irritation in affected arm, breast, or chest wall
- Disturbed body image associated with loss or alteration of the breast
- Risk for difficulty with coping associated with the diagnosis of cancer and surgical treatment
- Impaired ability to perform hygiene, impaired ability to dress, impaired self feeding, and impaired self toileting associated with partial immobility of upper extremity on operative side
- Lack of knowledge: drain management after breast surgery, arm exercises to regain mobility of affected extremity, hand and arm care after ALND

COLLABORATIVE PROBLEMS/POTENTIAL COMPLICATIONS

Potential complications may include the following:

- Lymphedema
- Hematoma/Seroma formation
- Infection
- Changes in sexual function

Planning and Goals

The major goals may include increased knowledge about the disease and its treatment; reduction of preoperative and postoperative fear, anxiety, and emotional stress;

improvement of decision-making ability; pain management; neurovascular function management; maintenance of a positive body image; improvement in coping abilities; increased self-care abilities; improvement in sexual function; and the absence of complications.

Preoperative Nursing Interventions

PROVIDING EDUCATION AND PREPARATION ABOUT SURGICAL TREATMENTS

Many cancer centers have coordinators to help patients navigate appointments, decision-making, and care-paths. Nurses can encourage patients and their support persons to establish and maintain contact with these coordinators and utilize available resources as needed along their journeys. The nurse will reinforce a coordinator's support, if available; if no coordinator is available, nurses assume much of this responsibility.

Patients with newly diagnosed breast cancer are expected to absorb an abundance of new information during a very emotionally difficult time, and this may lead to difficulty in making treatment decisions. The nurse plays a key role in reviewing treatment options by reinforcing information provided to the patient and answering any questions. The nurse fully prepares the patient for what to expect before, during, and after surgery. Patients undergoing breast conservation with ALND, or a total or modified radical mastectomy, generally remain in the hospital overnight (or longer if they have immediate reconstruction). Surgical drains will be inserted in the mastectomy incision and in the axilla if the patient undergoes ALND. A surgical drain is generally not needed after SLNB. The patient should be informed that she will go home with the drain(s) and that complete instructions about drain care will be provided prior to discharge. In addition, the patient should be informed that she will often have decreased arm and shoulder mobility after ALND and that she will be shown range-of-motion exercises prior to discharge. The patient should also be reassured that appropriate analgesia and comfort measures will be provided to alleviate any postoperative discomfort.

REDUCING FEAR AND ANXIETY AND IMPROVING COPING ABILITY

The nurse helps the patient cope with the physical and emotional effects of surgery. Many fears may emerge during the preoperative phase. These can include fear of pain, mutilation (after mastectomy), and loss of sexual attractiveness; concern about inability to care for oneself and one's family; concern about taking time off from work; and coping with an uncertain future. Providing the patient with realistic expectations about the healing process and expected recovery can help alleviate fears. Maintaining open communication and assuring the patient that she can contact the nurse at any time with questions or concerns can be a source of comfort. The patient should also be made aware of available resources at the treatment facility as well as in the breast cancer community such as social workers, psychiatrists, and support groups. Some women find it helpful and reassuring to talk to a survivor of breast cancer who has undergone similar treatments.

PROMOTING DECISION-MAKING ABILITY

The patient may be eligible for more than one therapeutic approach; she may be presented with treatment options and then asked to make a choice. This can be very frightening for some patients, and they may prefer to have someone else make the decision for them (e.g., surgeon, family member). The nurse can be instrumental in ensuring that the patient and family members truly understand their options. The nurse can then help the patient weigh the risks and benefits of each option. The patient may be presented with the option of having breast conservation treatment followed by radiation or a mastectomy. The nurse can explore the issues with the patient by asking questions such as the following:

- How do you think you might feel about losing your breast?
- Are you considering breast reconstruction?

- If you choose to retain your breast, would you consider undergoing radiation treatments 5 days a week for 5 to 6 weeks?

Questions such as these can help the patient focus. Once the patient's decision is made, it is very important to support it.

Postoperative Nursing Interventions

RELIEVING PAIN AND DISCOMFORT

Many patients tolerate breast surgery well and have minimal pain during the postoperative period. This is particularly true of less invasive procedures such as breast conservation treatment with SLNB. However, all patients must be carefully assessed, because individual patients can have varying degrees of pain. Patients who have had more invasive procedures, such as a modified radical mastectomy with immediate reconstruction, may have considerably more pain. All patients are discharged home with analgesic medication (e.g., oxycodone and acetaminophen) and are encouraged to take it if needed. An over-the-counter analgesic agent such as acetaminophen may provide sufficient relief. Patients sometimes complain of a slight increase in pain after the first few days of surgery; this may occur as patients regain sensation around the surgical site and become more active. However, patients who report more than moderate pain must be evaluated to rule out any potential complications such as infection or hematoma. Postoperative pain may be more common in patients who have had axillary dissection: the amount of discomfort may increase with each additional node removed. (Komen, 2019a). Alternative methods of pain management, such as taking warm showers (if permitted by the surgeon) and using distraction methods (e.g., guided imagery), may also be helpful. See [Chapter 9](#) for further discussion of methods that relieve pain.

MANAGING POSTOPERATIVE SENSATIONS

Because nerves in the skin and axilla are often ligated or injured during breast surgery, patients experience a variety of sensations. Common sensations include tenderness, soreness, numbness, tightness, pulling, and twinges. These sensations may occur along the chest wall, in the axilla, and along the inside aspect of the upper arm. After mastectomy, some patients experience phantom sensations and report a feeling that the breast or nipple is still present. Overall, patients do not find these sensations severe or distressing. Sensations usually persist for several months and then begin to diminish, although some may persist for as long as 5 years and possibly longer. Patients should be reassured that this is a normal part of healing and that these sensations are not indicative of a problem.

PROMOTING POSITIVE BODY IMAGE

Patients who have undergone mastectomy may find it difficult to view the surgical site for the first time. No matter how prepared the patient may think she is, the appearance of an absent breast can be very emotionally distressing. Ideally, the patient sees the incision for the first time when she is with the nurse or another health care provider who is available for support.

The nurse first assesses the patient's readiness and provides gentle encouragement. It is important to maintain the patient's privacy while assisting her as she views the incision; this allows her to express feelings safely to the nurse. Asking the patient what she perceives, acknowledging her feelings, and allowing her to express her emotions are important nursing actions. Reassuring the patient that her feelings are a normal response to breast cancer surgery may be comforting. If the patient has not had immediate reconstruction, providing her with a temporary breast form or soft padding to place in her bra on discharge can help alleviate feelings of embarrassment or self-consciousness.

PROMOTING POSITIVE ADJUSTMENT AND COPING

Providing ongoing assessment of how the patient is coping with her diagnosis of breast cancer and her surgical treatment is important in determining her overall adjustment. Assisting the patient in identifying and mobilizing her support systems can be beneficial to her well-being. The patient's spouse or partner may also need guidance, support, and education. The patient and partner may benefit from a wide network of available community resources, including the Reach to Recovery program of the ACS, advocacy groups, social worker, or a spiritual advisor. Encouraging the patient to discuss issues and concerns with other patients who have had breast cancer may help her to understand that her feelings are normal and that other women who have had breast cancer can provide invaluable support and understanding.

The patient may also have considerable anxiety about the treatments that will follow surgery (i.e., chemotherapy and radiation) and their implications. Providing her with information about the plan of care and referring her to the appropriate members of the health care team also promote coping during recovery. Some women require additional support to adjust to their diagnosis and the changes that it brings. If a woman displays difficulty coping, consultation with a mental health provider may be indicated. Nurse navigators can help those undergoing breast biopsy to cope.

MONITORING AND MANAGING POTENTIAL COMPLICATIONS

Lymphedema. Lymphedema is a complication characterized by a chronic swelling of an extremity due to interrupted lymphatic circulation. The swelling is due to the accumulation of protein-rich fluid in the interstitial space and is a somewhat common postoperative complication after ALND. It often affects both the breast and ipsilateral limb. It is associated with a painful swelling of the arm as well as weakness, shoulder pain, and tingling sensations in the arm and shoulder. After ALND, the risk of developing lymphedema may be as low as 11% or as high as 57% (Rivere & Klimberg, 2018). Because sentinel lymph node dissection (SLND) involves more focused surgery and less disruption of the axilla, the risk is only up to 7% within 5 years (Rivere & Klimberg, 2018). Risk factors for lymphedema in mixed-age groups include ALND, concomitant radiation therapy, increased age, presence of a concomitant infection, preexisting cardiovascular conditions, and obesity (Rivere & Klimberg, 2018).

Lymphedema results if functioning lymphatic channels are inadequate to ensure a return flow of lymph fluid to the general circulation. After axillary lymph nodes are removed, collateral circulation must assume this function. Transient edema in the postoperative period occurs until collateral circulation has completely taken over this function, which generally occurs within a month. Performing prescribed exercises, elevating the arm above the heart several times a day, and gentle muscle pumping (making a fist and releasing) can help reduce the transient edema. The patient needs reassurance that this transient swelling is not lymphedema.

Once lymphedema develops, it tends to be chronic, so preventive strategies are vital. After ALND, the patient is taught hand and arm care to prevent injury or trauma to the affected extremity, thus decreasing the likelihood for development of lymphedema (see [Chart 52-5](#)). The patient is instructed to follow these guidelines for the rest of her life. She is also instructed to contact her primary provider immediately if she suspects that she has lymphedema, because early intervention provides the best chance for control. If allowed to progress without treatment, the swelling can become more difficult to manage. Treatment may consist of a course of antibiotic agents if an infection is present. A referral to a rehabilitation specialist (e.g., occupational or physical therapist) may be necessary for a compression sleeve or glove, exercises, manual lymph drainage, and a discussion of ways to modify daily activities to avoid worsening lymphedema. Ongoing research is seeking to identify which lymph nodes drain the arm before surgery so that they can be

preserved when possible, helping to prevent the development of lymphedema. The practice of yoga may result in improved shoulder range of motion and upper extremity strength in women with postoperative lymphedema (Mazor, Lee, Peled, et al., 2018). See the Nursing Research Profile in [Chart 52-6](#).

Chart 52-5



PATIENT EDUCATION

Hand and Arm Care After Axillary Lymph Node Dissection

The nurse instructs the patient to:

- Avoid blood pressures, injections, and blood draws in affected extremity.
- Use sunscreen (higher than 15 SPF) for extended exposure to sun.
- Apply insect repellent to avoid insect bites.
- Wear gloves for gardening.
- Use cooking mitt for removing objects from oven.
- Avoid cutting cuticles; push them back during manicures.
- Use electric razor for shaving armpit.
- Avoid lifting objects heavier than 5 to 10 lb.
- If a trauma or break in the skin occurs, wash the area with soap and water, and apply an over-the-counter antibacterial ointment. Observe the area and extremity for 24 hours; if redness, swelling, or a fever occurs, call the surgeon or nurse.

Hematoma or Seroma Formation. Hematoma formation (collection of blood inside a cavity) may occur after either mastectomy or breast conservation and usually develops within the first 12 hours after surgery. The nurse assesses for signs and symptoms of hematoma at the surgical site, which may include swelling, tightness, pain, and bruising of the skin. The surgeon should be notified immediately if there is gross swelling or increased bloody output from the drain. Depending on the surgeon's assessment, a compression wrap may be applied to the incision for approximately 12 hours, or the patient may be returned to the operating room so that the incision may be reopened to identify the source of bleeding. Some hematomas are small, and the body absorbs the blood naturally. The patient may take warm showers (if permitted by the surgeon) or apply warm compresses to help increase the absorption. A hematoma usually resolves in 4 to 5 weeks.

Chart 52-6



NURSING RESEARCH PROFILE

Effect of Yoga on Lymphedema

Mazor, M., Lee, J. Q., Peled, A., et al. (2018). The effect of yoga on arm volume, strength, and range of motion in women at risk for breast cancer-related lymphedema. *Journal of Alternative and Complementary Medicine*, 24(2), 154–160.

Purpose

Breast cancer-related lymphedema (BCRL) is a complication of breast cancer that causes considerable morbidity. The intent of this study was to assess the feasibility, safety, and initial estimates of efficacy of a yoga program in the postoperative care of women at increased risk for BCRL.

Design

Twenty-one women were recruited at a breast care center in California. All participants were over 18 years of age, had undergone surgical intervention for breast cancer, and were at high risk for lymphedema. Women participated in an 8-week regimen of Ashtanga yoga, taking one instructor-led class weekly and also completing one self-led session weekly. Poses focused on upper-body strength and flexibility, while also avoiding placing the affected arm in a dependent position. Measurements of upper extremity volume, range of motion, and strength were assessed.

Findings

Twenty of the 21 participants finished the 8-week intervention and 17 completed the final assessment. The mean age was 52 years and body mass index was 24.8 kg/m². Postintervention mean upper extremity volumes were slightly decreased in the at-risk arm ($p = 0.397$). Range of motion in both shoulder flexion ($p < 0.01$) and external rotation ($p < 0.05$) improved significantly. After the intervention, strength also improved on the affected side for shoulder abduction, grip strength, and bilaterally for elbow flexion ($p < 0.05$ for all).

Nursing Implications

Nurses should know that yoga is feasible and safe to recommend for women at risk for BCRL and may result in small improvements in shoulder range of motion and upper extremity strength. Many women may have already been exposed to yoga or similar exercises prior to their cancer diagnosis and nurses can encourage these women to facilitate integration of this intervention into their postoperative care. The added benefits of yoga in providing stress reduction, mindfulness, breathing practices, and meditation may also contribute to a woman's sense of well-being and self-care.

A seroma, a collection of serous fluid, may accumulate under the breast incision after mastectomy or breast conservation or in the axilla. Signs and symptoms may include swelling, heaviness, discomfort, and a sloshing of fluid. Seromas may develop temporarily after the drain is removed or if the drain is in place and becomes obstructed. Seromas rarely pose a threat and may be treated by unclogging the drain or manually aspirating the fluid with a needle and syringe. Large, long-standing seromas that have not been aspirated may lead to infection. Small seromas that are not bothersome to the patient usually resolve on their own.

Infection. Although infection is rare, it is a risk after any surgical procedure. This risk may be higher in patients with conditions such as diabetes, immune disorders, and advanced age, as well as in those with poor hygiene. Patients are taught to monitor for signs and symptoms of infection (redness, warmth around incision, tenderness, foul-smelling drainage, temperature greater than 38°C [100.4°F], chills) and to contact the

surgeon or nurse for evaluation. Treatment consists of oral or IV antibiotics (for more severe infections) for 1 or 2 weeks. Cultures are taken of any foul-smelling discharge.

Changes in Sexual Function. Once discharged from the hospital and feeling well, most patients are physically allowed to engage in sexual activity, if interested. However, any change in the patient's body image, self-esteem, or the response of her partner may increase her anxiety level and affect sexual function. Some partners may have difficulty looking at the incision, whereas others may be completely unaffected. Encouraging the patient to openly discuss how she feels about herself and about possible reasons for a decrease in libido (e.g., fatigue, anxiety, self-consciousness) may help clarify issues for her. Helpful suggestions for the patient may include varying the time of day for sexual activity (when the patient is less tired), assuming positions that are more comfortable, and expressing affection using alternative measures (e.g., hugging, kissing, manual stimulation).

Most patients and their partners adjust with minimal difficulty if they openly discuss their concerns. However, if issues cannot be resolved, a referral for counseling (e.g., psychologist, psychiatrist, psychiatric clinical nurse specialist, social worker, sex therapist) may be helpful. The ambulatory care nurse in the outpatient clinic or hospital should inquire whether the patient who was sexually active prior to surgery has resumed activities, because many patients are reluctant or embarrassed to bring this topic up themselves.

PROMOTING HOME, COMMUNITY-BASED, AND TRANSITIONAL CARE



Educating Patients About Self-Care. Patients who undergo breast cancer surgery receive a tremendous amount of information both pre- and postoperatively. It is often difficult for the patient to absorb all of the information, partly because of the emotional distress that often accompanies the diagnosis and treatment. Prior to discharge, the nurse must assess the patient's readiness to assume self-care responsibilities and identify any gaps in knowledge. A review of education provided in written and oral forms, with reinforcement, may be required to ensure that the patient and family are prepared to manage the necessary care at home. The nurse reiterates symptoms that the patient should report, such as infection, seroma, hematoma, or arm swelling. All instruction should be reinforced during office visits and by telephone.

Most patients are discharged 1 or 2 days after ALND or mastectomy (possibly later if they have had immediate reconstruction) with surgical drains in place. Initially, the drainage fluid appears bloody, but it gradually changes to a serosanguineous and then a serous fluid over the next several days. The patient is given instructions about drainage management at home (see [Chart 52-7](#)). If the patient lives alone and drainage management is difficult, a referral for a home health nurse should be made. The drains are usually removed when the output is less than 30 mL in two consecutive 24-hour periods (approximately 7 to 10 days) (Grobmyer & Bland, 2018). The home health nurse also reviews pain management and incision care.

Chart 52-7 HOME CARE CHECKLIST

Patient with a Drainage Device Following Breast Surgery

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

- Name the procedure that was performed and identify changes in anatomic structure or function as well as changes in ADLs, IADLs, roles, relationships, and spirituality.
- Identify interventions and strategies (e.g., prosthesis) used in adapting to any permanent changes in structure or function.
- Describe ongoing postoperative therapeutic regimen, including diet and activities to perform (e.g., when to shower, arm exercises) and to limit or avoid (e.g., lifting weights, driving a car, contact sports).
- State the name, dose, side effects, frequency, and schedule for all medications.
 - Describe approaches to controlling pain (e.g., take analgesics as prescribed; use nonpharmacologic interventions).
- State how to obtain medical supplies and carry out dressing changes, wound care, and other prescribed regimens.
 - Care for the drain site and incision as per surgeon's recommendation.
 - Demonstrate how to empty and measure fluid from the drainage device.
 - Demonstrate how to milk clots through the tubing of the drainage device.
 - Identify when the drain is ready for removal (usually when draining <30 mL for 24 to 48 hours).
- Describe signs and symptoms of complications.
 - State observations that require contacting the primary provider or nurse (e.g., sudden change in color of drainage, sudden cessation of drainage, signs or symptoms of an infection).
- Relate how to reach primary provider with questions or complications.
- State time and date of follow-up appointments, therapy, and testing.
- Identify sources of support (e.g., friends, relatives, faith community).
- Identify the contact details for support services (for patients and their caregivers/families).
- Identify the need for health promotion, disease prevention, and screening activities (e.g., gynecologic examination, mammogram).

ADL, activities of daily living; IADL, instrumental activities of daily living.

In general, the patient may shower on the second postoperative day and wash the incision and drain site with soap and water to prevent infection. Some surgeons do not permit showers until 48 hours after drains are removed. If immediate reconstruction has been performed, showering may be contraindicated until the drain is removed. A dry dressing may be applied to the incision each day for 7 days. The patient should realize that sensation may be decreased in the operative area because the nerves were disrupted during surgery, and she should be informed that gentle care is needed to avoid injury. After the incision has completely healed (usually after 4 to 6 weeks), lotions or creams may be applied to the area to increase skin elasticity. The patient can begin to use deodorant on the affected side, although many women note that they no longer perspire as much as before the surgery.

After ALND, patients are taught arm exercises on the affected side to restore range of motion (see [Chart 52-8](#)). After SLNB, patients may also benefit from these exercises, although they are less likely to have decreased range of motion than those who have undergone ALND. Range-of-motion exercises are initiated on the second postoperative day; however, instruction often occurs on the first postoperative day. The goals of the

exercise regimen are to increase circulation and muscle strength, prevent joint stiffness and contractures, and restore full range of motion. The patient is instructed to perform range-of-motion exercises at home three times a day for 20 minutes at a time until full range of motion is restored (generally 4 to 6 weeks). Most patients find that after the drain is removed, range of motion returns quickly if they have adhered to their exercise program.

Chart 52-8



PATIENT EDUCATION

Exercise After Breast Surgery

The nurse instructs the patient to perform the following exercises:

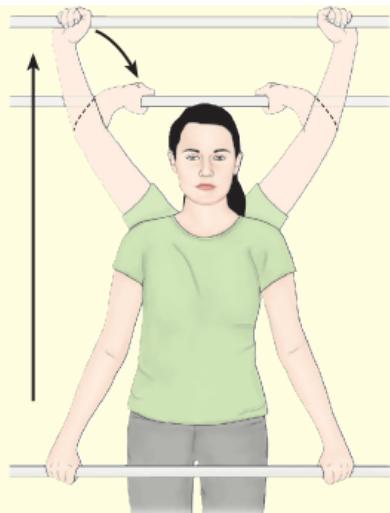
1. *Wall hand climbing.* Stand facing the wall with feet apart and toes as close to the wall as possible. With elbows slightly bent, place the palms of the hand on the wall at shoulder level. By flexing the fingers, work the hands up the wall until arms are fully extended. Then reverse the process, working the hands down to the starting point.



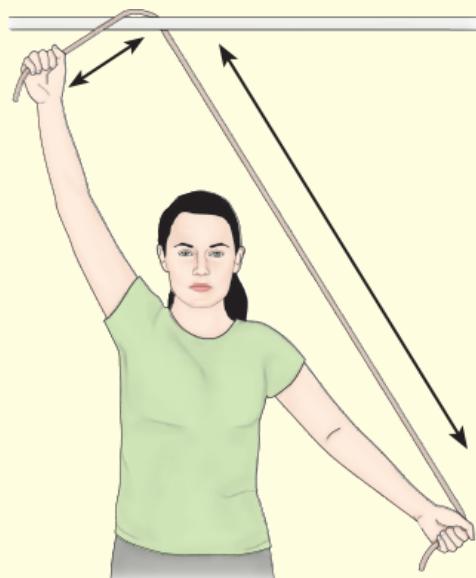
2. *Rope turning.* Tie a light rope to a doorknob. Stand facing the door. Take the free end of the rope in the hand on the side of surgery. Place the other hand on the hip. With the rope-holding arm extended and held away from the body (nearly parallel with the floor), turn the rope, making as wide swings as possible. Begin slowly at first; speed up later.



3. *Rod or broomstick lifting.* Grasp a rod with both hands, held about 2 feet apart. Keeping the arms straight, raise the rod over the head. Bend elbows to lower the rod behind the head. Reverse maneuver, raising the rod above the head, then return to the starting position.



4. *Pulley tugging.* Toss a light rope over a shower curtain rod or doorway curtain rod. Stand as close to the rope as possible. Grasp an end in each hand. Extend the arms straight and away from the body. Pull the left arm up by tugging down with the right arm, then the right arm up and the left down in a see-sawing motion.



If the patient is having any discomfort, taking an analgesic agent 30 minutes before beginning the exercises can be helpful. Taking a warm shower before exercising can also loosen stiff muscles and provide comfort. When exercising, the patient is encouraged to use the muscles in both arms and to maintain proper posture. Specific exercises may need to be prescribed and introduced gradually if the patient has had skin grafts; has a tense, tight surgical incision; or has had immediate reconstruction. Self-care activities, such as brushing the teeth, washing the face, and brushing the hair, are physically and emotionally therapeutic because they aid in restoring arm function and provide a sense of normalcy for the patient.

The patient is instructed about postoperative activity limitation. In general, heavy lifting (more than 5 to 10 lb) is avoided for about 4 to 6 weeks, although normal household and work-related activities are promoted to maintain muscle tone. Brisk walking, the use of stationary bikes and stepping machines, and stretching exercises may

begin as soon as the patient feels comfortable. Once the drain is removed, the patient may begin to drive if she has full arm range of motion and is no longer taking opioid analgesic agents. General guidelines for activity focus on the gradual introduction of previous activities (e.g., bowling, weight training) once fully healed.

Continuing and Transitional Care. Patients who have difficulty managing their postoperative care at home may benefit from a referral for home health, transitional, or community-based care. The nurse making a home visit assesses the patient's incision and surgical drain(s), adequacy of pain management, adherence to the exercise plan, and overall physical and psychological functioning. In addition, the home health nurse reinforces previous education and communicates important physiologic findings and psychosocial issues to the patient's primary provider, nurse, or surgeon.

The frequency of follow-up visits after surgery may vary but generally should occur every 3 to 6 months for the first several years. These visits may occur with the surgeon, medical oncologist or radiation oncologist, depending on the treatment regimen. The ambulatory care nurse can also be a great source of education for the patient and family and should encourage them to telephone if they have any questions or concerns. It is common for people to ignore routine health care when a major health issue arises, so women who have been treated for breast cancer should be reminded of the importance of participating in routine health screening.

Evaluation

Expected preoperative patient outcomes may include:

1. Exhibits knowledge about diagnosis and surgical treatment options
 - a. Asks relevant questions about diagnosis and available surgical treatments
 - b. States rationale for surgery
 - c. Describes advantages and disadvantages of treatment options
2. Verbalizes willingness to deal with anxiety and fears related to the diagnosis and the effects of surgery on self-image and sexual functioning
3. Demonstrates ability to cope with diagnosis and treatment
 - a. Verbalizes feelings appropriately and recognizes normalcy of mood lability
 - b. Proceeds with treatment in timely fashion
 - c. Discusses impact of diagnosis and treatment on family and work
4. Makes decisions regarding treatment options in timely fashion

Expected postoperative patient outcomes may include:

1. Reports that pain has decreased and states pain and discomfort management strategies are effective
2. Identifies postoperative sensations and recognizes that they are a normal part of healing
3. Exhibits clean, dry, and intact surgical incisions without signs of inflammation or infection
4. Lists the signs and symptoms of infection to be reported to the nurse or surgeon
5. Verbalizes feelings regarding change in body image
6. Discusses meaning of the diagnosis, surgical treatment, and fears appropriately
7. Participates actively in self-care measures
 - a. Performs exercises as prescribed
 - b. Participates in self-care measures as prescribed
8. Discusses issues of sexuality and resumption of sexual relations
9. Demonstrates knowledge of post discharge recommendations and restrictions
 - a. Describes follow-up care and activities
 - b. Demonstrates appropriate care of incisions and drainage system

- c. Demonstrates arm exercises, and describes exercise regimen and activity limitations during postoperative period
 - d. Describes care of affected arm and hand, and lists indications to contact the surgeon or nurse
10. Experiences no complications
- a. Identifies signs and symptoms of reportable complications (e.g., fever, redness, heat, pain, edema)
 - b. Explains how to contact appropriate providers in case of complications

Radiation Therapy

Radiation therapy is used to decrease the chance of a local recurrence in the breast by eradicating residual microscopic cancer cells. Breast conservation treatment followed by radiation therapy for stages I and II breast cancer results in a survival rate equal to that of a mastectomy (Freedman, 2018a). If radiation therapy, which is part of breast conservation treatment (see [Chart 52-9](#)), is contraindicated, a mastectomy would then be indicated.

Chart 52-9

Contraindications to Breast Conservation Treatment

Note: Breast-conservation treatment includes both surgery and radiation.

Absolute Contraindications

- First or second trimester of pregnancy
- Prior radiation to the breast or chest region
- Patient preference for mastectomy

Relative Contraindications

- History of collagen vascular disease
- Large tumor-to-breast ratio
- High probability of recurrence
- High probability of problems with radiation therapy
- Two or more tumors in different quadrants of the breast

Adapted from Rivere, A., & Klimberg, V. (2018). Lymphedema in the postmastectomy patient: Pathophysiology, prevention, and management. In K. Bland, E. Copeland, V. Klimberg, et al. (Eds.). *The breast: comprehensive management of benign and malignant diseases* (5th ed.). Philadelphia, PA: Elsevier.

External-beam radiation (the most common type) typically begins about 6 weeks after breast conservation to allow the surgical site to heal. If systemic chemotherapy is indicated, radiation therapy usually begins after its completion. Before radiation begins, the patient undergoes a planning session called a *simulation*, in which the anatomic areas to be treated are mapped out and then identified with small permanent ink markings (National Cancer Institute, 2018b). External-beam radiation, which delivers high-energy photons from a linear accelerator, is given to the entire breast region (whole breast radiation). Each treatment lasts only a few minutes and is generally given 5 days a week for 5 to 6 weeks. After completion of radiation to the entire breast, many patients receive a “boost”—a dose of radiation to the

lumpectomy site where the cancer cells were located. The boost consists of the same dose of radiation but is less penetrating and directed to a smaller area. The treatments are not painful.

Because most breast cancer recurrences appear at or near the lumpectomy site, the need for whole breast radiation has been questioned. Partial breast radiation (radiation to the lumpectomy site alone) continues to be evaluated at some institutions in patients who have been carefully selected. One approach is **brachytherapy**, in which radiation is delivered by an internal device that is placed inside or adjacent to the tumor within the breast. This technique can lead to an improved quality of life because the treatments are given over 4 to 5 days instead of 5 to 6 weeks. After mastectomy, postoperative radiation may be indicated for women at high risk for cancer recurrence (i.e., chest wall involvement, four or more positive lymph nodes, tumors larger than 5 cm, positive surgical margins).

Side Effects

In general, radiation therapy is well tolerated. Acute side effects consist of mild to moderate erythema, breast edema, and fatigue. Occasionally, skin breakdown may occur in the inframammary fold or near the axilla toward the end of treatment; breakdown may be managed by application of topical medications between treatments (Freedman, 2018b). Fatigue can be depressing, as can the frequent trips to the radiation oncology unit for treatment. The patient needs to be reassured that the fatigue is normal and not a sign of recurrence. Side effects usually resolve within a few weeks to a few months after treatment is completed. Some long-term effects of radiation therapy include lung disease, dental disease, osteoporosis, and heart and vascular disease (Pedersen & Klemp, 2018).

Nursing Management

Nurses play a significant role in supporting patients throughout their treatment with radiation therapy. During brachytherapy, the radiation source will give off radiation. Patients must be educated about safety measures, including any restrictions to visitors, especially young children and pregnant women (National Cancer Institute, 2018a). See [Chapter 12](#) for discussion of radiation therapy.

Self-care instructions for patients receiving radiation are provided to assist in the maintenance of skin integrity during the treatments and for several weeks after completion. They pertain only to the area being treated and not to the rest of the body. Instructions from the National Cancer Institute (2018c) include:

- Use mild soap with minimal rubbing.
 - Avoid perfumed soaps or deodorants.
 - Use hydrophilic lotions for dryness.
 - Use a nondrying, antipruritic soap if pruritus occurs.
 - Avoid tight clothes, underwire bras, excessive temperatures, and ultraviolet light.

Follow-up care includes educating the patient to minimize sun exposure to the treated area (i.e., using sunblock with sun protection factor [SPF] of 15 or higher) and reassuring the patient that short-term minor twinges and pain in the breast are normal after radiation treatment.

Systemic Treatments

Chemotherapy

Adjvant chemotherapy involves the use of anticancer agents in addition to other treatments (i.e., surgery, radiation) to delay or prevent a recurrence of breast cancer. It is generally recommended for patients who have positive lymph nodes or who have invasive tumors greater than 1 cm in size, regardless of nodal status. It is considered in patients with smaller tumors; involvement of lymph nodes affects the decision-making process (NCCN, 2019). Table 52-6 outlines general indications for adjvant chemotherapy. A survival benefit has been shown in both women who are pre- and postmenopausal and who have received chemotherapy, although data are limited in women older than 70 years. Chemotherapy is most commonly initiated after breast surgery and before radiation. Preoperative therapy may be considered in order to shrink tumor size to support breast conservation (Telli, 2018). Patients with triple-negative breast cancer (cancer that tests negative for estrogen receptors, progesterone receptors, and excess HER2 protein) who delay initiation of chemotherapy beyond 30 days postsurgery have an increased risk of recurrence (DePolo, 2018). Nurses encourage and assist in facilitating timely treatment to optimize outcomes.

TABLE 52-6 General Indications for Adjvant Chemotherapy for Breast Cancer

Nodal Status, Tumor Size	Adjvant Chemotherapy
Node negative, ≤0.5 cm	None
Node negative 0.6–1 cm (well differentiated)	None
Node negative, 0.6–1 cm (moderately or poorly differentiated and unfavorable features)	Consider chemotherapy
Node negative, >1 cm	Chemotherapy
Node positive, any tumor size	Chemotherapy

- In addition to chemotherapy, patients with HER-2/neu-positive tumors will receive trastuzumab if they have node-positive disease; or node-negative disease with a tumor >1 cm. Trastuzumab is a monoclonal antibody that targets and inactivates the HER-2/neu protein. HER-2/neu is overproduced in 25–30% of tumors and is associated with rapid growth and poor prognosis.
- Following chemotherapy, patients with hormone receptor positive (ER+/PR+) tumors will receive hormonal therapy (tamoxifen or aromatase inhibitor) if they have either node-positive disease; node-negative disease with a tumor >1 cm; or node-negative disease with a tumor 0.6–1 cm and moderately or poorly differentiated and unfavorable features.

Note: These are only general guidelines. Recommendations may vary depending on factors such as prognostic variables, patient age, and comorbid conditions.

Adapted from National Comprehensive Cancer Network (NCCN). (2019). Clinical practice guidelines: Breast. Retrieved on 9/9/2019 at: www.nccn.org/professionals/physician_gls/pdf/breast_risk.pdf

Chemotherapy regimens for breast cancer combine several agents (polychemotherapy), generally given over a period of 3 to 6 months. Decisions regarding the optimal regimen are based on a variety of factors, including tumor characteristics (i.e., tumor size, lymph node status, hormone receptor status, HER-2/neu status) and the patient's age, physical status, and existing comorbid conditions. A regimen that includes cyclophosphamide, methotrexate, and fluorouracil (collectively referred to as CMF) has been the most widely used adjvant therapy. It is usually well tolerated and may be considered for patients with a low risk of recurrence. CMF also may be considered for use in patients who have a high risk of cardiac toxicity or who have other limiting comorbidities. Anthracycline-based regimens (e.g., doxorubicin, epirubicin) have shown longer survival in patients. However, the benefit relative to CMF is modest and is accompanied by increased toxicity, especially to the bone marrow (Santa-Maria & Gradishar, 2018). Selection of patients most likely to benefit from anthracycline therapy would allow better use of current cytotoxic agents and reduce the risk of patients receiving toxicity with little or no effect. Cyclophosphamide, doxorubicin (trade

name Adriamycin), and fluorouracil (CAF) and doxorubicin and cyclophosphamide (AC) are examples of the trade names of combination regimens often given to patients who are at high risk. Identifying biomarkers that can accurately predict benefit from specific chemotherapeutic agents will also highlight key resistance/susceptibility pathways that can then be exploited clinically to further increase efficacy and ensure timely treatment (Korourian, Kumarapeli, & Klimberg, 2018).

The taxanes (paclitaxel, docetaxel) are generally incorporated into treatment regimens for patients with larger, node-negative cancers and for those with positive axillary lymph nodes. The addition of four cycles of paclitaxel after a standard course of AC has been found to increase the disease-free period and improve overall survival in patients with operable breast cancer and positive lymph nodes (NCCN, 2019).

Much attention has been focused on **dose-dense chemotherapy**, which is the administration of chemotherapeutic agents at standard doses with shorter time intervals between each cycle of treatment. Cells are more sensitive to chemotherapy during rapid growth phase, so more frequent doses kill more cancer cells than increased doses (Santa-Maria & Gradishar, 2018). Dose density is standard of care with some breast cancers, but is still controversial with estrogen-receptor positive disease.

Side Effects

Many of the side effects of adjuvant chemotherapy can be managed well, allowing patients to maintain their daily routines and work schedules. In large part, this is the result of the meticulous educational and psychological preparation provided to patients and their families by oncology nurses, oncologists, social workers, and other members of the health care team. In addition, strides have been made in the effectiveness of antiemetic agents used to alleviate nausea and vomiting and the use of hematopoietic growth factors to treat neutropenia and anemia.

Common physical side effects of chemotherapy for breast cancer may include nausea, vomiting, bone marrow suppression, taste changes, alopecia (hair loss), mucositis, neuropathy, skin changes, and fatigue. A weight gain of more than 10 lb occurs in about half of all patients; the cause is unknown. Women who are premenopausal may also experience temporary or permanent amenorrhea.

Specific side effects vary with the type of chemotherapeutic agent used. In general, CMF and the taxanes are better tolerated than the anthracyclines. However, the taxanes can cause peripheral neuropathy, arthralgias, and myalgias, particularly at high doses. During taxane administration, hypersensitivity reactions may occur; therefore, the patient must be premedicated with corticosteroids and antihistamines. Alopecia is also common. The side effects of the anthracyclines may be severe and include cardiotoxicity in addition to nausea and vomiting, bone marrow suppression, and alopecia. Their vesicant properties can lead to tissue necrosis if infiltration of the medication infusion occurs.

Nursing Management

Nurses play an important role in helping patients manage the physical and psychosocial sequelae of chemotherapy. ([Chapter 12](#) provides an in-depth discussion of side effect management.) Educating the patient about the use of antiemetic agents and reviewing the optimal dosage schedule can help minimize nausea and vomiting. The different classes of antiemetic agents include serotonin (5-HT₃) receptor antagonists (palonosetron, granisetron, ondansetron); neurokinin-1 receptor antagonists (aprepitant); dopamine receptor antagonists (prochlorperazine, metoclopramide); benzodiazepines (lorazepam); and corticosteroids (dexamethasone). Measures to ease the symptoms of mucositis may include rinsing with

normal saline or sodium bicarbonate solution, avoiding hot and spicy foods, and using a soft toothbrush.

Chart 52-10 HOME CARE CHECKLIST

Self-Administration of Hematopoietic Growth Factors

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

- State the impact of treatment on physiologic functioning, ADLs, IADLs, roles, relationships, and spirituality.
- Identify the benefits and expected outcome of hematopoietic growth factors.
- Locate list of names and telephone numbers of resource personnel involved in care (e.g., health care professionals, home health nurse, hematopoietic growth factor and supply vendor).
- Identify the equipment necessary for self-injection and how to obtain hematopoietic growth factor and supplies.
- Demonstrate how to give an injection properly, including:
 - How to draw up the solution in a syringe if indicated. (*Note:* Darbepoetin and pegfilgrastim come in prefilled syringes; pegfilgrastim also comes in an on-body injector placed by a nurse and monitored by the patient or caregiver.)
 - Identify appropriate body sites for self-injection.
 - Demonstrate correct disposal of sharps.
 - Describe proper storage of supplies.
- State what types of lifestyle and environmental changes are needed (if any) to maintain a clean home environment and prevent infection.
- State the name, dose, side effects, frequency, and schedule for all medications.
- List complications of medications/therapeutic regimen necessitating a call to the nurse or primary provider (e.g., excessive pain, fever).
- List complications of medications/therapeutic regimen necessitating a visit to the emergency department.
- Explain treatment plan and importance of follow-up care to all health care providers.
 - State time and date of follow-up appointments, therapy, and testing.
- Identify community resources for peer and caregiver/family support:
 - Identify sources of support (e.g., friends, relatives, faith community).
 - Identify the contact details for support services for patients and their caregivers/families.
- Identify the need for health promotion, disease prevention, and screening activities.

ADL, activities of daily living; IADL, instrumental activities of daily living.

Some patients may require hematopoietic growth factors to minimize the effects of chemotherapy-induced neutropenia and anemia. Granulocyte colony-stimulating factors boost the white blood cell count, helping to reduce the incidence of neutropenic fever and infection. The short-acting form, filgrastim, is injected subcutaneously or IV for 7 to 10 days after chemotherapy administration. The long-acting form, pegfilgrastim, is injected once, no earlier than 24 hours after chemotherapy (Vallerand & Sanoski, 2018). Erythropoietin growth factor increases the production of red blood cells, thus decreasing the symptoms of anemia. The short-acting form, epoetin alfa is usually given weekly. The long-acting form, darbepoetin alfa, can be given every 2 to 3 weeks. The nurse instructs the patient and family

on proper injection technique of hematopoietic growth factors and about symptoms that require follow-up with a primary provider (see [Chart 52-10](#)).

To prevent some of the emotional trauma associated with alopecia, it often helps to have a patient obtain a wig before hair loss begins to occur. The nurse may provide a list of wig suppliers in the patient's geographic region. Familiarity with creative ways to use scarves and turbans may also help minimize the patient's distress. The patient needs reassurance that new hair will grow back when treatment is completed, although the color and texture may be different. The ACS offers the Look Good Feel Better program, which provides useful tips for applying cosmetics during the period a patient is receiving chemotherapy (see Resources section).

Chemotherapy may negatively affect the patient's self-esteem, sexuality, and sense of well-being. This, combined with the stress of a potentially life-threatening disease, can be acute. Providing support and promoting open communication are important aspects of nursing care. Referring the patient to the dietitian, social worker, psychiatrist, or spiritual advisor can provide additional support. Numerous community support and advocacy groups are available for patients and their families. Complementary therapies, such as guided imagery, meditation, and relaxation exercises, can also be used in conjunction with conventional treatments.

Hormonal Therapy

The use of **adjuvant hormonal therapy**, with or without the addition of chemotherapy, is considered in women who have hormone receptor-positive tumors. Its use can be determined by the results of an estrogen and progesterone receptor assay (a test to determine whether the breast tumor is nourished by hormones). About two thirds of breast cancers depend on estrogen for growth and express a nuclear receptor that binds to the estrogen; thus, they are estrogen receptor positive (ER+). Similarly, tumors that express the progesterone receptor are progesterone receptor positive (PR+). Hormonal therapy involves the use of synthetic hormones or other medications that compete with estrogen by binding to the receptor sites (SERMs), or the use of **aromatase inhibitors**, which block estrogen production by the adrenal glands. In general, tumors that are ER+/PR+ have the greatest likelihood of responding to hormonal therapy and have a more favorable prognosis than those that are ER-/PR-. Women who are pre- and perimenopausal are more likely to have non-hormone-dependent lesions, whereas women who are postmenopausal are more likely to have hormone-dependent lesions.

Traditionally, the SERM tamoxifen has been the main hormonal agent used in treatment of pre- and postmenopausal breast cancer and remains the mainstay in women who are premenopausal. As an SERM, tamoxifen has estrogen antagonistic (estrogen-blocking) and agonistic (estrogenlike) effects on certain tissues. Its antagonistic effects in the breast prevent estrogen from binding to the receptor sites, thus preventing tumor growth. Tamoxifen has positive agonistic effects on blood lipid profiles and bone mineral density in women who are postmenopausal. It also has agonistic effects on endometrial tissue and blood coagulation processes, leading to an increased incidence of endometrial cancer and thromboembolic events (e.g., deep vein thrombosis [DVT], superficial phlebitis, pulmonary embolism). Nevertheless, the benefits in most women with breast cancer outweigh the risks.

The aromatase inhibitors anastrozole, letrozole, and exemestane are important components in the hormonal management of women who are postmenopausal. Most of the circulating estrogens in women who are postmenopausal are derived from the conversion of the adrenal androgen androstenedione to estrone and the conversion of testosterone to estradiol. Aromatase inhibitors work by blocking the enzyme aromatase from performing the conversion, thereby decreasing the level of circulating estrogen in peripheral tissues. Clinical

trials have demonstrated that the aromatase inhibitors are superior to tamoxifen in terms of overall response rate and clinical benefit and that inhibitors appear to be effective and feasible compared with tamoxifen as first-line hormonal therapy in women who are postmenopausal with advanced breast cancer (Santa-Maria & Gradishar, 2018). These data ensure that aromatase inhibitors will play an increasingly central role in the long-term management of breast cancer. Trials are ongoing to determine the optimal treatment regimen and the timing of the treatment; possible eligibility for a clinical trial should be discussed between the patient and the care team. [Table 52-7](#) outlines the adverse effects of adjuvant hormonal therapy. [Chart 52-11](#) outlines appropriate patient education to manage the adverse effects.

TABLE 52-7 Adverse Reactions Associated with Adjuvant Hormonal Therapy Used to Treat Breast Cancer

Therapeutic Agent	Adverse Reactions/Side Effects
Selective Estrogen Receptor Modulator	
tamoxifen	Hot flashes, vaginal dryness/discharge/bleeding, irregular menses, nausea, mood disturbances, rashes; increased risk for endometrial cancer; increased risk for thromboembolic events (deep vein thrombosis, pulmonary embolism, superficial phlebitis)
Aromatase Inhibitors	
anastrozole letrozole exemestane	Musculoskeletal symptoms (arthritis, arthralgia, myalgia), increased risk of osteoporosis/fractures, nausea/vomiting, hot flashes, fatigue, mood disturbances, rashes

Adapted from Vallerand, A., & Sanoski, C. (2018). *Davis's drug guide for nurses* (15th ed.). Philadelphia, PA: Davis.

Targeted Therapy

An exciting area of research in the systemic treatment of breast cancer involves the use of targeted therapies. Trastuzumab is a monoclonal antibody that binds specifically to the **HER-2/neu** protein. This protein, which regulates cell growth, is present in small amounts on the surface of normal breast cells and in most breast cancers. Approximately 20% of tumors overexpress (overproduce) the HER-2/neu protein and are associated with rapid growth and poor prognosis (Mayo Clinic, 2020). Trastuzumab targets and inactivates the HER-2/neu protein, thus slowing tumor growth.

Unlike chemotherapy, trastuzumab spares the normal cells and has limited adverse reactions, which may include fever, chills, nausea, vomiting, diarrhea, and headache. However, when trastuzumab is given to patients who have previously been treated with an anthracycline, the risk of cardiac toxicity is increased. The medication has been shown to improve survival rates in women with HER-2/neu-positive metastatic breast cancer and is now regarded as standard therapy. Recently, three other HER2-targeting agents have entered routine clinical practice. These include a small molecule receptor tyrosine kinase inhibitor (lapatinib) and two novel HER2-targeting monoclonal antibodies (pertuzumab and ado-trastuzumab emtansine). Assessing the benefits and risks of these medications is complex, and medical oncologists often use a variety of aids in their decision making (Sledge, 2018).

Chart 52-11



PATIENT EDUCATION

Managing Side Effects of Adjuvant Hormonal Therapy in Breast Cancer

The nurse instructs the patient in strategies to manage the following side effects:

Hot Flashes

- Wear breathable, layered clothing.
- Avoid caffeine and spicy foods.
- Perform breathing exercises (paced respirations).
- Consider medications (vitamin E, antidepressants) or acupuncture.

Vaginal Dryness

- Use vaginal moisturizers for everyday dryness (e.g., Replens, vitamin E suppository).
- Apply vaginal lubrication during penile–vaginal intercourse (e.g., Astroglide, K-Y Jelly).

Nausea and Vomiting

- Consume a bland diet.
- Try to take medication in the evening.

Musculoskeletal Symptoms

- Take nonsteroidal analgesic agents as recommended.
- Take warm baths.

Risk of Endometrial Cancer

- Report any irregular bleeding to a gynecologist for evaluation.

Risk for Thromboembolic Events

- Report any redness, swelling, or tenderness in the lower extremities, or any unexplained shortness of breath.

Risk for Osteoporosis or Fractures

- Undergo a baseline bone density scan.
- Perform regular weight-bearing exercises.
- Take calcium supplements with vitamin D.
- Take bisphosphonates (e.g., alendronate) or calcitonin as prescribed.

Treatment of Recurrent and Metastatic Breast Cancer

Despite the advances made in the treatment of breast cancer, it may recur locally (on the chest wall or in the conserved breast), regionally (in the remaining lymph nodes), or systemically (in distant organs). In metastatic disease, the bone, usually the hips, spine, ribs, skull, or pelvis, is the most common site of spread. Other sites of metastasis include the lungs, liver, pleura, and brain.

The overall prognosis and optimal treatment are determined by a variety of factors such as the site and extent of recurrence, the time to recurrence from the original diagnosis, history of prior treatments, the patient's performance status, and any existing comorbid conditions.

Patients with bone metastases generally have a longer overall survival compared with metastases in visceral organs.

Local recurrence in the absence of systemic disease is treated aggressively with surgery, radiation, and hormonal therapy. Chemotherapy may also be used for tumors that are not hormonally sensitive. Identifying a local recurrence may be an indicator of occult systemic disease (Wapnir, Tsai, & Aebi, 2018).

Metastatic breast cancer involves control of the disease rather than cure, individualized to location of the metastasis (NCCN, 2019). Treatment includes hormonal therapy, chemotherapy, and targeted therapy. Surgery or radiation may be indicated in select situations. Women who are premenopausal and who have hormonally dependent tumors may eliminate the production of estrogen by the ovaries through oophorectomy (removal of the ovaries) or suppression of estrogen production by medications such as leuprolide or goserelin.

Patients with advanced breast cancer are monitored closely for signs of disease progression. Baseline studies are obtained at the time of recurrence. These may include complete blood count; comprehensive metabolic panel; tumor markers (i.e., carcinoembryonic antigen, cancer antigen 15-3); bone scan; CT of the chest, abdomen, and pelvis; and MRI of symptomatic areas. Additional x-rays may be performed to evaluate areas of pain or abnormal areas seen on bone scan (e.g., long bones, pelvis). These studies are repeated at regular intervals to assess for effectiveness of treatment and to monitor progression of disease.

Nursing Management

Nurses play an important role in not only educating patients and managing their symptoms but also in providing emotional support. Many patients find that recurrence of the disease is more distressing than the initial cancer diagnosis. They not only have to contend with another round of treatments but are also faced with a greater uncertainty about their future and long-term survival. The nurse can help the patient identify coping strategies and set priorities to optimize quality of life. Family members and significant others should be included in the treatment plan and follow-up care. Referrals to support groups, as well as psychiatry or psychiatric clinical nurse specialist, social work, and complementary medicine programs (e.g., guided imagery, meditation, yoga), should be made as indicated.

Nurses can also be instrumental in providing palliative care, if indicated. The highest priorities include alleviating pain and providing comfort measures. A frank discussion with the patient and family regarding their preferences for end-of-life care should occur before the need arises to ensure a smooth transition without disruption of care. Referrals to hospice and home health care should be initiated as necessary (see Chapters 12 and 13).

Reconstructive Procedures After Mastectomy

Breast reconstruction can provide a significant psychological benefit for women who are already struggling with the emotional distress of losing a breast. A consultation with a plastic surgeon can help the patient understand procedures for which she is a candidate and the pros and cons of each. Factors to consider include body size and shape, comorbid conditions (e.g., hypertension, diabetes, obesity), personal habits such as smoking, and patient preference. The patient must be informed that although breast reconstruction can provide a good cosmetic result, it will never precisely duplicate the natural breast. Realistic preparation can help the patient avoid unrealistic expectations. Once reconstruction is complete, the opposite breast may require augmentation, reduction, or mastopexy to achieve symmetry on both sides. The

patient must also be informed that breast reconstruction will not affect the risk of cancer recurrence. Reconstruction is considered an integral component in the surgical treatment of breast cancer and is usually covered by insurance companies.

Many women elect immediate reconstruction at the time of the mastectomy operation. This can be beneficial in that it saves the woman from undergoing general anesthesia a second time and saves the cost and stress of future hospitalizations. However, it does increase the length of the surgical procedure. Delayed reconstruction is preferable in women who are having a difficult time deciding on the type of reconstruction that they desire. It may also be preferable in patients with advanced disease such as inflammatory breast cancer, where the breast cancer treatments should begin without delay; delayed reconstruction may also be beneficial if radiation is planned, as radiation therapy is technically less complicated on an unreconstructed chest wall (Fayanju, Garvey, Karuturi, et al., 2018). Any delays in healing after immediate reconstruction may interfere with the initiation of treatment.

Tissue Expander Followed by Permanent Implant

Breast reconstruction using a tissue expander followed by a permanent implant is the simplest and most common method in use (see Fig. 52-6). To accommodate an implant, the skin remaining after a mastectomy and the underlying muscle must gradually be stretched by a process called *tissue expansion*. The surgeon places a tissue expander (a balloonlike device) through the mastectomy incision underneath the pectoralis muscle. A small amount of saline is injected through a metal port intraoperatively to partially inflate the expander. Then, for about 6 to 8 weeks, at weekly intervals, the patient receives additional saline injections through the port until the expander is fully inflated. It remains fully expanded for about 6 weeks to allow the skin to loosen. The expander is then exchanged for a permanent implant. This is usually performed as an outpatient surgical procedure.

Advantages of the expansion procedure are a shorter operating time and a shorter recuperation period than for autologous reconstruction (see the Tissue Transfer Procedures section). A disadvantage is a tendency for the implant to feel firm and round, with little natural ptosis (sag). Women with a small to medium opposite breast with little ptosis are good candidates for this procedure. Women who have had radiation or who have connective tissue disease are not good candidates because of the decreased elasticity of the skin.

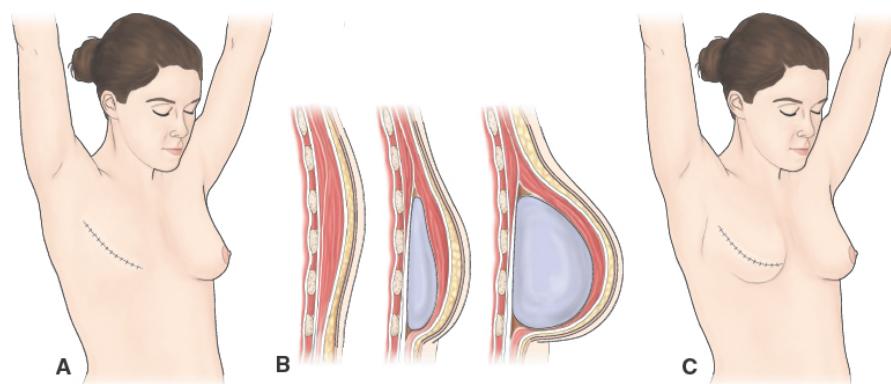


Figure 52-6 • Breast reconstruction with tissue expander. **A.** Mastectomy incision line prior to tissue expansion. **B.** The expander is placed under the pectoralis muscle and is gradually filled with saline solution through a port to stretch the skin enough to accept a permanent implant. **C.** The breast mound is restored. Although permanent, scars will fade with time. The nipple and areola are reconstructed later. Adapted from American Society of Plastic Surgeons.



Quality and Safety Nursing Alert

The patient must be cautioned not to have an MRI while the tissue expander is in place because the port contains metal. This is not an issue once the permanent implant is in place because it does not contain any metal.

The patient should be informed that for the rest of her life she should not engage in any exercises that will develop the pectoralis muscle, because this can result in distortion of the reconstructed breast.

Tissue Transfer Procedures

Autologous reconstruction is the use of the patient's own tissue to create a breast mound. A flap of skin, fat, and muscle with its attached blood supply is rotated to the mastectomy site to create a mound that simulates the breast. Donor sites may include the **transverse rectus abdominal myocutaneous (TRAM) flap** (abdominal muscle) (see Fig. 52-7), gluteal flap (buttock muscle), or the latissimus dorsi flap (back muscle) (see Fig. 52-8). The results more closely resemble a real breast because the skin and fat from the donor sites are similar in consistency to a natural breast. These procedures avoid the use of synthetic material. However, they involve longer recuperation than a tissue expander procedure. The risk of potential complications (e.g., infection, bleeding, flap necrosis) is also greater. Therefore, patients must be in relatively good health, and those with medical conditions (e.g., atherosclerosis, pulmonary disease, heart failure) that affect circulation or compromise oxygen delivery are not good candidates. Other candidates who are poor risks include those with poorly controlled diabetes or morbid obesity and those who smoke.

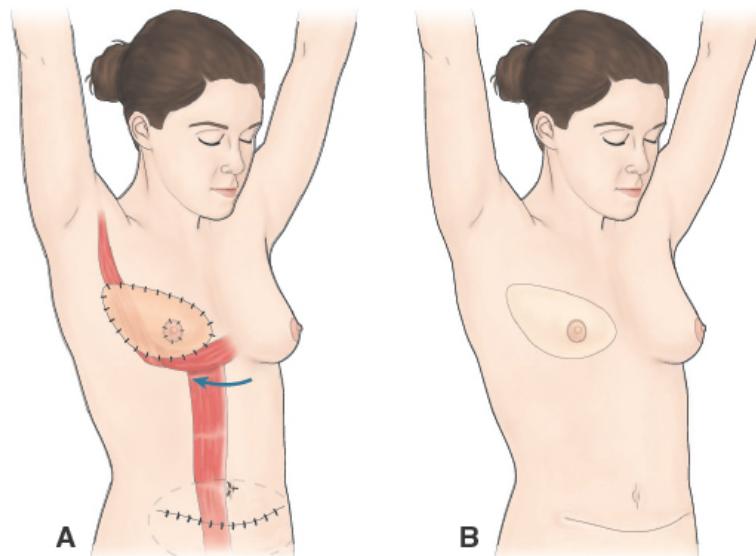


Figure 52-7 • Breast reconstruction: transverse rectus abdominal myocutaneous flap. **A.** A breast mound is created by tunneling abdominal skin, fat, and muscle to the mastectomy site. **B.** Final location of scars. Adapted from American Society of Plastic Surgeons.

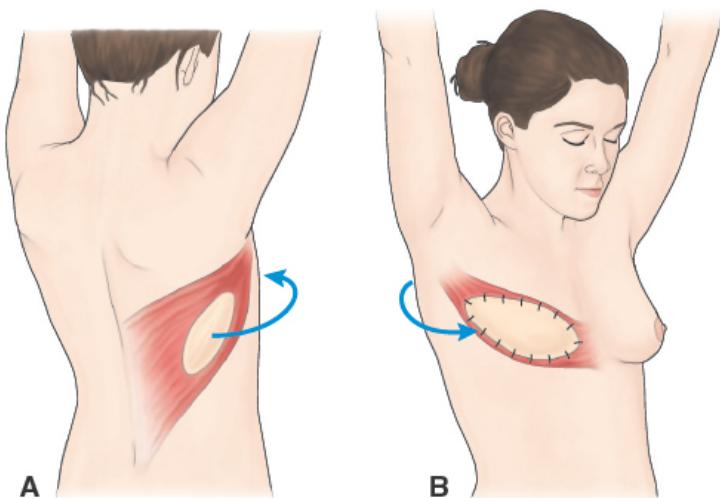


Figure 52-8 • Breast reconstruction: latissimus dorsi flap. **A.** The latissimus muscle with an ellipse of skin is rotated from the back to the mastectomy site. **B.** Because the flap is usually not bulky enough to provide an adequate breast mound, an implant is often also required. Adapted from American Society of Plastic Surgeons.

The TRAM flap is the most commonly performed tissue transfer procedure. A free TRAM procedure may also be performed; in this case, the skin, fat, muscle, and blood supply are completely detached from the body and then transplanted to the mastectomy site using microvascular surgery (the use of a microscope to reconnect the vessels). Postoperatively, patients who have undergone TRAM procedures often face a lengthy recovery (often 6 to 8 weeks) and have incisions both at the mastectomy site and at the donor site in the abdomen. Other free flap procedures include deep inferior epigastric perforator (DIEP) flap and superficial inferior epigastric artery (SIEA) flap depending on whether the superior gluteal artery perforator or the inferior one is utilized. Free flaps involve microsurgery for blood vessel transfer.

Deep breathing and leg exercises are essential because the patient is more limited in her activity and is at greater risk for respiratory complications and DVT. Measures to help the patient reduce tension on the abdominal incision during the first postoperative week include elevating the head of the bed 45 degrees and flexing the patient's knees.

Once the patient is able to ambulate, she can protect the surgical incision by splinting it and will gradually achieve a more upright position. The patient is instructed to avoid high-impact activities and lifting (more than 5 to 10 lb for 6 to 8 weeks after surgery) to prevent stress on the incision.

Nipple–Areola Reconstruction

After the breast mound has been created and the site has healed, some women choose to have nipple–areola reconstruction. This is a minor surgical procedure carried out either in the physician's office or at an outpatient surgical facility. The most common method of creating a nipple is with the use of local flaps (skin and fat from the center of the new breast mound), which are wrapped around each other to create a projecting nipple. The areola is created using a skin graft. The most common donor site is the upper inner thigh, because this skin has darker pigmentation than the skin on the reconstructed breast. After the nipple graft has healed, micropigmentation (tattooing) can be performed to achieve a more natural color. The

surgeon can usually match the reconstructed nipple–areola complex with that of the contralateral breast for an acceptable cosmetic result.

Prosthetics

Not all patients desire or are candidates for reconstructive surgery. A breast prosthesis—an external form that simulates the breast—is another option. Prostheses are available in different shapes, sizes, colors, and materials, although they are most often made of silicone. They can be placed inside a pocket in a bra or can adhere directly to the chest wall. The nurse can provide the patient with the names of shops where she can be fitted for a prosthesis, or the patient can call the Reach to Recovery program of the ACS for appropriate referrals. The patient should be encouraged to find a shop with a comfortable, supportive atmosphere that employs a certified prosthetics consultant. In general, medical supply shops are not recommended because often they do not have the appropriate resources to ensure the proper fitting of a prosthesis.

Prior to discharge from the hospital, the nurse usually provides the patient with a temporary, lightweight, cotton-filled form that can be worn until the surgical incision is well healed (4 to 6 weeks). After that, the patient can be fitted for a prosthesis. Insurance companies generally cover the cost of the prosthesis and the special bras that hold it in place. A breast prosthesis can provide a psychological benefit and assist the woman in resuming proper posture because it helps balance the weight of the remaining breast.

Special Issues in Breast Cancer Management

Implications of Genetic Testing

The rapid advancement in genetics not only has brought new knowledge about inherited breast cancer, but it has also raised potential ethical and psychosocial issues. Although the actual testing for the *BRCA1* and *BRCA2* and several other genes that increase risk involves a simple blood or saliva test, ethical and psychosocial issues must first be addressed. Before undergoing genetic testing, a person should meet either with a clinician who has expertise in this area or with a certified genetic counselor to discuss risk factors as well as the benefits, sequelae, and limitations of testing.

How people react when they receive their actual test results is not always easy to predict. A negative test in a person who comes from a family with a known mutation may lead to enormous relief. However, a negative test in a family with no known mutation may be a source of undue reassurance; the possibility of existing genes that cannot yet be detected remains. A negative test may also lead to feelings of guilt in a person whose family members did not receive favorable test results; this is known as survivor's guilt. A positive test could act as a motivator in a person to pursue appropriate screening or treatment, or it could cause tremendous anxiety, depression, and worry.

In addition, test results may be ambiguous, leading to feelings of confusion and uncertainty. People must be informed that not all gene carriers develop breast cancer (incomplete penetrance) and that not all noncarriers are protected or immune.

People must be well informed of all issues and potential implications prior to undergoing genetic testing (see Chapter 6). Nurses play a role in educating and counseling patients and their family members about the implications of genetic testing. Nurses provide support and clarification and make referrals to appropriate specialists when indicated.

Pregnancy and Breast Cancer

Breast cancer during pregnancy is defined as breast cancer diagnosed during gestation or within 1 year of childbirth. According to the NCCN, in a California registry study, 1.3 breast cancers are diagnosed in 10,000 live births (NCCN, 2019). Because of increased levels of hormones produced during pregnancy and subsequent lactation, the breast tissue becomes tender and swollen, making it more difficult to detect a mass. If a mass is found during pregnancy, ultrasound is the preferred diagnostic method because it involves no exposure to radiation. If indicated, mammography with appropriate shielding, FNA, and biopsy can be performed. Modified radical mastectomy remains the most common form of surgical treatment. SLNB is typically not offered under 30-week gestation because of the unknown effects of the radioisotope and the blue dye on the fetus (NCCN, 2019). Breast conservation treatment may be considered if the breast cancer is diagnosed during the third trimester. Radiation can then be delayed until after delivery because it is contraindicated during pregnancy. If a woman is close to term, a cesarean section may be performed as soon as maturation of the fetus allows and then treatment is initiated. If aggressive disease is detected early in pregnancy and chemotherapy is advised, termination of the pregnancy may be considered. If a mass is found while a woman is breast-feeding, she is urged to stop to allow the breast to involute (return to its baseline state) before any type of surgery is performed. Endocrine therapy is also contraindicated during pregnancy and should be postponed until the postpartum period.

Fertility issues and the future desire for children are major concerns of young women who are survivors of breast cancer. Most cancer therapies have a substantial morbidity on reproductive function, not only because they increase the risk of early menopause but also because they are associated with a decreased ovarian reserve and a loss of fertility. It is estimated that physiologic age of the ovaries in a survivor of cancer may be 10 years older than the actual chronologic age.

Chemotherapy causes a progressive dose-related depletion of ovarian follicles and granulosa cells that translates into oligomenorrhea and subsequent premature ovarian failure, ultimately leading to what is known as chemotherapy-induced amenorrhea (CIA). Regardless of the beneficial effects that hormonal changes can have as part of the adjuvant endocrine strategy, CIA is an adverse event to consider when selecting the best adjuvant treatment. Patients with cancer need to be informed about their reproductive future and options to preserve fertility before treatment (Petersen, Moravek, Woodruff, et al., 2018). SaveMyFertility, a national nonprofit organization, can also provide updated information on reproduction (see the Resources section).

Quality of Life and Survivorship

With increased early detection and improved treatment modalities, women with breast cancer have become the largest group of cancer survivors. Ninety-nine percent of women diagnosed with early-stage cancer localized to the breast will survive beyond 5 years (Mehra, Berkowitz, & Sanft, 2018). However, the treatment or simply the diagnosis of breast cancer may have long-term effects that negatively affect the patient and her family. The patient should be prepared early on for the potential long-term effects of the disease so that she has realistic expectations and can make informed decisions.

Survivors of breast cancer may experience a variety of issues as a result of their diagnosis and treatment. Estrogen withdrawal from chemotherapy-induced menopause and hormonal treatments can lead to a variety of symptoms, including hot flashes, vaginal dryness, urinary tract infections, weight gain, decreased sex drive, and increased risk of osteoporosis. HT to alleviate symptoms is contraindicated in women with breast cancer. Certain chemotherapeutic

agents can cause long-term cardiac effects and neuropathy. In addition, patients may experience impaired cognitive functioning, such as difficulty concentrating (often referred to as “chemo brain”). Studies have shown some correlation between levels of post-chemotherapy cognitive dysfunction and chemotherapy dosing; higher doses increase dysfunction (Shahpar, Mhatre, & Oza, 2018). Rare long-term effects of radiation can include pneumonitis, rib fractures, heart disease, and breast fibrosis or necrosis (Pederson & Klemp, 2018). Long-term sequelae after breast surgery may include lymphedema (mainly after ALND), pain, and sensory disturbances. Once lymphedema develops, it tends to be a chronic problem, so prevention strategies (discussed earlier) are vital. Weight gain and infections are risk factors for lymphedema (Makhoul, Banderudrappagari, & Pennisi, 2018). Nurses need to encourage patients to maintain an active lifestyle and avoid weight gain.

Long-term psychosocial sequelae may include fears of recurrence; mood changes (e.g., worry, sadness, anger, frustration); an increased sense of vulnerability, uncertainty, feelings of loss (e.g., fertility); concerns about body image, self-concept, and sexuality; emotional distress related to role adjustments and family response; and concerns about finances and employment. Depression and anxiety have been documented in 20% to 30% of women with breast cancer. Interventions should be targeted to meet informational needs, manage uncertainty, control symptoms, address cultural differences, and enhance social and emotional support (Makhoul et al., 2018).

Gerontologic Considerations

Breast cancer reconstruction in older women with breast cancer is a feasible option that should be offered to patients. Most women tolerate the procedure well and have good cosmetic outcomes. Patients can be offered both implant-based reconstruction and autologous tissue transfer with minimal complications as long as appropriate preoperative selection criteria are used. The safety of reconstruction, together with increase in perceived quality of life, life expectancy, and healthier lifestyles, makes breast reconstruction after mastectomy desirable at any age (van Ee, Smits, Honkoop, et al., 2019).

A thorough assessment must be performed before any treatment is initiated, and careful monitoring must occur throughout the course of treatment to avoid complications. The physical and psychosocial assessment of the older woman should include general health, currently existing comorbidities, performance status, cognitive status, current medications, available resources, and support systems.

Breast Health of Women with Disability

Disparities in obtaining a mammogram at recommended screening intervals persist for many women, including those with disability. Prevalence of self-reported use of mammography is lower for women with a disability. Thirty-six million women in the United States are disabled (Centers for Disease Control and Prevention [CDC], 2019a). Efforts to reduce disparities in breast cancer screening might be more effective if all segments of the population are targeted. Possible barriers to the use of mammography in women with disability include physical inaccessibility of office space and medical equipment; limited transportation and parking options; and time and assistance constraints associated with undressing, transferring, and positioning for medical examinations. People who are lesbian, gay, bisexual, transgender, and those questioning their gender may also be uncomfortable with the health care system and avoid screening (Kates, Ranji, Beamesderfer, et al., 2018). To promote health and wellness, health agencies, providers, and health care plans must promote cancer prevention and educational programs that are inclusive and responsive to the special needs of women with disability (CDC, 2019b).

An essential role of the nurse is to assist all women, including those with disability, to identify accessible health screening and to advocate for greater accessibility of imaging centers and other health care facilities. Reminding women of the need for recommended clinical breast examinations and mammograms is an important part of nursing care.

RECONSTRUCTIVE BREAST SURGERY

Breast reconstruction surgery, called **mammoplasty**, is an elective procedure that can enhance a woman's self-image and sense of well-being. Women desire reconstruction for a variety of physical and psychological reasons. Therefore, it is important for the health care team to conduct a thorough assessment prior to reconstructive surgery to evaluate the woman's underlying desire, motivation, and expectations. Preparing a woman realistically could help her to avoid potential disappointment. A variety of reconstructive options are available today for women who desire a correction in the size or the shape of the breast, including reduction mammoplasty (breast reduction), augmentation mammoplasty (breast enlargement), and mastopexy (breast lift). Several options are also available to reconstruct the breast after a mastectomy.

Reduction Mammoplasty

Reduction mammoplasty is usually performed on women who have breast hypertrophy (excessively large breasts). The weight of the enlarged breasts can cause discomfort, fatigue, embarrassment, and poor posture.

Reduction mammoplasty is an outpatient procedure that is performed under general anesthesia. Most commonly, an anchor-shaped incision that circles the areola is made, extending downward and following the natural curve of the inframammary fold. Depending on the size of the breast, the nipple may be moved up to a higher position while still attached to the breast tissue, or it may be separated and transplanted to a new location. Drains are placed in the incision and remain for 2 to 5 days.

During the preoperative consultation, the patient should be informed that there is a possibility that sensory changes of the nipple (such as numbness) may occur. These sensations are normal and usually resolve after several months but can sometimes persist. The procedure may also make breast-feeding impossible, although some women have breast-fed successfully. The patient must also be aware that if she gains weight (usually more than 10 lb), her breasts may also enlarge.

After reduction mammoplasty, many women verbalize feelings of extreme satisfaction, possibly because of the relief they experience. The patient is instructed to wear a supportive bra 24 hours a day for 2 weeks to prevent tension on the swollen breast and incision line. Vigorous exercise (e.g., jumping, jogging) should be avoided for about 6 weeks after surgery.

Augmentation Mammoplasty

Augmentation mammoplasty is requested by women who desire larger or fuller breasts. The procedure is performed by placing a breast implant either under the pectoralis muscle (subpectoral) or under the breast tissue (subglandular). The subpectoral approach is preferred because it interferes less with clinical breast examinations and mammograms. The incision line can be placed in the inframammary fold, in the axilla, or around the areola. The

procedure is performed as an outpatient procedure under general anesthesia. A drain is not necessary. Postoperative instructions are the same as for reduction mammoplasty.

Saline implants are typically used for augmentation mammoplasty. The FDA has approved the use of silicone gel-filled implants manufactured by three companies. FDA approval for use of these implants applies to women of all ages for breast reconstruction, and women 22 years and older for breast augmentation (FDA, 2019). Women with breast implants should be aware that mammograms may be more difficult to read, so they should seek experienced breast radiologists.

Mastopexy

Mastopexy is performed when the patient is happy with the size of her breasts but wishes to have the shape improved and a lift performed. This is also an outpatient surgical procedure, and postoperative instructions are the same as for reduction mammoplasty.

DISEASES OF THE MALE BREAST

Gynecomastia

Gynecomastia is the most common breast condition in the male. Adolescent boys can be affected because of hormones secreted by the testes. This type of gynecomastia is virtually always benign and resolves spontaneously in 1 to 2 years. Gynecomastia can also occur in older men and usually presents as a firm, tender mass underneath the areola. In these patients, gynecomastia may be diffuse and related to the use of certain medication (e.g., digitalis). It may also be associated with certain conditions, including feminizing testicular tumors, infection in the testes, and liver disease resulting from factors such as alcohol abuse or a parasitic infection.

Patients in their late teens to late 40s presenting with idiopathic (unknown cause) gynecomastia should have a testicular examination and possibly a testicular ultrasound. Treatment of the enlarged breast tissue is based on patient preference and is usually reserved for those men who cannot tolerate the cosmetic appearance of the breast or who have severe pain associated with the condition. Mammography and ultrasound are utilized if there is a concern about malignancy. Observation is acceptable in most cases because gynecomastia may resolve on its own. Surgical removal of the tissue through a small incision around the areola is the best treatment option. Liposuction performed by a plastic surgeon is another possibility, although this does not allow for pathologic examination of the tissue.

Male Breast Cancer

The lifetime risk of breast cancer in men is about 1 in 1000. The number of breast cancer cases in men relative to the population has been fairly stable over the past 30 years. Nearly 2670 new cases of invasive breast cancer were expected to be diagnosed in men in 2019 (ACS, 2019). The ratio of women to men diagnosed with breast cancer worldwide is 122:1 (Jain & Gradishar, 2018). Although breast carcinoma in both genders share certain characteristics, notable differences have emerged. Familial cases in men usually have *BRCA2* rather than *BRCA1* mutations. Klinefelter syndrome, a chromosomal condition reflecting decreased testosterone levels, is the strongest risk factor for developing male breast carcinoma. Presentation is usually a painless lump, but is often late, with more than 40% of

individuals having stage III or IV disease. When survival is adjusted for age at diagnosis and stage of disease, outcomes for male and female patients with breast cancer is similar (Jain & Gradishar, 2018).

Early detection is uncommon in male breast cancer because of the rare nature of the disease. Often, neither patient nor provider suspects male breast cancer early in its development. There is no role for screening mammogram in males, but biopsies may be performed to determine hormone receptor status (Jain & Gradishar, 2018). Treatment generally consists of a total mastectomy with either SLNB or ALND. As in women with breast cancer, prognosis depends on the stage of disease at presentation. Involvement of the axillary lymph nodes is the most important prognostic indicator. Male breast cancers are very likely to be ER+, and tamoxifen, although it has several side effects, is a mainstay of treatment.

Because breast cancer is primarily a disease of women, men may feel that a certain stigma is attached to their diagnosis. This may cause poor adherence to treatment plans, especially long-term medication management. Health care professionals must be sensitive to their needs and provide information and support to improve survivorship.

CRITICAL THINKING EXERCISES

1 ebp A 34-year-old woman calls the breast clinic where you work in a panic. She explains that her mom was recently diagnosed with breast cancer. She is convinced that she also has cancer, because she woke up this morning with unilateral breast inflammation. After further questioning, you learn that she is breast-feeding her 10-day-old infant. What evidence-based recommendation would you make for genetic testing for this patient?

2 pc A 45-year-old woman arrives to the medical-surgical unit where you work after having a mastectomy this morning. She plans a delayed implant and has a tissue expander in place. How do you prioritize her physical care and her education?

3 ipc A 70-year-old woman who had a mastectomy without reconstruction 7 years ago comes to the clinic where you work. She intermittently wears her compression garment and is faithful about her follow-up care. What members of the health care team should be included in the care of this patient?

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*Asterisk indicates nursing research.

**Double asterisk indicates classic reference.

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Resources

ABCD: After Breast Cancer Diagnosis, www.abcdbreastcancersupport.org
 American Cancer Society, www.cancer.org

American Society of Plastic Surgeons (ASPS), www.plasticsurgery.org
Cancer Care, www.cancercare.org
National Cancer Institute (NCI), www.cancer.gov/cancertopics/types/breast
National Comprehensive Cancer Network (NCCN), www.nccn.org
National Lymphedema Network (NLN), www.lymphnet.org
Oncology Nursing Society (ONS), www.ons.org
Reach To Recovery, cancer.org/treatment/support-programs-and-services/reach-to-recovery.html
Save My Fertility, www.savemyfertility.org
Susan G. Komen for the Cure, ww5.komen.org

53 Assessment and Management of Patients with Male Reproductive Disorders

LEARNING OUTCOMES

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

1. Describe structures and function of the male reproductive system.
2. Discuss nursing assessment of the male reproductive system, identifying diagnostic tests used and their related nursing implications.
3. Explain the causes and management of male sexual dysfunction.
4. Compare the types of prostatectomy with regard to advantages and disadvantages.
5. Use the nursing process as a framework for care of the patient with male reproductive disorders and conditions, including prostate, testicular, and penis disorders.

NURSING CONCEPTS

Assessment

Family

Infection

Inflammation

Mobility

Reproduction

Sexuality

Stress

GLOSSARY

androgen deprivation therapy: surgical (orchectomy) or medical castration (e.g., with luteinizing hormone-releasing hormone agonists)

benign prostatic hyperplasia (BPH): noncancerous enlargement or hypertrophy of the prostate; the most common pathologic condition in older men

brachytherapy: delivery of radiation therapy through internal implants placed inside or adjacent to a tumor

circumcision: excision of the foreskin, or prepuce, of the glans penis

cystostomy: surgical creation of an opening into the urinary bladder

epididymitis: infection of the epididymis that usually descends from an infected prostate or urinary tract; also may develop as a complication of gonorrhea, chlamydia, or *Escherichia coli*

erectile dysfunction: the inability to either achieve or maintain an erection sufficient to accomplish sexual intercourse (*synonym:* impotence)

hydrocele: a collection of fluid, generally in the tunica vaginalis of the testis, although it also may collect within the spermatic cord

orchectomy: surgical removal of one or both testes

orchitis: acute inflammation of the testes (testicular congestion) caused by pyogenic, viral, spirochetal, parasitic, traumatic, chemical, or unknown factors

phimosis: condition in which the foreskin is constricted so that it cannot be retracted over the glans; can occur congenitally or from inflammation and edema

priapism: an uncontrolled, persistent erection of the penis from either neural or vascular causes, including medications, sickle cell thrombosis, leukemic cell infiltration, spinal cord tumors, and tumor invasion of the penis or its vessels

prostatectomy: surgical removal of the entire prostate, the prostate urethra, and the attached seminal vesicles plus the ampulla of the vas deferens

prostate-specific antigen (PSA): substance that is produced by the prostate gland; is used in combination with digital rectal examination to screen for prostate cancer

prostatitis: inflammation of the prostate gland caused by infectious agents (bacteria, fungi, mycoplasma) or various other problems (e.g., urethral stricture, prostatic hyperplasia)

retrograde ejaculation: during ejaculation, semen travels to the urinary bladder instead of exiting through the penis

spermatogenesis: production of sperm in the testes

testosterone: male sex hormone secreted by the testes; induces and preserves the male sex characteristics

transurethral resection of the prostate (TURP): resection of the prostate through endoscopy; the surgical and optical instrument is introduced

directly through the urethra to the prostate, and the gland is then removed in small chips with an electrical cutting loop

varicocele: an abnormal dilation of the veins of the pampiniform venous plexus in the scrotum (the network of veins from the testis and the epididymis, which constitute part of the spermatic cord)

vasectomy: ligation and transection of part of the vas deferens, with or without removal of a segment of the vas, to prevent the passage of the sperm from the testes (*synonym:* male sterilization)

Disorders of the male reproductive system include a wide variety of conditions that usually affect both urinary and reproductive systems. Because these disorders involve the genitalia and often affect sexuality, the patient may experience anxiety and embarrassment. The nurse must be aware of the patient's need for privacy as well as the need for education and support. This requires an openness to discuss critical and sensitive issues with the patient, including a partner when appropriate, as well as effective assessment, management, and communication. Nurses must be comfortable when examining male genitalia and must recognize their own attitudes and perceptions about male reproductive disorders. Education of the patient and partner about treatment and self-care strategies is essential (Tabloski, 2019).

ASSESSMENT OF THE MALE REPRODUCTIVE SYSTEM

Anatomic and Physiologic Overview

In the male, several organs serve as parts of both the urinary tract and the reproductive system. Disorders in the male reproductive organs may interfere with the functions of one or both of these systems. As a result, diseases of the male reproductive system are usually treated by a urologist. The structures in the male reproductive system include the (1) external male genitalia, consisting of the testes, epididymis, scrotum, and penis, and the (2) internal male genitalia, consisting of the vas deferens (ductus deferens), ejaculatory duct, and prostatic and membranous sections of the urethra, seminal vesicles, and certain accessory glands, such as the prostate gland and Cowper glands (bulbourethral glands) (see Fig. 53-1).

The testes have a dual function: **spermatogenesis** (production of sperm) and secretion of the male sex hormone **testosterone**, which induces and preserves the male sex characteristics. The testes are formed in the embryo, within the abdominal cavity near the kidney. During the last month of fetal life, they descend posterior to the peritoneum and pierce the abdominal wall in the groin. Later, they progress along the inguinal canal into the scrotal sac. In this descent, they are accompanied by blood vessels, lymphatics, nerves, and ducts, which support the tissue and make up the spermatic cord. This cord extends from the internal

inguinal ring through the abdominal wall and the inguinal canal to the scrotum. As the testes descend into the scrotum in the final 2 to 3 months of gestation, a tubular extension of peritoneum accompanies them (Rhoades & Bell, 2017). Normally, this tissue is obliterated during fetal development; only the tunica vaginalis, which covers the testes, remains. If the peritoneal process remains open into the abdominal cavity, a potential sac remains into which abdominal contents may enter to form an indirect inguinal hernia.

The testes, or ovoid sex glands, are encased in the scrotum, which keeps them at a slightly lower temperature than the rest of the body to facilitate spermatogenesis (Rhoades & Bell, 2017). The testes consist of numerous seminiferous tubules in which the spermatozoa form. Collecting tubules transmit the spermatozoa into the epididymis, a hoodlike structure lying on the testes and containing winding ducts that lead into the vas deferens. This firm, tubular structure passes upward through the inguinal canal to enter the abdominal cavity behind the peritoneum. It then extends downward toward the base of the bladder. An outpouching from this structure is the seminal vesicle, which acts as a reservoir for testicular secretions. The tract is continued as the ejaculatory duct, which passes through the prostate gland to enter the urethra. Testicular secretions take this pathway when they exit the penis during ejaculation.

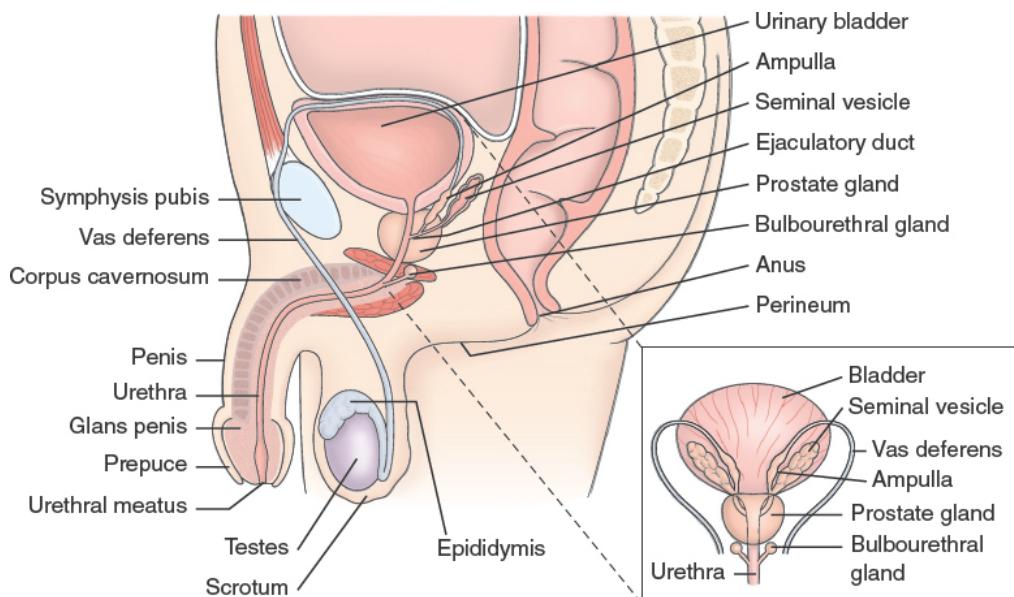


Figure 53-1 • Structures of the male reproductive system.

The penis is the organ for both copulation and urination. It consists of the glans penis, the body, and the root. The glans penis is the soft, rounded portion at the distal end of the penis. The urethra (the tube that carries urine) opens at the tip of the glans. The glans is naturally covered by elongated penile skin—the foreskin—which may be retracted to expose the glans. However, many men as newborns have undergone circumcision, which is a procedure to remove the foreskin. The body of the penis is composed of erectile tissues containing numerous blood

vessels that become dilated, leading to an erection during sexual excitement. The urethra, which passes through the penis, extends from the bladder through the prostate to the distal end of the penis.

The prostate gland, lying just below the neck of the bladder, is composed of four zones and four lobes. It surrounds the urethra and is traversed by the ejaculatory duct, a continuation of the vas deferens. This gland produces a secretion that is chemically and physiologically suitable to the needs of the spermatozoa in their passage from the testes. Cowper glands lie below the prostate, within the posterior aspect of the urethra. This gland empties its secretions into the urethra during ejaculation, providing lubrication.

Gerontologic Considerations

As men age, the prostate gland enlarges; prostate secretion decreases; the scrotum hangs lower; the testes decrease in weight, atrophy, and become softer; and pubic hair becomes sparser and stiffer. Changes in gonadal function include a decline in plasma testosterone levels and reduced production of progesterone (see [Table 53-1](#)). Libido and potency often decrease in as many as two thirds of men older than 70 years (Tabloski, 2019). Vascular problems cause about half of the cases of erectile dysfunction in men older than 50 years.

However, male reproductive capability is maintained with advancing age. Although degenerative changes occur in the seminiferous tubules and sperm production decreases, spermatogenesis continues, allowing men to produce viable sperm throughout their lives (McCance, Huether, Braskers, et al., 2018).

Male hypogonadism (decreased function of the testes) starts gradually at approximately 50 years of age, resulting in decreased testosterone production. The older man notices that the sexual response slows, erection takes longer, full erections may not be attained, ejaculation takes longer to occur, and control or resolution may occur without orgasm. Sexual function can be affected by psychological problems, illnesses, and medications (Sikka & Hellstrom, 2017). In general, the entire sexual act takes longer. Sexual activity is closely correlated with the man's sexual activity in his earlier years; if he was more active than average as a young man, he will most likely continue to be more active than average in his later years.

Men older than 50 years are at increased risk for genitourinary tract cancers, including those of the kidney, bladder, prostate, and penis. The digital rectal examination (DRE), prostate-specific antigen (PSA) test, and urinalysis, which screens for hematuria, may uncover a higher percentage of malignancies at earlier stages and lead to lower treatment-associated morbidity as well as a lower mortality.

Urinary incontinence occurs in one fifth of community-dwelling older men and rises to nearly 50% in men in long-term care settings (Tabloski, 2019). Older adults admitted to acute care settings should be screened for this problem. Urinary incontinence may have many causes, including medications, neurologic disease,

or benign prostatic hyperplasia (BPH). Incontinence may also be linked to erectile dysfunction when there is damage to the neural pathways that initiate an erection (Rantell, Apostolidis, Anding, et al., 2017). Diagnostic tests are performed to exclude reversible causes. New-onset urinary incontinence is a nursing priority that requires evaluation.

Assessment

Assessing the male reproductive system includes a targeted health history and physical examination.

Health History

Male sexuality is a complex phenomenon that is strongly influenced by personal, cultural, religious, and social factors. Sexuality and male reproductive function become concerns in the presence of illness and disability (Kaufman, Lapauw, Mahmoud, et al., 2019). Throughout the assessment process, the nurse must recognize the significance of sexuality to the patient. Assessment of male reproductive function begins with an evaluation of urinary function and symptoms. The patient is asked about his usual state of health and any recent change in general physical and sexual activity. Any symptoms or changes in function are explored fully and described in detail. Symptoms related to bladder function and urination, collectively referred to as prostatism, are explored further. Symptoms may occur with an obstruction caused by an enlarged prostate gland and may include increased urinary frequency, decreased force of urine stream, and “double” or “triple” voiding (the patient needs to urinate two or three times over a period of several minutes to completely empty his bladder). The patient is also assessed for dysuria (painful urination), hematuria (blood in the urine), nocturia (urination during the night), and hematospermia (blood in the ejaculate).

TABLE 53-1 Age-Related Changes in the Male Reproductive System

Age-Related Changes	Physiologic Changes	Manifestations
Decrease in sex hormone secretion, especially testosterone	Decreased muscle strength and sexual energy	Changes in sexual response—prolonged time to reach full erection, rapid penile detumescence, and prolonged refractory period
	Decrease in number of viable sperm	
	Shrinkage and loss of firmness of testes; thickening of seminiferous tubules	Smaller testes
	Fibrotic changes of corpora cavernosa	Erectile dysfunction
	Enlargement of prostate gland	Weakening of prostatic contractions Hyperplasia of prostate gland
		Signs and symptoms of obstruction of lower urinary tract (urgency, frequency, nocturia)

Adapted from Tabloski, P. A. (2019). *Gerontological nursing: The essential guide to clinical practice* (4th ed.). New York: Pearson.

Assessment also involves addressing sexual function, including manifestations of sexual dysfunction. The extent of the history depends on the patient's presenting symptoms and the presence of factors that may affect sexual function such as chronic illnesses or disability (e.g., diabetes, multiple sclerosis, stroke, cardiac disease), the use of medications that affect sexual function (e.g., antihypertensive and anticholesterolemic medications, psychotropic agents), stress, the use of alcohol, and the patient's willingness to discuss sexual issues.

By initiating an assessment about sexual concerns, the nurse conveys the message that changes in sexual functioning are valid topics and provides a safe environment for discussing these sensitive topics. Several models are available to assist in assessing patient's problems and concerns. The PLISSIT (*permission, limited information, specific suggestions, intensive therapy*) model of sexual assessment and intervention may be used to provide a framework for nursing interventions (Annon, 1976; Messelis, Kazer, & Gelmetti, 2019). It provides a graded counseling approach that allows health care professionals to deal with sexual issues with a level of comfort and expertise. The model begins by asking the patient's permission (P) to discuss sexual functioning. Limited information (LI) about sexual function may then be provided to the patient. As the discussion progresses, the nurse may offer specific suggestions (SS) for interventions. A professional who specializes in sex therapy may provide more intensive therapy (IT) as needed. The BETTER (*bringing up the topic, explaining, telling, timing, educate about treatment-related sexual side effects, recording*) model was

developed more recently to assist health care professionals to include sexuality in the assessment of patients with cancer (Campbell, 2020).

Patients may find it difficult to express their feelings and concerns regarding their sexuality, especially after a body image change (e.g., after major surgery such as amputation). Discussing sexuality with patients who have an illness or disability can be uncomfortable for nurses and other health care providers; this, in turn, makes discussion of these issues more difficult and uncomfortable for patients. Some health care professionals may unconsciously have stereotypes about the sexuality of people who are ill or have a disability (e.g., the belief that people with disability are asexual or should be sexually inactive). In addition, patients are often embarrassed to initiate a discussion about sexual issues with their health care providers (Campbell, 2020; Katz, Cherven, Ballard, et al., 2019).

Physical Assessment

In addition to the usual aspects of the physical examination, two essential components address disorders of the male genital or reproductive system: the DRE and the testicular examination.

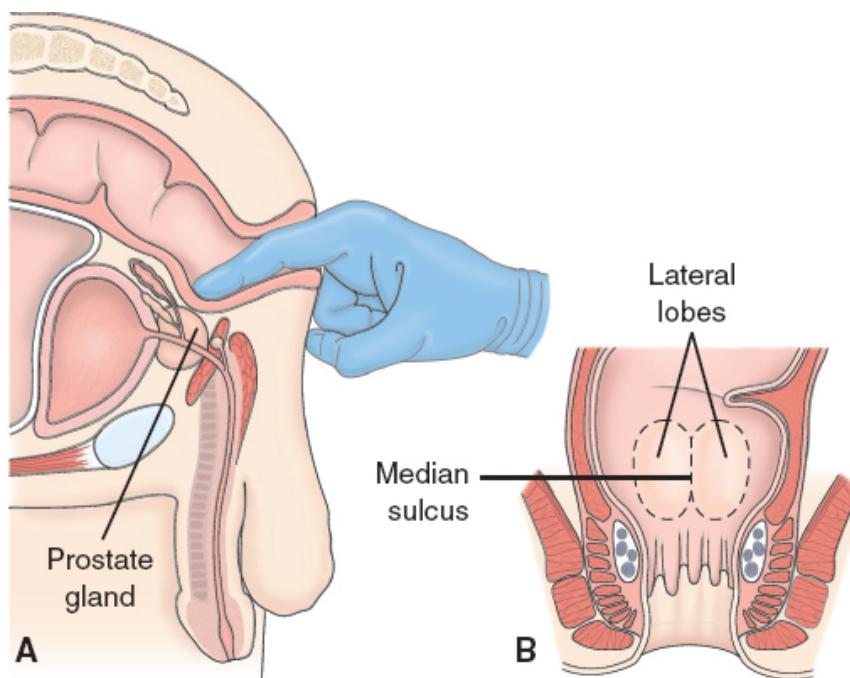


Figure 53-2 • A. Palpation of the prostate gland during digital rectal examination enables the examiner to assess the size, shape, and texture of the gland. **B.** The prostate is round, with a palpable median sulcus or groove separating the lateral lobes. It should feel rubbery and free of nodules and masses.

Digital Rectal Examination

The DRE is used to screen for prostate cancer and is recommended annually for every man older than 50 years (45 years for men at high risk [African American men and men with a family history of prostate cancer in first-degree relatives]) (American Cancer Society [ACS], 2020). The DRE enables the skilled examiner, using a lubricated, gloved finger placed in the rectum, to assess the size, symmetry, shape, and consistency of the posterior surface of the prostate gland (see Fig. 53-2). The clinician assesses for tenderness of the prostate gland on palpation and for the presence and consistency of any nodules. The DRE may be performed with the patient leaning over an examination table or positioning the man in a side-lying position with legs flexed toward the abdomen or supine with legs resting in stirrups. To minimize discomfort and relax the anal sphincter during the rectal examination, the patient is instructed to take a deep breath and exhale slowly as the practitioner inserts a finger. If possible, he should turn his feet inward, so that his toes are touching. Although this examination may be uncomfortable and embarrassing for the patient, it is an important screening tool.

Testicular Examination

The male genitalia are inspected for abnormalities and palpated for masses. The scrotum is palpated carefully for nodules, masses, or inflammation. Examination of the scrotum can reveal such disorders as hydrocele, inguinal hernia, testicular torsion, orchitis, epididymitis, or a tumor of the testis. The penis is inspected and palpated for ulcerations, nodules, inflammation, discharge, and curvature. If the patient is uncircumcised, the foreskin should be retracted for visualization of the glans penis. The testicular examination provides an excellent opportunity to educate the patient on how to perform a testicular self-examination (TSE) and its importance in early detection of testicular cancer. TSE should begin during adolescence. For more details on TSE, see later discussion in the chapter.

Diagnostic Evaluation

A wide range of diagnostic studies may be performed in men with reproductive disorders. The nurse should educate the patient about the purpose, what to expect, and any possible side effects related to these tests and examinations prior to testing. The nurse should note trends in results because they provide information about disease progression as well as the patient's response to therapy.

Prostate-Specific Antigen Test

The cells within the prostate gland produce a protein that can be measured in the blood called the **prostate-specific antigen (PSA)**. It is a sensitive but not specific test for prostate cancer. In the absence of prostate cancer, serum PSA levels vary with age, race, and prostate volume. Increased levels may indicate prostate cancer. However, a number of other conditions such as BPH, acute urinary retention, and acute prostatitis may cause high PSA levels. Values of PSA may

also increase after ejaculation. PSA levels are measured in nanograms per milliliter (ng/mL). In most laboratories, values less than 4 ng/mL are generally considered normal, and values greater than 4 ng/mL are considered elevated in men 60 years of age or younger (Law, Nguyen, Barkin, et al., 2020; Pagana & Pagana, 2018). The use of age-specific reference ranges is encouraged to help minimize unnecessary biopsies (see Appendix A on [thePoint](#)).

A serum PSA level and a DRE, which are recommended by the ACS (2020), are used to screen for prostate cancer for men with at least a 10-year life expectancy and for men at high risk, including those with a strong family history of prostate cancer and of African American ethnicity. The perceptions of some African American men and women reflect the belief that PSA screening saves lives and needs to be done despite recommendations against screening due to false positives potentially resulting in unnecessary treatment (Arace, Flores, Monaghan, et al., 2020; Kearns, Adeyemi, Anderson, et al., 2020). The PSA test is also used to monitor patients for recurrence after treatment for cancer of the prostate, based on evidence-based guidelines (National Comprehensive Cancer Network [NCCN], 2020b). Neither the DRE nor PSA is 100% accurate, but when used together, their accuracy increases.

Ultrasonography

Transrectal ultrasound (TRUS) may be performed in patients with abnormalities detected by DRE and in those with elevated PSA levels. After DRE has been completed, a lubricated, condom-covered, rectal probe transducer is inserted into the rectum (Lim, Jun, Chang, et al., 2019). Water may be introduced into the condom to help transmit sound waves to the prostate. TRUS may be used in detecting nonpalpable prostate cancers and in staging localized prostate cancer. Needle biopsies of the prostate are commonly guided by TRUS.

Prostate Fluid or Tissue Analysis

Specimens of prostate fluid or tissue may be obtained for culture if disease or inflammation of the prostate gland is suspected. A biopsy of the prostate gland may be necessary to obtain tissue for histologic examination. This may be performed at the time of prostatectomy or by means of a perineal or transrectal needle biopsy. Six to 12 biopsies from all four prostate zones may be obtained during a TRUS-guided biopsy.

Tests of Male Sexual Function

If the patient cannot engage in sexual activity to his satisfaction, a detailed history is obtained. Nocturnal erections occur in healthy males of all ages. Nocturnal penile tumescence tests may be conducted in a sleep laboratory to monitor changes in penile circumference during sleep using various methods to determine number, duration, rigidity, and circumference of penile erections; the results help

identify whether the erectile dysfunction is caused by physiologic or psychological factors. Additional tests, including psychological evaluations, are also part of the diagnostic workup and are usually conducted by a specialized team of health care providers.

DISORDERS OF MALE SEXUAL FUNCTION

Erectile Dysfunction

Erectile dysfunction, also called *impotence*, is the inability to achieve or maintain an erect penis (Norris, 2019). The man may report decreased frequency of erections, inability to achieve a firm erection, or rapid detumescence (subsiding of erection). In the United States, 30 million men experience erectile dysfunction; more than half of men 40 to 70 years of age are unable to attain or maintain an erection sufficient for satisfactory sexual performance (Smith, Howards, Preminger, et al., 2019). The physiology of erection and ejaculation is complex and involves parasympathetic and sympathetic components. Erection involves the release of nitric oxide into the corpus cavernosum during sexual stimulation. Its release activates cyclic guanosine monophosphate (cGMP), causing smooth muscle relaxation. This allows flow of blood into the corpus cavernosum, resulting in erection (Cheng, MacLennan, & Bostwick, 2019; Norris, 2019).

Erectile dysfunction has both psychogenic and organic causes. Psychogenic causes include anxiety, fatigue, depression, pressure to perform sexually, negative body image, absence of desire, and privacy, as well as trust and relationship issues. Organic causes include cardiovascular disease, endocrine disease (diabetes, pituitary tumors, testosterone deficiency, hyperthyroidism, and hypothyroidism), cirrhosis, chronic kidney injury, genitourinary conditions (radical pelvic surgery), hematologic conditions (Hodgkin lymphoma, leukemia), neurologic disorders (neuropathies, parkinsonism, spinal cord injury [SCI], multiple sclerosis), trauma to the pelvic or genital area, smoking, medications (see [Chart 53-1](#)), and substance use disorder.

Assessment and Diagnostic Findings

The diagnosis of erectile dysfunction requires a sexual and medical history; an analysis of presenting symptoms; a physical examination, including a neurologic examination; a detailed assessment of all medications, alcohol, and drugs used; and various laboratory studies. Nocturnal penile tumescence tests are conducted to monitor changes in penile circumference. This test can help to determine if erectile dysfunction has an organic or a psychological cause. In healthy men, nocturnal penile erections closely parallel rapid eye movement (REM) sleep in occurrence and duration. Organically, men with erectile dysfunction show inadequate sleep-related erections that correspond to their waking performance. Arterial blood flow to the penis is measured using a Doppler probe. In addition,

nerve conduction tests and extensive psychological evaluations may be carried out. [Figure 53-3](#) describes the evaluation and treatment of erectile dysfunction.

Chart 53-1



PHARMACOLOGY

Select Medications Associated with Erectile Dysfunction

- *Antiadrenergics and antihypertensives:* guanethidine, clonidine, hydralazine
- *Anticholinergics and phenothiazines:* prochlorperazine, trihexyphenidyl
- *Anticonvulsant agents:* carbamazepine
- *Antidepressants:* tricyclic antidepressants: amitriptyline, desipramine; selective serotonin reuptake inhibitors: fluoxetine, sertraline
- *Antifungals:* ketoconazole
- *Antihistamines:* diphenhydramine, dimenhydrinate
- *Antihormone (prostate cancer treatment):* flutamide, leuprolide
- *Antipsychotics:* haloperidol, chlorpromazine
- *Antispasmodics:* oxybutynin
- *Anxiolytics, sedative-hypnotics, tranquilizers:* lorazepam, triazolam
- *Beta-blockers:* nadolol, metoprolol
- *Calcium channel blockers:* nifedipine
- *Carbonic anhydrase inhibitors:* acetazolamide
- *Chemotherapeutic agents:* busulfan, cyclophosphamide
- *Diuretics:* hydrochlorothiazide, furosemide, spironolactone, verapamil
- *Histamine-2 antagonists:* nizatidine
- *Nonsteroidal anti-inflammatory drugs:* naproxen, indomethacin
- *Other substances:* alcohol, amphetamines, barbiturates, cocaine, marijuana, methadone, nicotine, opioids
- *Parkinson's disease medications:* carbidopa/levodopa, benztrapine

Adapted from Karch, A. M. (2020). *2020 Lippincott pocket drug guide for nurses* (8th ed.). Philadelphia, PA: Wolters Kluwer.

Medical Management

Treatment can be medical, surgical, or both, depending on the cause. Treatment of erectile dysfunction includes therapy for associated disorders (e.g., alcoholism, diabetes) or adjustment of medications (McMahon, 2019). Endocrine therapy instituted to treat erectile dysfunction secondary to hypothalamic–pituitary–gonadal dysfunction may reverse the condition. Insufficient penile blood flow may be treated with vascular surgery. Patients with erectile dysfunction from psychogenic causes are referred to a health care provider or therapist who specializes in sexual dysfunction. Patients with erectile dysfunction secondary to organic causes may be candidates for penile implants.

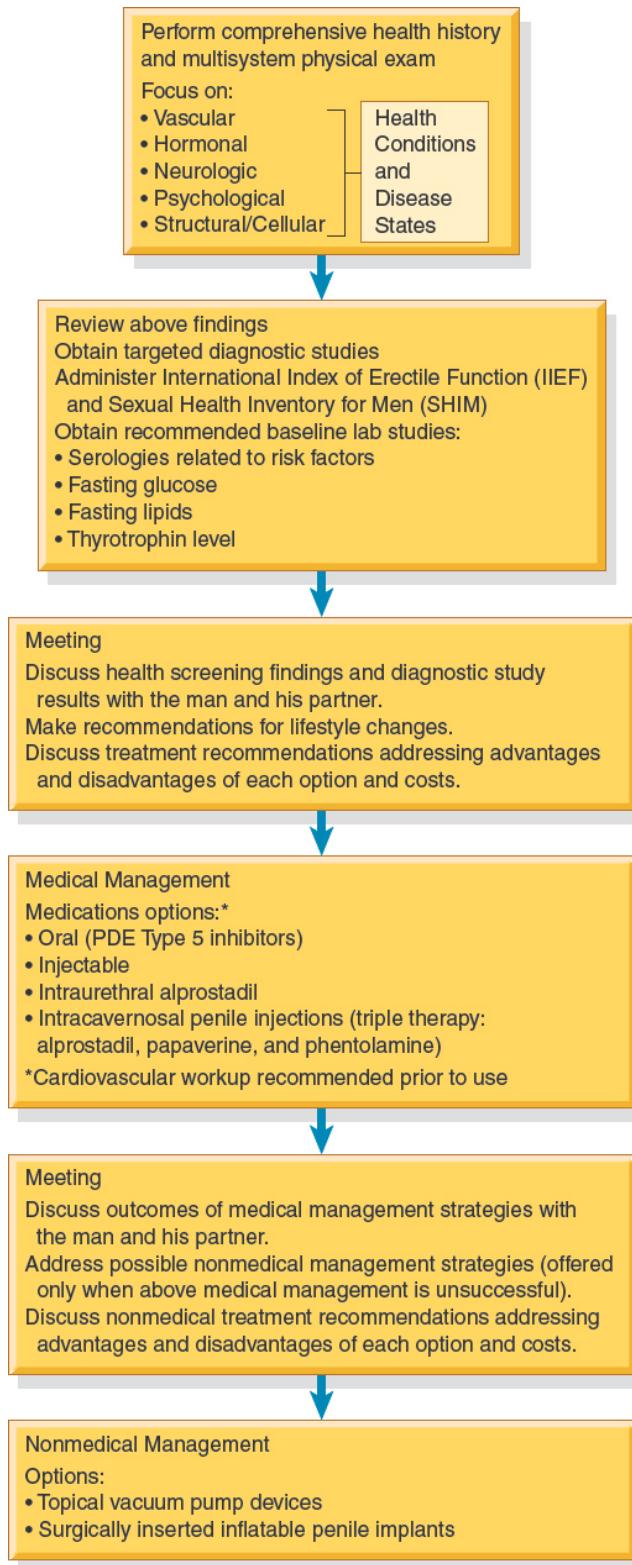
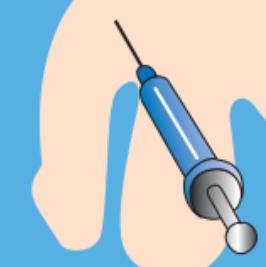
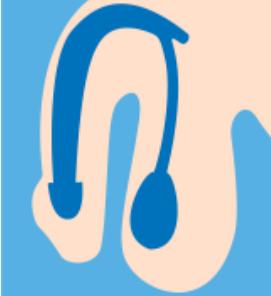


Figure 53-3 • Evaluation and treatment of erectile dysfunction.

Currently available therapies for the treatment of erectile dysfunction include pharmacologic therapy (including urethral suppositories), penile implants, and vacuum constriction devices (see [Table 53-2](#)). These options should be considered in a stepwise fashion, with increasing invasiveness and risk balanced against the likelihood of efficacy. The patient and, if possible, his partner, should be informed of the relevant treatment options and their associated risks and benefits. The choice of treatment is made jointly by the primary provider, patient, and partner, taking into consideration patient preferences and expectations.

TABLE 53-2 Treatments for Erectile Dysfunction

Method	Description	Advantages and Disadvantages	Duration
Pharmacologic Therapy Oral medications (sildenafil, vardenafil, tadalafil)	Smooth muscle relaxant causing blood to flow into penis	Can cause headache, flushing, dyspepsia, diarrhea, nasal congestion, and lightheadedness See contraindications in Table 53-3	Taken orally before sexual activity. Stimulation is required to achieve erection. Erection can last up to 1 h.
Oral medication 			
Penile injection 	Smooth muscle relaxant causing blood to flow into penis	Firm erections are achievable in >50% of cases Pain at injection site; plaque formation, risk of priapism	Injection 20 min before sexual activity. Erection can last up to 1 h.
Penile suppository 	Smooth muscle relaxant causing blood to flow into penis	May be used twice a day Urethral and genital pain; risk of hypertension and syncope Not recommended with pregnant partners	Inserted 10 min before sexual activity. Erection can last up to 1 h.
Penile Implants <ul style="list-style-type: none">• Semirigid rod• Inflatable• Soft silicone	Surgically implanted into corpus cavernosum	Reliable Requires surgery Healing takes up to 3 wks Subsequent cystoscopic surgery is difficult	Indefinite Inflatable prosthesis—saline returns from penile receptacle to reservoir.

 Penile implant	Semirigid rod results in permanent semierrection
Negative-Pressure (Vacuum) Devices  Penile vacuum pump	Induction of erection with vacuum; maintained with constriction band around base of penis <p>Few side effects Cumbersome to use before sexual activity Vasocongestion of penis can cause pain or numbness</p> <p>To prevent penile injury, constriction band must not be left in place >1 h.</p>

Pharmacologic Therapy

Phosphodiesterase type 5 (PDE-5) inhibitors (oral medications that are used to treat erectile dysfunction) are first-line therapy (Allen, 2019). Currently available PDE-5 inhibitors include sildenafil, vardenafil, and tadalafil. Each of these agents has a similar mechanism of action but a different pharmacologic action and clinical use. Erection involves the release of nitric oxide in the vasculature of the corpus cavernosum as a result of sexual stimulation. This subsequently leads to smooth muscle relaxation in blood vessels supplying the corpus cavernosum, resulting in increased blood flow and an erection. During sexual stimulation, PDE-5 inhibitors increase blood flow to the penis (Norris, 2019).

When PDE-5 inhibitors are taken about 1 hour before sexual activity, they are effective in producing an erection with sexual stimulation; the erection can last about 1 to 2 hours. The most common side effects of these medications include headache, flushing, dyspepsia, diarrhea, nasal congestion, and lightheadedness. These agents are contraindicated in men who take organic nitrates (e.g., isosorbide, nitroglycerin), because taken together, these medications can cause side effects such as severe hypotension (Cheng et al., 2019; Norris, 2019). In addition, PDE-5 inhibitors must be used with caution in patients with retinopathy, especially in those with diabetic retinopathy. Patient education about the use of these medications and their side effects is summarized in [Table 53-3](#).

For patients in whom PDE-5 inhibitors are contraindicated or ineffective, other pharmacologic measures to induce erections include injecting vasoactive agents, such as alprostadil, papaverine, and phentolamine, directly into the penis. Complications include **priapism** (a persistent abnormal erection) and

development of fibrotic plaques at the injection sites. Alprostadil is also formulated in a gel pellet that can be inserted into the tip of the urethra with an applicator to create an erection.

Penile Implants

Two general types of penile implants are available: the malleable, noninflatable, nonhydraulic prosthesis (also called the *semirigid rod*) and the inflatable, hydraulic prostheses (Lindsey, Lue, & Shindel, 2020). The semirigid rod (e.g., the Small–Carrión prosthesis) results in a permanent semierrection but can be bent into an unnoticeable position when appropriate. The inflatable prosthesis simulates natural erections and natural flaccidity. Complications after implantation include infection, erosion of the prosthesis through the skin (more common with the semirigid rod than with the inflatable prosthesis), and persistent pain, which may require removal of the implant. Subsequent cystoscopic surgery is more difficult with a semirigid rod than with the inflatable prosthesis.

TABLE 53-3

Pharmacologic Treatment of Erectile Dysfunction

	Sildenafil	Vardenafil	Tadalafil
When to take	Take the medication 30 min to 4 h before penile-vaginal intercourse. <i>There must be sexual stimulation to produce an erection.</i>	Take the medication 1 h before penile-vaginal intercourse. The peak action occurs in 30–120 min. <i>There must be sexual stimulation to produce an erection.</i>	Take the medication before sexual activity. Effect peaks at 30 min to 6 h; effect may last up to 36 h. <i>There must be sexual stimulation to produce an erection.</i>
Frequency of use	If you take this medication more than once a day, it will not have an increased effect. You may take it 7 days per week if you wish, but only once in 24 h. It does not build up in your bloodstream. Remember to take it only when you want to have penile-vaginal intercourse.	The recommended frequency for this medication is 10 mg in 24 h.	The effects of this medication may last up to 36 h. This allows for increased spontaneity in the sexual experience.
Side effects	Side effects include headache, flushing, indigestion, nasal congestion, abnormal vision, diarrhea, dizziness, and rash. You may also have low blood sugar and abnormal liver function tests; your primary provider can determine this.	Side effects include headache, flushing, runny nose, indigestion, sinusitis, flulike syndrome, dizziness, nausea, back pain, and joint pain. Tell your primary provider if you experience any of these effects. You may also have abnormally elevated liver enzymes; your primary provider can determine this.	Side effects are similar to those of sildenafil and vardenafil. Tadalafil may also cause back pain and muscle aches. Tell your primary provider if you experience any of these side effects.
Contraindications	Do not take if you are taking nitrate medications such as nitroglycerin or isosorbide mononitrate. Do not take if you have high uncontrolled blood pressure, coronary artery disease, or have had a heart attack within the past 6 mo. Do not take if you have been diagnosed with a cardiac arrhythmia or		

	kidney or liver dysfunction.
Drug interactions	This medication can react with other medications that you may be taking. Provide your primary provider and pharmacist with a complete list of all prescribed and over-the-counter medications that you are using.
Use of PDE-5 inhibitors with penile injections or urethral suppositories	The use of PDE-5 inhibitors with other forms of therapy for erectile dysfunction has not been tested and should be avoided.

PDE-5, phosphodiesterase type 5.

Adapted from McMahon, C. G. (2019). Current diagnosis and management of erectile dysfunction. *Medical Journal of Australia*, 2(10), 469–476.

Factors to consider in choosing a penile prosthesis are the patient's activities of daily living, social activities, and the expectations of the patient and his partner. Ongoing counseling for the patient and his partner is usually necessary to help them adapt to the prosthesis.

Penis Transplants

In the United States, a few medical centers have protocols for penis transplants. Candidates for transplantation include military veterans and other men who have suffered traumatic penile injuries. It is believed that men undergoing this surgery will have their ability to urinate and their sexual functioning restored (Ngaage, Elegbede, Sugarman, et al., 2020). For more details on organ transplantation, see discussion in [Chapter 48](#).

Negative-Pressure Devices

Negative-pressure (vacuum) devices may also be used to induce an erection. A plastic cylinder is placed over the flaccid penis, and negative pressure is applied. When an erection is attained, a constriction band is placed around the base of the penis to maintain the erection. To avoid penile injury, the patient is instructed not to leave the constricting band in place for longer than 1 hour. Only devices with a vacuum limiter are recommended for use (Sikka & Hellstrom, 2017). Although many men find this method satisfactory, others experience premature loss of penile rigidity or pain when applying suction or during sexual activity.

Nursing Management

Personal satisfaction and the ability to sexually satisfy a partner are common concerns of patients. Men with illnesses and disability may need the assistance of a sex therapist to identify, implement, and integrate their sexual beliefs and behaviors into a healthy and satisfying lifestyle. The nurse can inform patients about support groups for men with erectile dysfunction and their partners.

Disorders of Ejaculation

Premature ejaculation is defined as the occurrence of ejaculation sooner than desired, either before or shortly after penetration, causing distress to either one or both partners. It is one of the most common complaints of men or couples, affecting 20% to 30% of men (Cheng et al., 2019; Smith et al., 2019). The spectrum of responses ranges from occasional ejaculation with penile-vaginal intercourse or self-stimulation to complete inability to ejaculate under any circumstances. Various forms have been identified including lifelong premature ejaculation caused by neurobiologic or genetic conditions, acquired (medical or psychological), natural variable (normal variation), and premature like ejaculatory dysfunction (psychological). In young men aged 18 to 25 years, factors associated with premature ejaculation and erectile dysfunction include smoking, use of illegal drugs or medications without prescriptions, poor physical and mental health, lack of physical activity, and lack of sexual experience (Barbonetti, D'Andrea, Cavallo, et al., 2019). Other ejaculatory problems may include inhibited (delayed or retarded) ejaculation, which is the involuntary inhibition of the ejaculatory reflex (see [Chart 53-2](#)). **Retrograde ejaculation** occurs when semen travels toward the bladder instead of exiting through the penis, resulting in infertility. This form of premature ejaculation may occur after prior prostate or urethral surgery, with diabetes, or with the use of medications such as antihypertensive agents.

Chart 53-2



GENETICS IN NURSING PRACTICE

Male Reproductive Disorders

Various male reproductive disorders are influenced by genetic factors. Some examples are:

- 21-Hydroxylase deficiency
- Congenital absence of the vas deferens, prostate gland, or seminal vesicles
- Kallmann syndrome
- Klinefelter syndrome (47, XXY)
- Prostate cancer
- Y chromosome deletions

Nursing Assessments

Refer to [Chapter 4, Chart 4-2: Genetics in Nursing Practice: Genetic Aspects of Health Assessment](#)

Family History Assessment Specific to Male Reproductive Disorders

- Collect a three-generation family history on both maternal and paternal sides of the family.
- Assess family history for other family members with similar reproductive problems/abnormalities.

Patient Assessment Specific to Male Reproductive Disorders

- In males with delayed puberty or infertility, assess for clinical features of Klinefelter syndrome (tall stature, gynecomastia, learning disability).
- Assess males with delayed or absent puberty for clinical features of Kallmann syndrome (cleft lip with or without cleft palate, abnormal eye movements, hearing loss, and abnormalities of tooth development).
- Assess males for history of early growth spurt, which is a symptom of 21-hydroxylase deficiency.
- Inquire about history of prostate inflammation, genital infections, medication use (steroids), or prior history of mumps.
- Assess for physical abnormalities of the genitalia.

Genetics Resources

Association for X and Y Chromosome Variations, www.genetic.org

Klinefelter Syndrome Support Group, www.klinefeltersyndrome.org

See [Chapter 6, Chart 6-7](#) for components of genetic counseling.

Evaluation of premature ejaculation involves a thorough sexual history focusing on the duration of symptoms, time to ejaculation, degree of voluntary control over ejaculation, frequency of occurrence, and course of the problem since the first sexual encounter (Cheng et al., 2019; Smith et al., 2019). Treatment, which depends on the nature, severity, and perceived distress that it causes, includes behavioral and psychological approaches, as well as

pharmacologic therapy that attempts to alter the sensory input or retard the ejaculatory response. Behavioral therapy (e.g., counseling, sex therapy, psychoeducation, and couples therapy) often involves both the man and his sexual partner. The couple is encouraged to identify their sexual needs and to communicate those needs to each other. Pharmacologic management involves selective serotonin reuptake inhibitors, dapoxetine, alpha₁ adrenoceptor antagonists, the tricyclic antidepressant clomipramine, and topical anesthetic agents. In some cases, a combination of pharmacologic and behavioral therapy may be effective.

Inhibited ejaculation is most often caused by psychological factors, neurologic disorders (e.g., SCI, multiple sclerosis, neuropathy secondary to diabetes), surgery (prostatectomy), and medications. Chemical, vibratory, and electrical methods of stimulation have been used with some success. Treatment usually addresses the physical and psychological factors involved in inhibited ejaculation (Bartlik, Espinosa, & Mindes, 2019). Although outpatient therapy may involve numerous sessions (12 to 18), it often results in a success rate of 70% to 80%. The outcome depends on a previous satisfying sexual experience history, a short duration of the ejaculatory problem, communication about feelings of sexual desire and attraction to one's sexual partner, motivation for treatment, and absence of serious psychological problems.

For men with retrograde ejaculation, the urine may be collected shortly after ejaculation, revealing a large amount of sperm in the urine. This urine may also be collected to obtain adequate viable sperm for use in artificial insemination. In men with SCI, techniques that may be used to obtain sperm for artificial insemination include self-stimulation, vibratory stimulation, or electroejaculation. Electroejaculation involves the use of a specially designed probe that is inserted into the rectum next to the prostate. The probe delivers a current that stimulates the nerves and produces contraction of the pelvic muscles and ejaculation. However, spontaneous or stimulated ejaculation may cause autonomic dysreflexia (overstimulation of the autonomic nervous system) in patients with SCI at T6 or higher, creating a life-threatening situation (see [Chapter 63](#)). If this disorder is not treated promptly, it may lead to seizures, stroke, and even death.

INFECTIONS OF THE MALE GENITOURINARY TRACT

Acute uncomplicated cystitis in adult men is uncommon but occasionally occurs. Asymptomatic bacteriuria may also result from genitourinary manipulation, catheterization, or instrumentation. Urinary tract infections (UTIs) are discussed in [Chapter 49](#).

According to the Centers for Disease Control and Prevention (CDC, 2019), more than 20 million people develop sexually transmitted infections (STIs) annually in the United States; almost half of all STIs occur in people 15 to 24 years of age. The CDC (2019) also reported that the incidence of STIs has

increased over the past several years from 2013 through 2017, except in specific populations, such as men who have sex with men. Routine human papillomavirus (HPV) vaccination for all males has become the standard of preventative care since 2011, as recommended by the Advisory Committee on Immunization Practices (ACIP) (Meites, Szilagyi, Chesson, et al., 2019).

STIs affect people from all walks of life—from all social, educational, economic, and racial backgrounds. The single greatest risk factor for contracting an STI is the number of sexual partners. As the number of partners increases, so does the risk of exposure to a person infected with an STI. For men who have sex with men, the CDC recommends annual testing for human immune deficiency virus (HIV), syphilis, *Chlamydia*, gonorrhea, hepatitis B viral infection, and herpes simplex virus type 2, along with counseling (An, Bernstein, & Balaji, 2020; CDC, 2019). Additionally, it is now encouraged that primary providers screen for STI at extragenital sites such as the oropharyngeal and anal areas (Keenan, Thomas, & Cotler, 2020).

There are many causes of urethritis (gonococcal and nongonococcal), genital ulcers (genital herpes infections, primary syphilis, chancroid, granuloma inguinale, and lymphogranuloma venereum), genital warts (HPV), scabies, pediculosis pubis, molluscum contagiosum, hepatitis and enteric infections, proctitis, and acquired immune deficiency syndrome (AIDS). Trichomoniasis and STIs characterized by genital ulcers are thought to increase susceptibility to HIV infection. Trichomoniasis is associated with nonchlamydial, nongonococcal urethritis.

Current treatment guidelines for STIs are available from the CDC (2019; Kuehn, 2019). Treatment must target the patient as well as his sexual partners and sometimes an unborn child. A thorough history, including a sexual history, is crucial to identify patients at risk and to direct care and education. It is essential for patient education to focus on partner safety as people can misjudge partner safety with known acquaintances, thus causing individuals to be at greater risk of STI/HIV transmission (Dennin & Sinn, 2020).

Partners of men with STIs must also be examined, treated, and counseled to prevent reinfection and complications in both partners and to limit the spread of the disease. Sexual abstinence during treatment and recovery is advised to prevent the transmission of STIs. The use of synthetic condoms for at least 6 months after completion of treatment is recommended to decrease transmission of HPV infection as well as other STIs. It is important to assess and test for other STIs because patients who have one STI may also have another. The use of spermicides with nonoxynol-9 (known as N-9) is discouraged; these agents do not protect against HIV infection and may increase the risk of transmission of the virus. See [Chapters 32](#) and [66](#) for more detailed discussions of HIV infection, AIDS, and other STIs.

PROSTATIC DISORDERS

Prostatitis

Prostatitis is an inflammation of the prostate gland that is often associated with lower urinary tract symptoms and symptoms of sexual discomfort and dysfunction. The condition affects 5% to 10% of men. It is the most common urologic diagnosis in men younger than 50 years and the third most common such diagnosis in men older than 50 years (Cheng et al., 2019). Prostatitis may be caused by infectious agents (bacteria, fungi, mycoplasma) or other conditions (e.g., urethral stricture, BPH). *Escherichia coli* is the most commonly isolated organism, although *Klebsiella* and *Proteus* species are also found (Wu, Jiang, Tan, et al., 2020). The microorganisms colonize the urinary tract and ascend to the prostate, ultimately causing infection. The causal pathogen is usually the same in recurrent infections.

There are four types of prostatitis: acute bacterial prostatitis (type I), chronic bacterial prostatitis (type II), chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) (type III), and asymptomatic inflammatory prostatitis (type IV). Type III, which occurs in more than 90% of cases, is further classified as type IIIA or type IIIB, depending on the presence (type IIIA) or absence (type IIIB) of white blood cells in semen after prostate massage (Rhoades & Bell, 2017).

Clinical Manifestations

Acute prostatitis is characterized by the sudden onset of fever, dysuria, perineal prostatic pain, and severe lower urinary tract symptoms including dysuria, frequency, urgency, hesitancy, and nocturia. Approximately 5% of cases of type I prostatitis (acute bacterial prostatitis) progress to type II prostatitis (chronic bacterial prostatitis) (Cheng et al., 2019). Patients with type II disease are typically asymptomatic between episodes. Patients with type III prostatitis often have no bacteria in the urine in the presence of genitourinary pain. Patients with type IV prostatitis are usually diagnosed incidentally during a workup for infertility, an elevated PSA test, or other disorders.

Medical Management

The goal of treatment is to eradicate the causal organisms. Hospital admission may be necessary for patients with unstable vital signs, sepsis, or intractable pelvic pain; those who are frail or immunosuppressed; or those who have diabetes or renal insufficiency. Specific treatment is based on the type of prostatitis and on the results of culture and sensitivity testing of the urine (Farmer, Johnston, Milica, et al., 2019). If bacteria are cultured from the urine, antibiotic agents, including trimethoprim-sulfamethoxazole or a fluoroquinolone (e.g., ciprofloxacin), may be prescribed, and continuous therapy with low-dose antibiotic agents may be used. If the patient is afebrile and has a normal urinalysis, anti-inflammatory agents may be used. Alpha-adrenergic blocker therapy (e.g., tamsulosin) may be prescribed to promote bladder and prostate relaxation.

Factors contributing to prostatitis, including stress, neuromuscular factors, and myofascial pain, are also addressed. Supportive, nonpharmacologic therapies may be prescribed. These include biofeedback, pelvic floor training, physical therapy, reduction of prostatic fluid retention by ejaculation through penile-vaginal intercourse or masturbation, sitz baths, stool softeners, and evaluation of sexual partners to reduce the possibility of cross-infection.

Nursing Management

If the patient experiences symptoms of acute prostatitis (fever, severe pain and discomfort, inability to urinate, malaise), he may be hospitalized for intravenous (IV) antibiotic therapy. Nursing management includes administration of prescribed antibiotic agents and provision of comfort measures, including prescribed analgesic agents and sitz baths.

The patient with chronic prostatitis is usually treated on an outpatient basis and needs to be educated about the importance of continuing antibiotic therapy and recognizing recurrent signs and symptoms of prostatitis.

Promoting Home, Community-Based, and Transitional Care



Educating Patients About Self-Care

The nurse educates the patient about the importance of completing the prescribed course of antibiotic therapy. If IV antibiotic agents are to be given at home, the nurse educates the patient and family about correct and safe administration. Arrangements for a home health nurse to oversee administration may be needed. Warm sitz baths (10 to 20 minutes) may be taken several times daily. Fluids are encouraged to satisfy thirst but are not “forced,” because an effective medication level must be maintained in the urine. Foods and liquids with diuretic action or that increase prostatic secretions, such as alcohol, coffee, tea, chocolate, cola, and spices, should be avoided. A suprapubic catheter may be necessary for severe urinary retention. During periods of acute inflammation, any sexual activity should be avoided. To minimize discomfort, the patient should avoid sitting for long periods. Medical follow-up is necessary for at least 6 months to 1 year, because prostatitis caused by the same or different organisms can recur. The patient is advised that the UTI may recur and is educated to recognize its symptoms.

Benign Prostatic Hyperplasia (Enlarged Prostate)

Benign prostatic hyperplasia (BPH), a noncancerous enlargement or hypertrophy of the prostate, is one of the most common diseases in aging men. It can cause bothersome lower urinary tract symptoms that affect quality of life by interfering with normal daily activities and sleep patterns (Cheng et al., 2019).

BPH typically occurs in men older than 40 years. By the time they reach 60 years, 50% of men will have BPH. It affects as many as 90% of men by 85 years of age. BPH is the second most common cause of surgical intervention in men older than 60 years.

Pathophysiology

The cause of BPH is not well understood, but testicular androgens have been implicated. Dihydrotestosterone (DHT), a metabolite of testosterone, is a critical mediator of prostatic growth. Estrogens may also play a role in the cause of BPH; BPH generally occurs when men have elevated estrogen levels and when prostate tissue becomes more sensitive to estrogens and less responsive to DHT. Smoking, heavy alcohol consumption, obesity, reduced activity level, hypertension, heart disease, diabetes, and a Western diet (high in animal fat and protein and refined carbohydrates, low in fiber) are risk factors for BPH (Cheng et al., 2019; El Jalby, Thomas, Elterman, et al., 2019).

BPH develops over a prolonged period; changes in the urinary tract are slow and insidious. BPH is a result of complex interactions involving resistance in the prostatic urethra to mechanical and spastic effects, bladder pressure during voiding, detrusor muscle strength, neurologic functioning, and general physical health (McCance et al., 2018). The hypertrophied lobes of the prostate may obstruct the bladder neck or urethra, causing incomplete emptying of the bladder and urinary retention. As a result, hydroureter (dilation of the ureters) and hydronephrosis (dilation of the kidneys) can gradually occur. Urinary retention may result in UTIs because urine that remains in the urinary tract serves as a medium for infective organisms.

Clinical Manifestations

BPH may or may not lead to lower urinary tract symptoms; if symptoms occur, they may range from mild to severe. Severity of symptoms increases with age, and half of men with BPH report having moderate to severe symptoms. Obstructive and irritative symptoms may include urinary frequency, urgency, nocturia, hesitancy in starting urination, decreased and intermittent force of stream and the sensation of incomplete bladder emptying, abdominal straining with urination, a decrease in the volume and force of the urinary stream, dribbling (urine dribbles out after urination), and complications of acute urinary retention and recurrent UTIs. Normally, residual urine amounts to no more than 50 mL in the middle-aged adult and less than 50 to 100 mL in the older adult (Weber & Kelley, 2018). Ultimately, chronic urinary retention and large residual volumes can lead to azotemia (accumulation of nitrogenous waste products) and kidney failure.

Generalized symptoms may also be noted, including fatigue, anorexia, nausea, vomiting, and pelvic discomfort. Other disorders that produce similar symptoms

include urethral stricture, prostate cancer, neurogenic bladder, and urinary bladder stones.

Assessment and Diagnostic Findings

The health history focuses on the urinary tract, previous surgical procedures, general health issues, family history of prostate disease, and fitness for possible surgery (DeNunzio, Lombardo, Cccione, et al., 2020). A voiding diary is used by the patient to record voiding frequency and urine volume. A DRE often reveals a large, rubbery, and nontender prostate gland. A urinalysis to screen for hematuria and UTI is recommended. A PSA level is obtained if the patient is without a terminal disease and for whom knowledge of the presence of prostate cancer would change management. The American Urological Association (AUA) Symptom Index or International Prostate Symptom Score (IPSS) can be used to assess the severity of symptoms (Smith et al., 2019).

Other diagnostic tests may include recording urinary flow rate and the measurement of postvoid residual urine. If invasive therapy is considered, urodynamic studies, urethrocytostoscopy, and ultrasound may be performed. Complete blood studies are performed. Cardiac status and respiratory function are assessed because a high percentage of patients with BPH have cardiac or respiratory disorders due to their age.

Medical Management

The goals of medical management of BPH are to improve quality of life, improve urine flow, relieve obstruction, prevent disease progression, and minimize complications. Treatment depends on the severity of symptoms, the cause of disease, the severity of the obstruction, and the patient's condition.

If a patient is admitted on an emergency basis because he is unable to void, he is immediately catheterized. The ordinary catheter may be too soft and pliable to advance through the urethra into the bladder. In such cases, a stylet (thin wire) is introduced (by a urologist) into the catheter to prevent the catheter from collapsing when it encounters resistance. A metal catheter with a pronounced prostatic curve may be used if obstruction is severe. A **cystostomy** (incision into the bladder) may be needed to provide urinary drainage.

Discussion of all treatment options by the primary provider enables the patient to make an informed decision based on symptom severity, the effect of BPH on his quality of life, and preference. Patients with mild symptoms and those with moderate or severe symptoms, who are not bothered by them and have not developed complications, may be managed with “watchful waiting.” With this approach, the patient is monitored and reexamined annually but receives no active intervention (DeNunzio et al., 2020). Other therapeutic choices include pharmacologic treatment, minimally invasive procedures, and surgery.

Pharmacologic Therapy

Pharmacologic treatment for BPH includes the use of alpha-adrenergic blockers and 5-alpha-reductase inhibitors (Cheng et al., 2019). Alpha-adrenergic blockers, which include alfuzosin, terazosin, doxazosin, and tamsulosin, relax the smooth muscle of the bladder neck and prostate. This improves urine flow and relieves symptoms of BPH. Side effects include dizziness, headache, asthenia/fatigue, orthostatic hypotension, rhinitis, and sexual dysfunction (Chapple, Steers, & Evans, 2020; Cheng et al., 2019).

Another method of treatment involves hormonal manipulation with antiandrogen agents. The 5-alpha-reductase inhibitors, finasteride and dutasteride, are used to prevent the conversion of testosterone to DHT and decrease prostate size. Side effects include decreased libido, ejaculatory dysfunction, erectile dysfunction, gynecomastia (breast enlargement), and flushing. Combination therapy (doxazosin and finasteride) has decreased symptoms and reduced clinical progression of BPH (Chapple et al., 2020; Cheng et al., 2019).

The use of alternative and complementary phytotherapeutic agents and other dietary supplements (*Serenoa repens* [saw palmetto berry] and *Pygeum africanum* [African plum]) are not recommended by the medical community, although they are commonly used (Rowland, McNabney, & Donarski, 2019). They may function by interfering with the conversion of testosterone to DHT. In addition, *S. repens* may directly block the ability of DHT to stimulate prostate cell growth. These agents should not be used with finasteride, dutasteride, or estrogen-containing medications (Rowland et al., 2019).

Surgical Management

Other treatment options include minimally invasive procedures and resection of the prostate gland.

Minimally Invasive Therapy

Several forms of minimally invasive therapy may be used to treat BPH. Transurethral microwave thermotherapy involves the application of heat to prostatic tissue. High-energy devices (CoreTherm, Prostatron, Targis) and low-energy devices (TherMatrx) are available (Cheng et al., 2019). A transurethral probe is inserted into the urethra, and microwaves are directed to the prostate tissue. The targeted tissue becomes necrotic and sloughs. To minimize damage to the urethra and decrease the discomfort from the procedure, some systems have a water-cooling apparatus.

Other minimally invasive treatment options include transurethral needle ablation by radiofrequency energy and insertion of a stent. Transurethral needle ablation uses low-level radiofrequencies delivered by thin needles placed in the prostate gland to produce localized heat that destroys prostate tissue while sparing other tissues. The body then reabsorbs the dead tissue. Prostatic stents are associated with significant complications (e.g., encrustation, infection, chronic pain); therefore, they are used only for patients with urinary retention and in patients who are at poor surgical risks (Cheng et al., 2019).

Surgical Resection

Surgical resection of the prostate gland is another option for patients with moderate to severe lower urinary tract symptoms of BPH and for those with acute urinary retention or other complications. The specific surgical approach (open or endoscopic) and the energy source (electrocautery vs. laser) are based on the surgeon's experience, the size of the prostate gland, the presence of other medical disorders, and the patient's preference. If surgery is to be performed, all clotting defects must be corrected and medications for anticoagulation withheld because bleeding is a potential complication of prostate surgery.

Transurethral resection of the prostate (TURP) remains the benchmark for surgical treatment for BPH. It involves the surgical removal of the inner portion of the prostate through an endoscope inserted through the urethra; no external skin incision is made. It can be performed with ultrasound guidance. The treated tissue either vaporizes or becomes necrotic and sloughs. The procedure is performed in the outpatient setting and usually results in less postoperative bleeding than a traditional surgical prostatectomy.

Other surgical options for BPH include transurethral incision of the prostate (TUIP), transurethral electrovaporization, laser therapy, and open prostatectomy (Chapple et al., 2020; Smith et al., 2019). TUIP is an outpatient procedure used to treat smaller prostates. One or two cuts are made in the prostate and prostate capsule to reduce constriction of the urethra and decrease resistance to flow of urine out of the bladder; no tissue is removed. Open **prostatectomy** involves the surgical removal of the inner portion of the prostate via a suprapubic, retropubic, or perineal (rare) approach for large prostate glands. Prostatectomy may also be performed laparoscopically or by robotic-assisted laparoscopy.

Nursing management of patients undergoing these procedures is described later in this chapter.

Cancer of the Prostate



Prostate cancer is the most common cancer in men other than nonmelanoma skin cancer. It is the second most common cause of cancer death in American men, exceeded only by lung cancer, and is responsible for 10% of cancer-related deaths in men. Among men diagnosed with prostate cancer, 98% survive at least 5 years, 84% survive at least 10 years, and 56% survive 15 years (ACS, 2020).

Prostate cancer is common in the United States and northwestern Europe but is rare in Africa, Central America, South America, China, and other parts of Asia. African American men have a high risk of prostate cancer; furthermore, they are more than twice as likely to die of prostate cancer as men of other racial or ethnic groups. Health care providers need to offer education about prostate cancer and appropriate screening in African American men, who are at higher risk compared to all other ethnic communities (Riviere, Luterstein, Kumar, et al., 2020). Health care providers should also ensure the delivery of culturally sensitive education

programs and counseling about prostate cancer screening not only to the African American patient at risk for prostate cancer, but also to his friends and family (Kelly, Morgan, Connelly, et al., 2019; Owens, Kim, & Tavakoli, 2019).

Other risk factors for prostate cancer include increasing age; the incidence of prostate cancer increases rapidly after the age of 50 years. More than 70% of cases occur in men older than 65 years. A familial predisposition may occur in men who have a father or brother previously diagnosed with prostate cancer, especially if their relatives were diagnosed at a young age. Genes that may be associated with increased risk of prostate cancer include hereditary prostate cancer 1 (*HPC1*) and *BRCA1* and *BRCA2* mutations (Cheng et al., 2019). The risk of prostate cancer is also greater in men whose diet contains excessive amounts of red meat or dairy products that are high in fat (ACS, 2020). Endogenous hormones, such as androgens and estrogens, also may be associated with the development of prostate cancer.

Clinical Manifestations

Cancer of the prostate in its early stages rarely produces symptoms. Usually, symptoms that develop from urinary obstruction occur in advanced disease. Prostate cancer tends to vary in its course. If the cancer is large enough to encroach on the bladder neck, signs and symptoms of urinary obstruction occur (difficulty and frequency of urination, urinary retention, and decreased size and force of the urinary stream). Other symptoms may include blood in the urine or semen and painful ejaculation. Hematuria may occur if the cancer invades the urethra or bladder. Sexual dysfunction is common before the diagnosis is made.

Prostate cancer can spread to lymph nodes and bones. Symptoms of metastases include backache, hip pain, perineal and rectal discomfort, anemia, weight loss, weakness, nausea, oliguria (decreased urine output), and spontaneous pathologic fractures. These symptoms may be the first indications of prostate cancer.

Assessment and Diagnostic Findings

If prostate cancer is detected early, the likelihood of cure is high (Brant, 2019). It can be diagnosed through an abnormal finding with the DRE, serum PSA, and TRUS with biopsy. Detection is more likely with the use of combined diagnostic procedures. Routine repeated DRE (preferably by the same examiner) is important because early cancer may be detected as a nodule within the gland or as an extensive hardening in the posterior lobe. The more advanced lesion is “stony hard” and fixed. DRE also provides useful clinical information about the rectum, anal sphincter, and quality of stool.

The diagnosis of prostate cancer is confirmed by a histologic examination of tissue removed surgically by TURP, open prostatectomy, or ultrasound-guided transrectal needle biopsy. Fine-needle aspiration is a quick, painless method of obtaining prostate cells for cytologic examination and determining the stage of disease.

Most prostate cancers are detected when a man seeks medical attention for symptoms of urinary obstruction or are found by routine DRE and PSA testing. Cancer detected incidentally when TURP is performed for clinically benign disease and lower urinary tract symptoms occurs in about 1 of 10 cases.



Concept Mastery Alert

DRE and PSA testing are important screening procedures because abnormal DRE and elevated levels of PSA may raise suspicion of prostate cancer. However, a diagnosis of cancer requires confirmation with a prostate biopsy.

TRUS helps detect nonpalpable prostate cancers and assists with staging of localized prostate cancer. Needle biopsies of the prostate are commonly guided by TRUS. The biopsies are examined by a pathologist to both determine if cancer is present and to grade the tumor. The most commonly used tumor grading system is the Gleason score. This system assigns a grade of 1 to 5 for the most predominant architectural pattern of the glands of the prostate and a secondary grade of 1 to 5 to the second most predominant pattern. The Gleason score is then reported as, for example, 2 + 4; the combined value can range from 2 to 10. With each increase in Gleason score, there is an increase in tumor aggressiveness. Lower Gleason scores indicate well-differentiated and less aggressive tumor cells; higher Gleason scores indicate undifferentiated cells and more aggressive cancer. A total score of 8 to 10 indicates a high-grade cancer (Smith et al., 2019; Zhou, Salles, Samarska, et al., 2019).

Categorization of low-, intermediate-, and high-risk prostate cancer is determined by the extent of cancer in the prostate gland, whether or not the cancer is localized to the prostate, the aggressiveness of the cells, and the spread to the lymph nodes and beyond. Level of risk, in turn, is used to determine treatment options.

Bone scans, skeletal x-rays, and magnetic resonance imaging (MRI) may be used to identify metastatic bone disease. Pelvic computed tomography (CT) scans may be performed to determine if the cancer has spread to the lymph nodes. The radiolabeled monoclonal antibody capromab pendetide with indium 111 is an antibody that can be used to detect either recurrent prostate cancer at low PSA levels or metastatic disease (NCCN, 2020b).

Medical Management

Treatment is based on the patient's life expectancy, symptoms, risk of recurrence after definitive treatment, size of the tumor, Gleason score, PSA level, likelihood of complications, and patient preference. Therapy is often guided by the use of a nomogram or risk stratification scheme suggested by the NCCN (2020b) clinical practice guidelines. A multidisciplinary team approach is essential for the development of appropriate treatment. Management may be nonsurgical and

involve watchful waiting or be surgical and entail prostatectomy. Nursing care of the patient with cancer of the prostate is summarized in [Chart 53-3](#).

For patients with prostate cancer who choose nonsurgical watchful waiting, this approach involves actively monitoring the course of disease and intervening only if the cancer progresses or if symptoms warrant other intervention. It is an option for patients with life expectancy of less than 5 years and low-risk cancers. Advantages include absence of side effects of more aggressive treatment, improved quality of life, avoidance of unnecessary treatment, and decreased initial costs. Disadvantages include missed chance at cure, risk of metastasis, subsequent need for more aggressive treatment, anxiety about living with untreated cancer, and need for frequent monitoring (NCCN, 2020b).

Therapeutic vaccines kill existing cancer cells and provide long-lasting immunity against further cancer development. Sipuleucel-T is the first therapeutic cancer vaccine approved by the U.S. Food and Drug Administration (FDA) for use in men with metastatic prostate cancer that is no longer responding to hormone therapy. This is an immunotherapy treatment that stimulates the patient's own immune system to identify and target prostate cancer cells, and it has minimal side effects (Caram, Ross, Lin, et al., 2019).

In addition, two other medications, abiraterone acetate and cabazitaxel, are treatment options for patients requiring care for the management of metastatic castration-resistant prostate cancer, which does not respond to sipuleucel-T or the usual treatment options (Nuhn, De Bono, Fizazi, et al., 2019).

Surgical Management

Radical prostatectomy is considered first-line treatment for prostate cancer and is used with patients whose tumor is confined to the prostate (Smith et al., 2019). It is the complete surgical removal of the prostate, seminal vesicles, tips of the vas deferens, and often the surrounding fat, nerves, and blood vessels. Laparoscopic radical prostatectomy and robotic-assisted laparoscopic radical prostatectomy have become the standard surgical approaches for localized cancer of the prostate. Although erectile dysfunction is a common side effect, these laparoscopic radical prostatectomy approaches result in low morbidity and more favorable postoperative outcomes, including improved quality of life and less sexual dysfunction if the nerves are spared. Surgical approaches are discussed in detail later in this chapter.

Radiation Therapy

Two major forms of radiation therapy are used to treat cancer of the prostate: teletherapy (external) and **brachytherapy** (internal). Teletherapy (external-beam radiation therapy [EBRT]) is prescribed by the radiation oncologist for a total dose over a certain time frame—for example, 28 treatments over 5½ weeks (Cheng et al., 2019). It is a treatment option for patients with low-risk prostate cancer; progression-free survival is similar to that of low-risk patients treated with radical prostatectomy. Patients with intermediate- and high-risk cancers receive

higher doses of EBRT. They may also be candidates for both pelvic lymph node irradiation and **androgen deprivation therapy** that entails surgical (orchiectomy) or medical castration (e.g., with luteinizing hormone–releasing hormone agonists) (NCCN, 2020b). Intensity-modulated radiation therapy is one method of delivery of EBRT. Intensity-modulated radiation therapy sets a dose for the target volume and restricts the dose to surrounding tissue. Another approach to delivery of radiation uses a computer-controlled robotic arm to deliver a course of radiotherapy (i.e., stereotactic radiosurgery) to localized prostate cancer. This method, referred to as the CyberKnife, is considered a safe and reliable method of delivering radiation to treat prostate cancer (Pollock, Wang, Gibbs, et al., 2019).

Chart 53-3 PLAN OF NURSING CARE

The Patient with Prostate Cancer

NURSING DIAGNOSIS: Anxiety associated with concern and lack of knowledge about the diagnosis, treatment plan, and prognosis

GOAL: Reduced stress and improved ability to cope

Nursing Interventions	Rationale	Expected Outcomes
<ol style="list-style-type: none">1. Obtain health history to determine the following:<ol style="list-style-type: none">a. Patient's concernsb. His level of understanding of his health problemc. His past experience with cancerd. Whether he knows his diagnosis of malignancy and its prognosise. His support systems and coping methods2. Provide education about diagnosis and treatment plan.<ol style="list-style-type: none">a. Explain in simple terms what diagnostic tests to expect, how long they will take, and what will be experienced during each test.b. Review treatment plan and encourage patient to ask questions.3. Assess his psychological reaction to his diagnosis/prognosis	<ol style="list-style-type: none">1. Nurse clarifies information and facilitates patient's understanding and coping.2. Helping the patient to understand the diagnostic tests and treatment plan will help decrease his anxiety and promote cooperation.3. This information provides clues in determining appropriate measures to facilitate coping.4. Institutional and community resources can help the patient and family cope with the illness and treatment on an ongoing basis.	<ul style="list-style-type: none">• Appears relaxed• States that anxiety has been reduced or relieved• Demonstrates understanding of illness, diagnostic tests, and treatment when questioned• Verbalizes adequate coping ability• Engages in open communication with others

and how he has coped with past stresses.

4. Provide information about institutional and community resources for coping with prostate cancer: social services, support services, community agencies.

NURSING DIAGNOSIS: Urinary retention associated with inability to empty bladder completely

GOAL: Improved pattern of urinary elimination

Nursing Interventions	Rationale	Expected Outcomes
<ol style="list-style-type: none">1. Determine patient's usual pattern of urinary function.2. Assess for signs and symptoms of urinary retention: amount and frequency of urination, suprapubic distention, complaints of urgency and discomfort.3. Initiate measures to treat retention.<ol style="list-style-type: none">a. Encourage assuming normal position for voiding.b. Recommend using Valsalva maneuver preoperatively, if not contraindicated.c. Administer prescribed	<ol style="list-style-type: none">1. Provides a baseline for comparison and goal to work toward.2. Voiding 20 to 30 mL frequently and output less than intake suggest retention.3. Promotes voiding:<ol style="list-style-type: none">a. Usual position provides relaxed conditions conducive to voiding.b. Valsalva maneuver exerts pressure to force urine out of bladder.c. Stimulates bladder contraction.d. If unsuccessful,	<ul style="list-style-type: none">• Voids at normal intervals• Reports absence of frequency, urgency, or bladder fullness• Displays no palpable suprapubic distention after voiding• Maintains balanced intake and output

- medication.
- d. Monitor effects of medication.
4. Consult with primary provider regarding intermittent or indwelling catheterization; assist with procedure as required.
5. Monitor catheter function; maintain sterility of closed system; irrigate as required.
6. Prepare patient for surgery if indicated.
- another measure may be required.
4. Catheterization will relieve urinary retention until the specific cause is determined; it may be an obstruction that can be corrected only surgically.
5. Adequate functioning of catheter is to be ensured to empty bladder and to prevent infection.
6. Surgical removal of obstruction may be necessary.

NURSING DIAGNOSIS: Lack of knowledge associated with the diagnosis of cancer, urinary difficulties, and treatment modalities

GOAL: Understanding of the diagnosis and ability to care for self

Nursing Interventions	Rationale	Expected Outcomes
<p>1. Encourage communication with the patient.</p> <p>2. Review the anatomy of the involved area.</p> <p>3. Be specific in selecting information that is relevant to the patient's particular treatment plan.</p> <p>4. Identify ways to reduce pressure on the operative area after prostatectomy.</p> <p>a. Instruct patient to avoid prolonged sitting (in a chair,</p>	<p>1. This is designed to establish rapport and trust.</p> <p>2. Orientation to one's anatomy is basic to understanding its function.</p> <p>3. This is based on the treatment plan because it varies with each patient; individualization is desirable.</p> <p>4. This is to prevent bleeding; such precautions are in</p>	<ul style="list-style-type: none"> • Discusses his concerns and problems freely • Asks questions and shows interest in his disorder • Describes activities that help or hinder recovery • Identifies ways of attaining/maintaining bladder control • Demonstrates satisfactory technique and understanding of catheter care

- long automobile rides), standing, walking.
- b.** Instruct patient to avoid straining, such as during exercises, bowel movement, lifting, and sexual activity.
- 5.** Familiarize patient with ways of attaining/maintaining bladder control.
- Encourage urination every 2 to 3 hours; discourage voiding when supine.
 - Instruct patient to avoid drinking cola and caffeine beverages; urge a cutoff time in the evening for drinking fluids to minimize frequent voiding during the night.
 - Describe perineal exercises to be performed every hour.
 - Develop a schedule with patient that will fit into his routine.
- 6.** Demonstrate catheter care; encourage his questions; stress the importance of position of urinary receptacle.
- order for 6 to 8 weeks postoperatively.
- 5.** These measures will help control frequency and dribbling and aid in preventing retention.
- By sitting or standing, patient is more likely to empty his bladder.
 - Spacing the kind and amount of liquid intake will help to prevent frequency.
 - Exercises will assist him in starting and stopping the urinary stream.
 - A schedule will assist in developing a workable pattern of normal activities.
- 6.** By requiring a return demonstration of care, collection, and emptying of the device, he will become more independent and also can prevent backflow of urine, which can lead to infection.
- Lists signs and symptoms that must be reported should they occur (e.g., abnormal bleeding, infection)

NURSING DIAGNOSIS: Impaired nutritional intake associated with decreased oral intake because of anorexia, nausea, and vomiting caused by cancer or its treatment

GOAL: Maintain optimal nutritional status

Nursing Interventions	Rationale	Expected Outcomes
<ol style="list-style-type: none"> 1. Assess the amount of food eaten. 2. Routinely weigh patient. 3. Elicit patient's explanation of why he is unable to eat more. 4. Cater to his individual food preferences (e.g., avoiding foods that are too spicy or too cold). 5. Recognize effect of medication or radiation therapy on appetite. 6. Inform patient that alterations in taste can occur. 	<ol style="list-style-type: none"> 1. This assessment will help determine nutrient intake. 2. Weighing the patient on the same scale under similar conditions can help monitor changes in weight. 3. His explanation may present easily corrected practices. 4. He will be more likely to consume larger servings if food is palatable and appealing. 5. Many chemotherapeutic agents and radiation therapy promote anorexia. 6. Aging and the disease process can reduce taste sensitivity. In addition, smell and taste can be altered as a result of the body's absorption of by-products of cellular destruction (brought on by 	<ul style="list-style-type: none"> • Responds positively to his favorite foods • Assumes responsibility for his oral hygiene • Reports absence of nausea and vomiting • Notes increase in weight after improved appetite

		malignancy and its treatment).
7.	Educate patient about appropriate oral hygiene interventions.	Food will be more palatable and appealing following good oral hygiene.
8.	Use measures to control nausea and vomiting.	Prevention of nausea and vomiting can stimulate appetite.
a.	Administer prescribed antiemetic agents, around the clock if necessary.	Smaller portions of food are more tolerable for the patient.
b.	Provide oral hygiene after vomiting episodes.	Disability or lack of social support can hinder the patient's ability to obtain and prepare foods.
c.	Provide rest after meals.	
9.	Provide frequent small meals and a comfortable and pleasant environment.	
10.	Assess patient's ability to obtain and prepare foods.	

NURSING DIAGNOSIS: Impaired sexual functioning associated with effects of therapy: chemotherapy, hormonal therapy, radiation therapy, surgery

GOAL: Ability to resume/enjoy modified sexual functioning

Nursing Interventions	Rationale	Expected Outcomes
1. Determine from nursing history what effect patient's medical condition is having on his sexual functioning. 2. Inform patient of the effects of prostate surgery,	1. Usually, decreased libido and, later, erectile dysfunction may be experienced. 2. Treatment modalities may alter sexual function, but each	• Describes the reasons for changes in sexual functioning • Discusses with appropriate health care personnel alternative approaches and

	orchietomy (when applicable), chemotherapy, irradiation, and hormonal therapy on sexual function.	is evaluated separately regarding its effect on a particular patient.	methods of sexual expression
3.	Include his partner in developing understanding and in discovering alternative, satisfying close relations with each other.	3. The bond between a couple may be strengthened with new appreciation and support that had not been evident before the current illness.	<ul style="list-style-type: none"> Includes partner in discussions related to changes in sexual function

NURSING DIAGNOSIS: Acute pain associated with progression of disease and treatment modalities

GOAL: Relief of pain

Nursing Interventions	Rationale	Expected Outcomes
<ol style="list-style-type: none"> 1. Evaluate nature of patient's pain, its location, and intensity using pain rating scale. 2. Avoid activities that aggravate or worsen pain. 3. Because pain is usually related to bone metastasis, ensure that patient's bed has a bed board or a firm mattress. In addition, protect the patient from falls/injuries. 4. Provide support for affected extremities. 5. Prepare patient for radiation therapy if prescribed. 6. Administer analgesic or opioid agents at regularly scheduled intervals as prescribed. 7. Initiate bowel program to prevent constipation. 	<ol style="list-style-type: none"> 1. Determining nature and causes of pain and its intensity help to select proper pain relief modality and provide baseline for later comparison. 2. Bumping the bed is an example of an action that can intensify the patient's pain. 3. This will provide added support and is more comfortable. Protecting the patient from injury protects him from additional pain. 4. More support, coupled with reduced movement of the part, helps in pain control. 5. Radiation therapy may be effective in controlling pain. 6. Analgesic agents alter perception of pain and provide comfort. Regularly scheduled analgesics around the clock rather than PRN (as needed) provide more consistent pain relief. 7. Opioid analgesic agents and inactivity contribute to constipation. 	<ul style="list-style-type: none"> • Reports relief of pain • Expects exacerbations, reports their quality and intensity, and obtains relief • Uses pain relief strategies appropriately and effectively • Identifies strategies to avoid complications of analgesic use (e.g., constipation)

NURSING DIAGNOSIS: Impaired mobility associated with limitations in

independent, purposeful movement of the body or one or more extremities

GOAL: Improved physical mobility

Nursing Interventions	Rationale	Expected Outcomes
<ol style="list-style-type: none">1. Assess for factors causing limited mobility (e.g., pain, hypercalcemia, limited exercise tolerance).2. Provide pain relief by administering prescribed medications.3. Encourage the use of assistive devices: cane, walker.4. Involve significant others in helping patient with range-of-motion exercises, positioning, and walking.5. Provide positive reinforcement for achievement of small gains.6. Assess nutritional status.	<ol style="list-style-type: none">1. This information offers clues to the cause; if possible, cause is treated.2. Analgesic/opioid agents allow the patient to increase his activity more comfortably.3. Support may offer the security needed to become mobile.4. Assistance from partner or others encourages patient to repeat activities and achieve goals.5. Encouragement stimulates improvement of performance.6. See Nursing Diagnosis: Impaired nutritional intake	<ul style="list-style-type: none">• Achieves improved physical mobility• Relates that short-term goals are encouraging him because they are attainable

COLLABORATIVE PROBLEMS: Hemorrhage, infection, bladder neck obstruction

GOAL: Absence of complications

Nursing Interventions	Rationale	Expected Outcomes
<ol style="list-style-type: none">1. Alert the patient to changes that may occur (after discharge) and that need to be reported:<ol style="list-style-type: none">a. Continued bloody urine;	<ol style="list-style-type: none">1. Certain changes signal beginning complications, which call for nursing and medical interventions.<ol style="list-style-type: none">a. Hematuria with or without blood clot	<ul style="list-style-type: none">• Experiences no bleeding or passage of blood clots• Reports no infection or pain around the catheter

<p>passing blood clots</p> <p>b. Pain; burning around the catheter</p> <p>c. Frequency of urination</p> <p>d. Diminished urinary output</p> <p>e. Increasing loss of bladder control</p>	<p>formation may occur postoperatively.</p> <p>b. Indwelling urinary catheters may be a source of pain or infection.</p> <p>c. Urinary frequency may be caused by urinary tract infections or by bladder neck obstruction, resulting in incomplete voiding.</p> <p>d. Bladder neck obstruction decreases the amount of urine that is voided.</p> <p>e. Urinary incontinence may be a result of urinary retention.</p>	<ul style="list-style-type: none"> • Experiences normal frequency or urination • Reports normal urinary output • Maintains bladder control
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Brachytherapy involves the implantation of interstitial radioactive seeds under anesthesia. It has become a commonly used monotherapy treatment option for early, clinically organ-confined prostate cancer. The surgeon uses ultrasound guidance to place 80 to 100 seeds (depending on the prostate volume), and the patient returns home after the procedure. Exposure of others to radiation is minimal, but the patient should avoid close contact with pregnant women and infants for up to 2 months. Radiation safety guidelines include straining urine for seeds and using a condom during penile-vaginal intercourse for 2 weeks after implantation to catch any seeds that pass through the urethra. This approach can be completed in 1 day, with little lost time from normal activities. Brachytherapy may be combined with EBRT with or without neoadjuvant androgen deprivation therapy for patients considered at intermediate risk. High-risk patients are considered poor candidates for permanent brachytherapy (Brant, 2019).

Although cure rates with radiation are comparable to those of radical prostatectomy, radiation therapy possesses its own unique set of side effects, which differ depending on the method of radiation administration. Patients receiving EBRT or brachytherapy may experience inflammation of the rectum, bowel, and bladder (proctitis, enteritis, and cystitis) because of the proximity of these structures to the prostate and the radiation doses. Inflammation and mucosal loss at the bladder neck, prostate, and urethra can cause acute urinary dysfunction. Both irritative and obstructive urinary symptoms can cause pain with urination and ejaculation until the irritation subsides. Rectal urgency, diarrhea, and tenesmus may occur as a result of radiation of the anterior rectal wall. Late side

effects include rectal proctitis, bleeding, and rectal fistula; painless hematuria; chronic interstitial cystitis; urethral stricture erectile dysfunction; and, rarely, secondary cancers of the rectum and bladder (Brant, 2019).

Hormonal Strategies

The number of survivors of prostate cancer in the United States is estimated at 2 million; approximately one third of these men currently receive androgen deprivation therapy (Jeong, Cowan, Broering, et al., 2019). Androgen deprivation therapy is commonly used to suppress androgenic stimuli to the prostate by decreasing the level of circulating plasma testosterone or interrupting the conversion to or binding of DHT. As a result, the prostatic epithelium atrophies (decreases in size). This effect is accomplished either by surgical castration through bilateral **orchectomy** (removal of one or both testes), which has traditionally been the mainstay of hormonal treatment, or by medical castration with the administration of medications, such as luteinizing hormone-releasing hormone (LHRH) agonists. Bilateral orchectomy decreases plasma testosterone levels significantly because approximately 93% of circulating testosterone is of testicular origin (7% is from the adrenal glands). Thus, the testicular stimulus required for continued prostatic growth is removed, resulting in prostatic atrophy.

However, orchectomy often results in significant morbidity. Although the procedure does not cause the side effects associated with other hormonal therapies (described later), it is associated with considerable emotional impact. Because patients who have prostate cancer are living longer with the disease, health care providers are focusing on effective therapeutic modalities that promote an acceptable quality of life. Patients may be given the option for testicular prostheses to be placed during surgery.

LHRH agonists include leuprolide and goserelin. Additional hormonal manipulation with antiandrogens may be prescribed for patients who do not show adequate serum testosterone suppression (less than 50 ng/mL) with medical or surgical castration. Antiandrogen receptor antagonists include flutamide, bicalutamide, and nilutamide. LHRH agonists suppress testicular androgen, whereas antiandrogen receptor antagonists cause adrenal androgen suppression. When LHRH agonists are initiated, a testosterone flare may occur, causing pain in bony metastatic disease. Antiandrogens given for the first 7 days may reduce this uncomfortable symptom. The most common uses of LHRH agonists are in the adjuvant and neoadjuvant setting in combination with radiation therapy, after radical prostatectomy, and in the treatment of recurrence indicated by an elevation in the PSA but without clinical or x-ray evidence. Medical and surgical castration causes hot flushing because these treatment modalities increase hypothalamic activity, which stimulates the thermoregulatory centers of the body (Kunath, Goebell, Wullich, et al., 2020; Shore, Guerrero, Sanahuja, et al., 2019).

The management of hormone-refractory prostate cancer remains somewhat controversial. Another category of medication used as a second-line hormonal intervention is the adrenal ablating drugs. Ketoconazole is used to inhibit

cytochrome P450 enzymes, which are required for the synthesis of androgens and other steroids. High-dose ketoconazole lowers testosterone by decreasing both testicular and endocrine production of androgen. Administration of this medication requires steroid supplementation to prevent adrenal insufficiency.

Hypogonadism is responsible for the adverse effects of androgen deprivation therapy, which include vasomotor flushing, loss of libido, decreased bone density (resulting in osteoporosis and fractures), anemia, fatigue, increased fat mass, lipid alterations, decreased muscle mass, gynecomastia (increased breast tissue), and mastodynia (breast/nipple tenderness). Hypogonadism is associated with an increased risk of diabetes, resulting from insulin resistance, metabolic syndrome, and cardiovascular disease (Cheng et al., 2019).

Chemotherapy

Recent studies have shown clear benefits in terms of survival with chemotherapy treatment that includes a docetaxel-based regimen for non-androgen-dependent prostate cancer (NCCN, 2020b). Other studies are under way to determine the importance of the vascular endothelial growth factor system. Tumor angiogenesis is essential for tumor growth, including growth of prostate carcinomas and other high-grade cancers. Therefore, antiangiogenic treatment in combination with conventional therapies may play a future role in treatment. Gene-based therapy in prostate cancer is an emerging and promising adjuvant to conventional treatment strategies.

Possible complications related to chemotherapy are specific to the type of chemotherapy given (see [Chapter 12, Chart 12-4](#)).

Other Therapies

Cryosurgery of the prostate is used to ablate prostate cancer in patients who cannot tolerate surgery and in those with recurrent prostate cancer. Transperineal probes are inserted into the prostate under ultrasound guidance to freeze the tissue directly.

Keeping the urethral passage patent may require repeated TURPs. If this is impractical, catheter drainage is instituted by way of the suprapubic or transurethral route. For men with advanced prostate cancer, palliative measures are indicated. Although cure is unlikely with advanced prostate cancer, many men survive for long periods, free of debilitating symptoms.

Bone lesions that result from metastasis of prostate cancer can be very painful and result in pathologic fractures. Opioid and nonopioid medications are used to control bone pain. EBRT can be delivered to skeletal lesions to relieve pain. Radiopharmaceuticals, such as strontium or samarium, can be injected IV to treat multiple sites of bone metastasis. Antiandrogen therapies are used in an effort to reduce the circulating androgens. If antiandrogen therapies are not effective, medications such as prednisone have been effective in reducing pain and improving quality of life (Dong, Zieren, Xue, et al., 2019; Sargon, Lamb, & Patel, 2019). Bisphosphonate therapy with pamidronate can be given to reduce the risk

of pathologic fracture. In advanced prostate cancer, blood transfusions are given to maintain adequate hemoglobin levels when bone marrow is replaced by tumor.

More than one third of men with a diagnosis of prostate cancer elect to use some form of complementary and integrative health. Because research on many forms of complementary, alternative, and integrative health is lacking, patients often rely on anecdotal information to make decisions about which modalities to use. Nurses and other health care professionals play a vital role in assisting patients to locate and evaluate available information about these practices to ensure that harmful forms are avoided (Brant, 2019). The National Center for Complementary and Integrative Health (NCCIH) website can assist nurses in providing patients with evidence-based information (see the Resources section at the end of the chapter).

The Patient Undergoing Prostate Surgery

Prostate surgery may be indicated for the patient with BPH or prostate cancer. The objectives before prostate surgery are to assess the patient's general health status and to establish optimal kidney function. Prostate surgery should be performed before acute urinary retention develops and damages the upper urinary tract and collecting system or, in the case of prostate cancer, before cancer progresses.

Surgical Procedures

Several approaches can be used to remove the hypertrophied portion of the prostate gland: TURP, suprapubic prostatectomy, perineal prostatectomy, retropubic prostatectomy, TUIP, and laparoscopic radical prostatectomy and robotic-assisted laparoscopic radical prostatectomy (see [Table 53-4](#)). With these approaches, all cancerous or hyperplastic tissue is removed, leaving behind only the capsule of the prostate.

Transurethral Resection of the Prostate

TURP, which is the most common procedure used, can be carried out through endoscopy. The prostate gland is removed in small chips with an electrical cutting loop (see [Fig. 53-4A](#)). This procedure decreases the risk of transurethral resection syndrome (hyponatremia, hypervolemia). Transurethral resection syndrome is a potential but rare complication of TURP that occurs in approximately 2% of men who undergo the procedure (Hahn, 2019) (see [Chart 53-4](#)).

Urethral strictures are more frequent than with nontransurethral procedures, and repeated procedures may be necessary because the residual prostatic tissue grows back. TURP rarely causes erectile dysfunction but may trigger retrograde ejaculation, because removal of prostatic tissue at the bladder neck can cause the seminal fluid to flow backward into the bladder rather than forward through the urethra during ejaculation.

Suprapubic Prostatectomy

A suprapubic prostatectomy is an open surgical procedure (see Fig. 53-4B). Disadvantages include blood loss, the need for an abdominal incision, and the risks associated with any major abdominal surgical procedure.

Perineal Prostatectomy

A perineal prostatectomy (see Fig. 53-4C) is practical when other approaches are not possible and is useful for an open biopsy. However, incontinence, sexual dysfunction, and rectal injury are more likely to occur with this approach.

Retropubic Prostatectomy

Retropubic prostatectomy is used more commonly than the suprapubic approach (see Fig. 53-4D). This procedure is suitable for large glands located high in the pelvis. Although blood loss can be better controlled and the surgical site is easier to visualize, infections can readily start in the retropubic space.

Transurethral Incision of the Prostate

TUIP is indicated when the prostate gland is small (30 g or less), and it is an effective treatment for many cases of BPH (see Fig. 53-4E). TUIP can be performed as an outpatient procedure and has a lower complication rate than other more invasive prostate procedures.

Laparoscopic Radical Prostatectomy

A laparoscopic radical prostatectomy has fewer risks compared with open radical prostatectomy (Smith et al., 2019).

Robotic-Assisted Laparoscopic Radical Prostatectomy

Robotic-assisted laparoscopic radical prostatectomy is a minimally invasive approach that uses a computer console and a robot to move instruments, replicating the movements of the surgeon's hands (Peard, Goodwin, Hensley, et al., 2019; Smith et al., 2019).

Pelvic Lymph Node Dissection

Pelvic lymph node dissection (PLND) is not always performed. It may be used in some patients to provide information for staging the tumor and to remove an area of microscopic metastasis. The planned treatment may influence the surgeon's decision to perform PLND and the extent (limited vs. extended) of the dissection. Dissection of nodes anterior and lateral to the external iliac vessels is associated with an increased risk of lymphedema (NCCN, 2020a).

Complications

Postoperative complications depend on the type of prostatectomy performed and may include hemorrhage, clot formation, catheter obstruction, and sexual dysfunction. All prostatectomies carry a risk of erectile dysfunction because of potential damage to the pudendal nerves. In most instances, sexual activity may be resumed in 6 to 8 weeks, which is the time required for the prostatic fossa to heal. The anatomic changes in the posterior urethra can lead to retrograde ejaculation. During ejaculation, the seminal fluid goes into the bladder and is excreted with the urine. A vasectomy may be performed during surgery to prevent infection from spreading from the prostatic urethra through the vas and into the epididymis.

After total prostatectomy (usually for cancer), the risk of erectile dysfunction is high. If this is unacceptable to the patient, options are available to produce erections sufficient for sexual activity: prosthetic penile implants, negative-pressure (vacuum) devices, and pharmacologic interventions (see earlier discussion and [Table 53-2](#)).

TABLE 53-4 Surgical Approaches for Treatment of Prostate Disorders

The surgical approach of choice depends on the size of the gland, the severity of the obstruction, the age of the patient, the condition of the patient, and the presence of associated diseases.

Surgical Approach	Advantages	Disadvantages	Nursing Implications
Transurethral Resection of the Prostate (TURP) Removal of prostatic tissue by optical instrument introduced through urethra; used for glands of varying size. Ideal for patients who are at poor surgical risks (see Fig. 53-4A).	Avoids abdominal incision Safer for surgical-risk patient Shorter length of hospital stay and recovery periods Lower morbidity rate Causes less pain Can be used as a palliative approach with history of radiation therapy	Recurrent obstruction, urethral trauma, and stricture may develop Delayed bleeding may occur	Monitor for hemorrhage. Observe for symptoms of urethral stricture (dysuria, straining, weak urinary stream).
Open Surgical Removal			
<i>Suprapubic approach</i> Removal of prostatic tissue through abdominal incision; can be used for gland of any size (see Fig. 53-4B).	Technically simple Offers wide area of exploration Permits exploration for cancerous lymph nodes Allows more complete removal of obstructing gland Permits treatment of associated bladder lesions	Requires surgical approach through the bladder Control of hemorrhage is difficult Urine may leak around the suprapubic tube Recovery may be prolonged and uncomfortable	Monitor for indications of hemorrhage and shock. Provide meticulous aseptic care to the area around suprapubic tube.
<i>Perineal approach</i> Removal of gland through an incision in the perineum; preferred approach for patients with obesity (see Fig. 53-4C).	Offers direct anatomic approach Permits gravity drainage Particularly effective for radical cancer therapy Allows hemostasis under direct vision Low mortality rate Low incidence of shock Ideal for patients with large	Higher postoperative incidence of erectile dysfunction and urinary incontinence Possible damage to rectum and external sphincter Restricted operative field Greater potential for contamination	Avoid using rectal tubes or thermometers and enemas after perineal surgery. Use drainage pads to absorb excess urinary drainage. Provide foam rubber ring for patient

	prostate who are very old, frail, and at poor surgical risks	and infection of incision	comfort in sitting. Anticipate urinary leakage around the wound for several days after the catheter is removed.
Retropubic approach Low abdominal incision; bladder is not entered (see Fig. 53-4D).	Avoids incision into the bladder Permits surgeon to see and control bleeding Shorter recovery period Less bladder sphincter damage Suitable for removal of large glands	Cannot treat associated bladder disease Increased incidence of hemorrhage from prostatic venous plexus; osteitis pubis	Monitor for hemorrhage. Anticipate posturinary leakage for several days after removing the catheter.
Transurethral Incision of the Prostate (TUIP) Urethral approach; 1–2 cuts are made in the prostate and prostate capsule to reduce pressure on the urethra and to reduce urethral constriction (see Fig. 53-4E).	Results comparable to TURP Low incidence of erectile dysfunction and retrograde ejaculation No bladder neck contracture	Recurrent obstruction and urethral trauma Delayed bleeding	Monitor for hemorrhage.
Laparoscopic Radical Prostatectomy In this approach, 4–6 small (1 cm [0.5 inch]) incisions are made in the abdomen; laparoscopic instruments inserted through the incisions are used to dissect the prostate.	Minimally invasive technique Improved patient satisfaction and quality of life Shorter length of hospital stay Short convalescence More rapid return to normal activity Short indwelling catheter duration Decreased blood loss to 400 mL Reduced infection risk Less scarring Better visualization of surgical field	Lack of tactile sensation available with open prostatectomy Inability to palpably assess for induration and palpable nodules Inability to delineate the proximity of involvement of the neurovascular bundles due to lack of palpation	Observe for symptoms of urethral stricture (dysuria), straining, and weak urinary stream. Monitor for hemorrhage and shock. Provide meticulous aseptic care to area around suprapubic tube. Monitor for changes in

	than other approaches	Long surgical time (4–5 h)	bowel function. Avoid using rectal tubes or thermometers and enemas after perineal surgery. Use drainage pads to absorb excess urinary drainage. Provide foam rubber ring for patient comfort in sitting. Anticipate urinary leakage around the wound for several days after the catheter is removed.
Robotic-Assisted Laparoscopic Radical Prostatectomy Involves using computer console and da Vinci (see Chapter 14 , Fig. 14-1). In this approach, 6 small (1 cm [0.5 inch]) incisions are made in the abdomen; laparoscopic instruments inserted through the incisions are used to dissect the prostate.	Minimally invasive technique Improved patient satisfaction and quality of life Shorter length of hospital stay Short convalescence More rapid return to normal activity Short indwelling catheter duration Decreased blood loss to 150 mL Improved magnification of operative field, using a three-dimensional view (includes, magnification, high resolution,	Lack of tactile sensation available with open prostatectomy Inability to palpably assess for induration and palpable nodules Inability to delineate the proximity of involvement of the neurovascular bundles due to lack of palpation	Observe for symptoms of urethral stricture (dysuria), straining, and weak urinary stream. Monitor for hemorrhage and shock. Provide meticulous aseptic care to the area around suprapubic tube. Monitor for changes in bowel function.

and depth perception)	Avoid using rectal tubes or thermometers and enemas after perineal surgery.
Less postoperative pain	
Reduced risk of infection	
Less scarring	
Laparoscopic instruments have 6 degrees of movement with joints, allowing extensive range of motion and precision	Use drainage pads to absorb excess urinary drainage.
Nerve sparing with less incontinence and sexual dysfunction	Provide foam rubber ring for patient comfort in sitting.
	Anticipate urinary leakage around the wound for several days after the catheter is removed.

Adapted from Cheng, L., MacLennan, G. T., & Bostwick, D. G. (2019). *Urologic surgical pathology* (4th ed.). Philadelphia, PA: Elsevier; Smith, J. A., Howards, S. S., Preminger, G. M., et al. (2019). *Hinman's atlas of urologic surgery* (4th ed.). Philadelphia, PA: Wolters Kluwer.

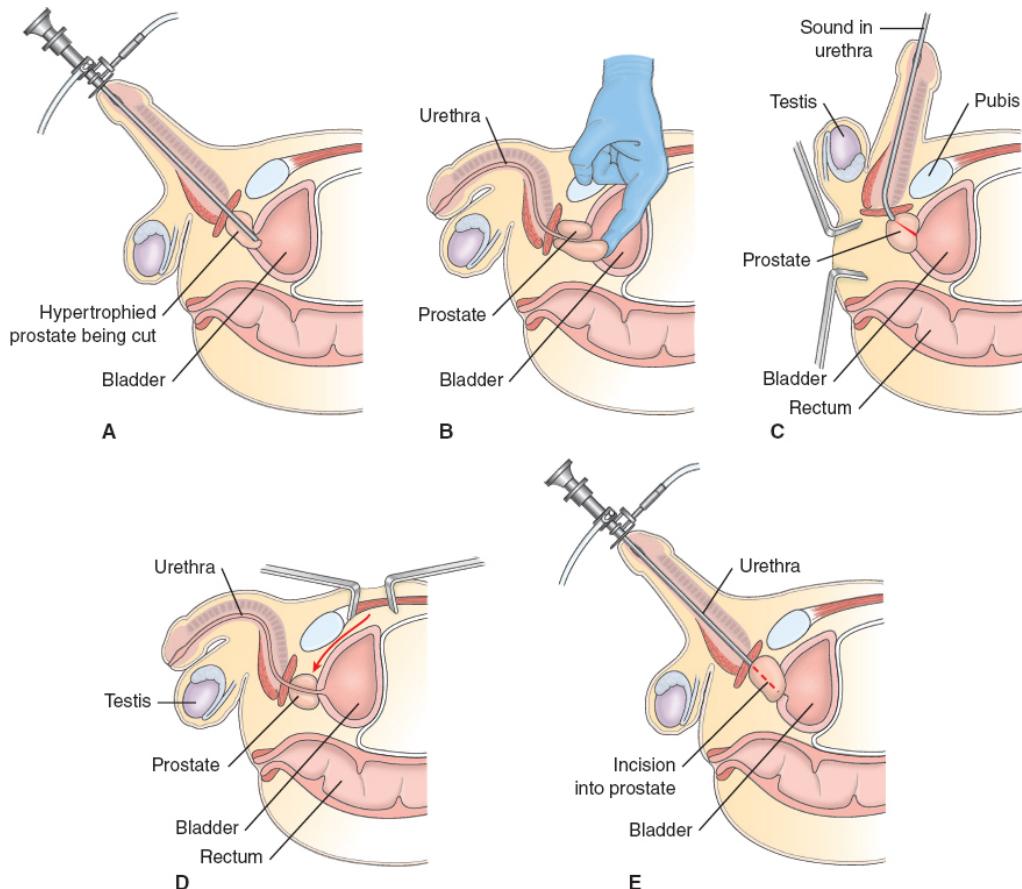


Figure 53-4 • Prostate surgery procedures. **A.** Transurethral resection of the prostate. A loop of wire connected with a cutting current is rotated in the cystoscope to remove shavings of prostate at the bladder orifice. **B.** Suprapubic prostatectomy. With an abdominal approach, the prostate is shelled out of its bed. **C.** Perineal prostatectomy. Two retractors on the left spread the perineal incision to provide a view of the prostate. **D.** Retropubic prostatectomy is performed through a low abdominal incision. Note two abdominal retractors and arrow pointing to the prostate gland. **E.** Transurethral incision of the prostate involves one or two incisions into the prostate to reduce pressure on the urethra.

Chart 53-4

Transurethral Resection Syndrome

Transurethral resection syndrome is a rare but potentially serious complication of transurethral resection of the prostate (TURP). Signs and symptoms are caused by neurologic, cardiovascular, and electrolyte imbalances associated with absorption of the solution used to irrigate the surgical site during the surgical procedure. Hyponatremia, hypervolemia, and occasionally hyperammonemia may occur.

Signs and Symptoms

- Collapse
- Headache
- Hypotension
- Lethargy and confusion
- Muscle spasms
- Nausea and vomiting
- Seizures
- Tachycardia

Interventions

- Discontinue irrigation.
- Administer diuretic agents as prescribed.
- Replace bladder irrigation with normal saline.
- Monitor intake and output.
- Monitor the patient's vital signs and level of consciousness.
- Differentiate lethargy and confusion of TURP syndrome from postoperative disorientation and hyponatremia.
- Maintain patient safety during times of confusion.
- Assess lung and heart sounds for indications of pulmonary edema, heart failure, or both as fluid moves back into the intravascular space.

Adapted from Hahn, R. G. (2019). What the intensive care physician should know about the transurethral resection syndrome. In J. L. Vincent (Ed). *Annual update in intensive care and emergency medicine 2019*. New York: Springer.

NURSING PROCESS

Patient Undergoing Prostatectomy

Assessment

The nurse assesses how the underlying disorder (BPH or prostate cancer) has affected the patient's lifestyle. Questions to ask during assessment include the following: Has the patient's activity level or activity tolerance changed? What is his presenting urinary problem (described in the patient's own words)? Has he experienced decreased force of urinary flow, decreased ability to initiate voiding, urgency, frequency, nocturia, dysuria, urinary retention, or hematuria? Does the patient report back pain, flank pain, and lower abdominal or suprapubic discomfort? Possible causes of such discomfort include infection, retention, and renal colic. Has the patient experienced erectile dysfunction or changes in frequency or enjoyment of sexual activity?

The nurse obtains further information about the patient's family history of cancer and heart or kidney disease, including hypertension. Has he lost weight? Does he appear pale? Can he raise himself out of bed and return to bed without assistance? Can he perform usual activities of daily living? A comprehensive functional assessment helps determine how soon the patient will be able to return to normal activities after prostatectomy.

Diagnosis

PREOPERATIVE NURSING DIAGNOSES

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

- Anxiety about surgery and its outcome
- Acute pain associated with bladder distention
- Lack of knowledge about factors associated with the disorder and the treatment protocol

POSTOPERATIVE NURSING DIAGNOSES

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

- Risk for hypovolaemia
- Acute pain associated with the surgical incision, catheter placement, and bladder spasms
- Lack of knowledge about postoperative care

COLLABORATIVE PROBLEMS/POTENTIAL COMPLICATIONS

Potential complications may include the following:

- Hemorrhage and shock
- Infection
- Venous thromboembolism (VTE)
- Catheter obstruction

- Complications with catheter removal
- Urinary incontinence
- Sexual dysfunction

Planning and Goals

The major preoperative goals for the patient may include reduced anxiety and learning about his prostate disorder and the perioperative experience. The major postoperative goals may include maintenance of fluid volume balance, relief of pain and discomfort, ability to perform self-care activities, and absence of complications.

Preoperative Nursing Interventions

REDUCING ANXIETY

The patient is usually admitted to the hospital or surgical center on the morning of surgery. Because contact with the patient may be limited before surgery, the nurse must establish communication with the patient to assess his understanding of the diagnosis and of the planned surgical procedure. The nature of the surgery and expected postoperative outcomes are clarified. In addition, the nurse familiarizes the patient with the pre- and postoperative routines and initiates measures to reduce anxiety. Because the patient may be sensitive and embarrassed discussing problems related to the genitalia and sexuality, the nurse provides privacy and establishes a trusting and professional relationship. The patient is encouraged to verbalize his feelings and concerns.

RELIEVING DISCOMFORT

If the patient experiences discomfort before surgery, bed rest may be prescribed, analgesic agents are given, and measures are initiated to relieve anxiety. If he is hospitalized, the nurse monitors his voiding patterns, watches for bladder distention, and assists with catheterization if indicated. An indwelling catheter is inserted if the patient has continuing urinary retention or if close monitoring is needed because of laboratory test results that indicate azotemia. The catheter can help decompress the bladder gradually over several days, especially if the patient is an older adult and hypertensive and has diminished kidney function or urinary retention that has existed for many weeks. For a few days after the bladder begins draining, the blood pressure may fluctuate, and kidney function may decline. If the patient cannot tolerate a urinary catheter, he is prepared for a cystostomy and insertion of a suprapubic catheter.

PROVIDING EDUCATION

Before surgery, the nurse reviews with the patient the anatomy of the affected structures and their function in relation to the urinary and reproductive systems, using diagrams and other educational aids as indicated. Web-based prostate cancer education both before and after surgery, along with phone and internet communication, promotes self-care management and support for

patients, their partners, and families (Meyer, 2020; Remacle, 2019). This education can occur during the preadmission testing visit, with the nurse in prescribed settings, or in the urologist's office. The nurse explains what will take place while the patient is prepared for diagnostic tests and then for surgery (depending on the type of prostatectomy planned). The nurse also reinforces information given by the surgeon about the type of incision, which varies with the surgical approach (see [Table 53-4](#)), and describes the likely type of urinary drainage system (urethral or suprapubic) and the recovery room procedure. The amount of information given is based on the patient's needs and questions. The nurse explains procedures expected to occur during the immediate perioperative period; answers questions the patient, family, or significant other may have; and provides emotional support. In addition, the patient is given information about postoperative care and pain management.

PREPARING THE PATIENT

If the patient is scheduled for a prostatectomy, the preoperative preparation described in [Chapter 14](#) is provided. Antiembolism stockings are applied before surgery and are particularly important to prevent VTE if the patient is placed in a lithotomy position during surgery. An enema is usually given at home on the evening before surgery or on the morning of surgery to prevent postoperative straining, which can induce bleeding.

Postoperative Nursing Interventions

MAINTAINING FLUID BALANCE

During the postoperative period, the patient is at risk for deficient fluid volume because of the irrigation of the surgical site during and after surgery. With irrigation of the urinary catheter to prevent its obstruction by blood clots, fluid may be absorbed through the open surgical site and retained, increasing the risk of excessive fluid retention, fluid imbalance, and water intoxication. The urine output and the amount of fluid used for irrigation must be closely monitored to determine whether irrigation fluid is being retained and to ensure an adequate urine output. An intake and output record, including the amount of fluid used for irrigation, must be maintained. The patient is also monitored for electrolyte imbalances (e.g., hyponatremia), increasing blood pressure, confusion, and respiratory distress. These signs and symptoms are documented and reported to the surgeon. The risk of fluid and electrolyte imbalance is greater in older patients with preexisting cardiovascular or respiratory disease.

RELIEVING PAIN

After a prostatectomy, the patient is assisted to sit and dangle his legs over the side of the bed on the day of surgery. The next morning, he is assisted to ambulate. If pain is present, the cause and location are determined, and the severity of pain and discomfort is assessed (Brant, 2019). The pain may be related to the incision or may be the result of excoriation of the skin at the catheter site. It may be in the flank area, indicating a kidney problem, or it

may be caused by bladder spasms. Bladder irritability can initiate bleeding and result in clot formation, leading to urinary retention.

Patients experiencing bladder spasms may report urgency to void, a feeling of pressure or fullness in the bladder, and bleeding from the urethra around the catheter. Medications that relax the smooth muscles can help ease the spasms, which can be intermittent and severe; these medications include flavoxate and oxybutynin. Warm compresses to the pubis or sitz baths may also relieve the spasms.

The nurse monitors the drainage tubing and irrigates the system as prescribed to relieve any obstruction that may cause discomfort. Usually, the catheter is irrigated with 50 mL of irrigating fluid at a time. It is important to make sure that the same amount is recovered in the drainage receptacle. Securing the catheter drainage tubing to the leg or abdomen can help decrease tension on the catheter and prevent bladder irritation. Discomfort may be caused by dressings that are too snug, saturated with drainage, or improperly placed. Analgesic agents are given as prescribed. The nurse notifies the primary provider if the analgesic medications do not relieve the patient's pain and obtains a prescription for new doses or different medications.

After the patient is ambulatory, he is encouraged to walk but not to sit for prolonged periods, because this increases intra-abdominal pressure and the possibility of discomfort and bleeding. Prune juice and stool softeners are provided to ease bowel movements and to prevent excessive straining. An enema, if prescribed, is given with caution to avoid rectal perforation.

MONITORING AND MANAGING POTENTIAL COMPLICATIONS

After prostatectomy, the patient is monitored for major complications such as hemorrhage, infection, VTE, catheter problems, and sexual dysfunction.

Hemorrhage. Although patients are advised to discontinue all aspirin, nonsteroidal anti-inflammatory drugs, and platelet inhibitors 10 to 14 days before the surgery to prevent excessive bleeding, bleeding and hemorrhagic shock remain risks. The risk is increased with BPH because a hyperplastic prostate gland is very vascular. Bleeding may occur from the prostatic bed. Bleeding may also result in the formation of clots, which then obstruct urine flow. The drainage normally begins as reddish-pink and then clears to a light pink within 24 hours after surgery. Bright-red bleeding with increased viscosity and numerous clots usually indicates arterial bleeding. Venous blood appears darker and less viscous. Arterial hemorrhage usually requires surgical intervention (e.g., suturing or transurethral coagulation of bleeding vessels), whereas venous bleeding may be controlled by applying prescribed traction to the catheter so that the balloon holding the catheter in place applies pressure to the prostatic fossa. The surgeon applies traction by securely taping the catheter to the patient's thigh if hemorrhage occurs. Less blood loss (150 mL) is expected with robotic-assisted laparoscopic radical prostatectomy, compared to the 500 to 900 mL loss that may occur with open prostatectomy.

Nursing management includes assistance in implementing strategies to stop the bleeding and to prevent or reverse hemorrhagic shock. If blood loss is extensive, fluids and blood component therapy may be given. If hemorrhagic shock occurs, treatments described in [Chapter 11](#) are initiated.

Nursing interventions include closely monitoring vital signs; administering medications, IV fluids, and blood component therapy as prescribed; maintaining an accurate record of intake and output; and carefully monitoring drainage to ensure adequate urine flow and patency of the drainage system. The patient who experiences hemorrhage and his family are often anxious and benefit from explanations and reassurance about the event and the procedures that are performed.

Infection. After perineal prostatectomy, the surgeon usually changes the dressing on the first postoperative day. Further dressing changes may become the responsibility of the nurse in the inpatient setting or the home health nurse upon discharge. Careful aseptic technique is used because the potential for infection is great. Dressings can be held in place by a double-tailed, T-binder bandage or a padded athletic supporter.

Rectal thermometers, rectal tubes, and enemas are avoided because of the risk of injury and bleeding in the prostatic fossa. After the perineal sutures are removed, the perineum is cleansed as indicated. Sitz baths are also used to promote comfort and healing.

UTIs and epididymitis are possible complications after prostatectomy. The patient is assessed for their occurrence; if they occur, the nurse administers antibiotic agents as prescribed. Because the risk of infection continues after discharge from the hospital, the patient and family need to be educated to monitor for signs and symptoms of infection (fever, chills, sweating, myalgia, dysuria, urinary frequency, and urgency). The patient and family are instructed to contact the urologist if these symptoms occur.

Venous Thromboembolism. Patients undergoing prostatectomy are at risk for VTE, including deep vein thrombosis and pulmonary embolism; therefore, the nurse assesses the patient frequently after surgery for manifestations of VTE. Early postoperative ambulation is essential to reduce the risk of VTE. Medical and nursing management of VTE is described in [Chapter 26](#). In addition, if the patient is at high risk for clot formation, additional antithrombotic interventions may be prescribed (Klaassen, Wallis, Lavallée, et al., 2020).

Potential Catheter Problems. After TURP, the catheter must drain well; an obstructed catheter produces distention of the prostatic capsule and resultant hemorrhage. Furosemide may be prescribed to promote urination and initiate postoperative diuresis, thereby helping to keep the catheter patent.

The nurse observes the lower abdomen to ensure that the catheter has not become blocked. A distinct, rounded swelling above the pubis is a manifestation of an overdistended bladder. If the nurse ascertains that the client's bladder is distended, a portable bladder scanner may be used to determine if urine retention is a problem (see [Chapter 47](#)).

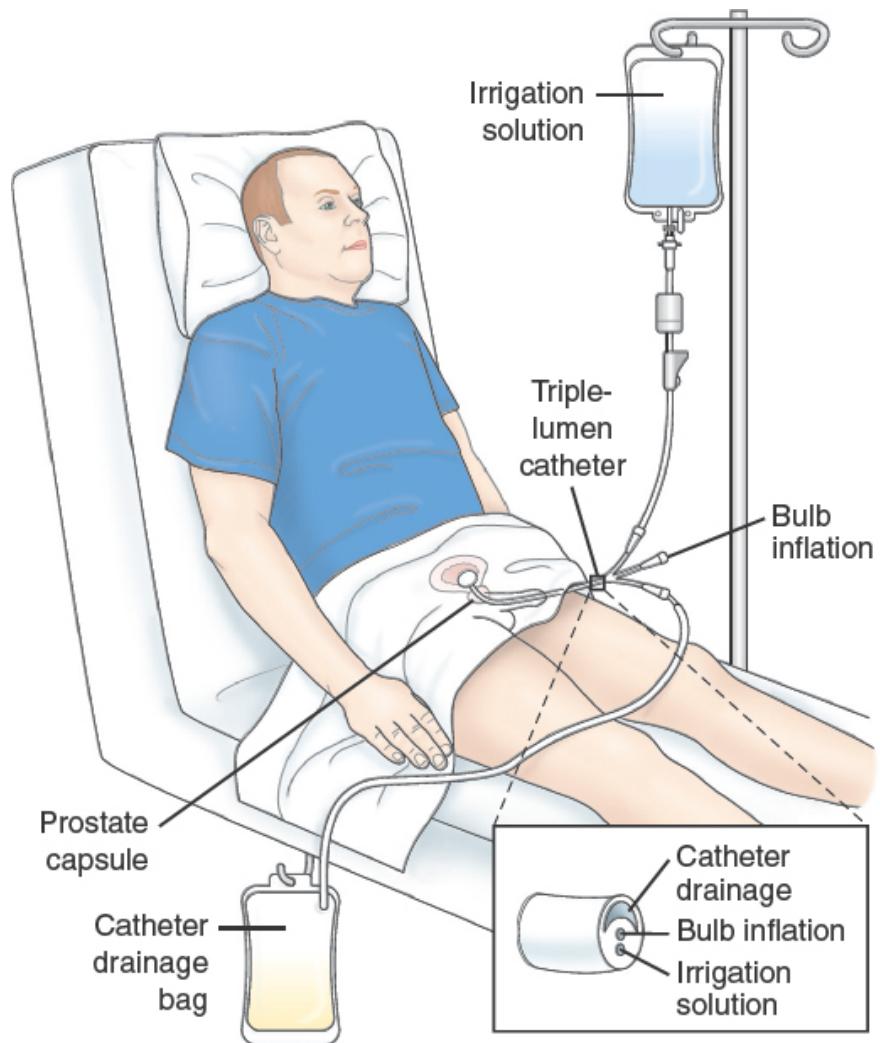


Figure 53-5 • A three-way system for bladder irrigation.

The drainage bag is monitored for bloody urine, and the dressings and surgical incision are examined for bleeding. The color of the urine is carefully noted and documented; a change in color from pink to amber indicates reduced bleeding. Blood pressure, pulse, and respirations are monitored and compared with baseline preoperative vital signs to detect hypotension. The nurse also observes the patient for restlessness, diaphoresis, pallor, any drop in blood pressure, and an increasing pulse rate.

Drainage of the bladder may be accomplished by gravity through a closed sterile drainage system. A three-way drainage system is useful in irrigating the bladder and preventing clot formation (see Fig. 53-5). Continuous irrigation may be used with TURP. Some urologists leave an indwelling catheter attached to a dependent drainage system. Gentle irrigation of the catheter may be prescribed to remove any obstructing clots.

If the patient complains of pain, the tubing is examined. The drainage system is irrigated with irrigating fluid (usually 50 mL), if indicated and

prescribed, to clear any obstruction.



Quality and Safety Nursing Alert

The amount of fluid recovered in the drainage bag must equal the amount of fluid instilled. Overdistention of the bladder should be avoided because it can induce secondary hemorrhage by stretching the coagulated blood vessels in the prostatic capsule.

To prevent traction on the bladder, the drainage tube (not the catheter) is secured to the inner thigh. If a cystostomy catheter is in place, it is secured to the abdomen. The nurse explains the purpose of the catheter to the patient and assures him that the urge to void results from the presence of the catheter and from bladder spasms. Reassurance is given to the patient that medication (anticholinergics) will be given to control his bladder spasms. He is cautioned not to pull on the catheter, because this causes bleeding and subsequent catheter blockage, which leads to urinary retention.

After the catheter is removed (usually when the urine appears clear), urine may leak around the wound for several days in the patient who has undergone perineal, suprapubic, or retropubic surgery. The cystostomy tube may be removed before or after the urethral catheter is removed. Some urinary incontinence may occur after catheter removal, and the patient is informed that this is likely to subside over time.

Urinary Incontinence. Postoperative urinary incontinence is a complication that can be reduced through the use of a surgical technique called puboprostatic ligament-sparing, or through the use of a male sling (Tasso, Beels, Del Favero, et al., 2020). Even without these techniques, current surgical procedures have decreased the incidence of urinary incontinence following surgery. Factors associated with postoperative continence are younger age, preservation of both neurovascular bundles, absence of an anastomotic stricture, eversion of the bladder neck, and a smaller prostate volume. The nurse can encourage the patient who experiences incontinence to take steps to prevent incontinence, improve continence, anticipate leakage, and cope with lack of complete control (Remacle, 2019). Preventing incontinence involves increasing voiding frequency, avoiding positions that encourage the urge to void, and decreasing fluid intake prior to activities. Promoting continence involves pelvic floor exercises (see the Educating Patients About Self-Care section that follows), biofeedback, and electrical stimulation. Anticipating leakage may entail lifestyle modifications such as using absorbent pads and carrying extra clothes to prevent urinary incontinence; this can improve confidence when bathroom access is limited. It also helps to know the location of public bathrooms. Coping long term with complete lack of control may involve collagen injections, artificial sphincter implants, medications, and leg bags (Cheng et al., 2019; Remacle, 2019).

Sexual Dysfunction. Depending on the type of surgery, the patient may experience sexual dysfunction related to erectile dysfunction, decreased libido, and fatigue. These issues may become a concern to the patient soon after surgery or in the weeks to months of rehabilitation. With nerve-sparing radical prostatectomy, the likelihood of recovering the ability to have erections is better for men who are younger and men in whom both neurovascular bundles are spared. A decrease in libido is usually related to the impact of the surgery on the body. Reassurance that the usual level of libido will return after recuperation from surgery is often helpful to the patient and his partner. The patient should be aware that he may experience fatigue during rehabilitation from surgery. This fatigue may also decrease his libido and alter his enjoyment of usual activities.

Several options to restore erectile function are discussed with the patient by the surgeon or urologist. These options may include medications, surgically placed implants, or negative-pressure devices. PDE-5 inhibitors (see [Table 53-3](#)) may be effective for treatment of erectile dysfunction in men after radical prostatectomy, especially if the neurovascular bundles have been preserved. They may also improve erectile function in men with partial or moderate erectile dysfunction after radiation therapy for localized prostate cancer.

Nursing interventions include assessing for sexual dysfunction after surgery. Providing a private and confidential environment to discuss issues of sexuality is important. The emotional challenges of prostate surgery and its consequences need to be carefully explored with the patient and his partner. Providing the opportunity to discuss these issues can be very beneficial to the patient. For patients who have significant difficulty adjusting to sexual dysfunction, a referral to a sex therapist may be indicated.

PROMOTING HOME, COMMUNITY-BASED, AND TRANSITIONAL CARE



Educating Patients About Self-Care. The length of the hospital stay for the patient undergoing prostatectomy depends on the surgical approach used and ranges from 1 to 2 days for robotic-assisted laparoscopic prostatectomy to 3 to 5 days for open prostatectomy. The patient and family require education about how to manage the drainage system, how to assess for complications, and how to promote recovery. The nurse provides verbal and written education about the need to maintain the drainage system and to monitor urinary output; about wound care; and about strategies to prevent complications, such as infection, bleeding, and thrombosis. In addition, the patient and family need to know about signs and symptoms that should be reported to the primary provider (e.g., blood in urine, decreased urine output, fever, change in wound drainage, calf tenderness).

As the patient recovers and drainage tubes are removed, he may become discouraged and depressed because he cannot regain bladder control immediately. Furthermore, urinary frequency and burning may occur after the catheter is removed. Educating the patient about the following exercises may help him regain urinary control:

- Tense the perineal muscles by pressing the buttocks together, hold this position, and then relax. This exercise can be performed 10 to 20 times each hour while sitting or standing (Brant, 2019).
- Try to interrupt the urinary stream after starting to void; wait a few seconds and then continue to void.

Perineal exercises should continue until the patient gains full urinary control. The patient is educated to urinate as soon as he feels the first urge to do so. It is important to let the patient know that regaining urinary control is a gradual process; he may continue to “dribble” after being discharged from the hospital, but this should gradually diminish (usually within 1 year). The urine may be cloudy for several weeks after surgery but should clear as the prostate area heals.

While the prostatic fossa heals (6 to 8 weeks), the patient should avoid activities that produce Valsalva effects (straining, heavy lifting) because they may increase venous pressure and produce hematuria. He should avoid long motor trips and strenuous exercise, which increase the tendency to bleed. He should also know that spicy foods, alcohol, and coffee may cause bladder discomfort. The patient should be cautioned to drink enough fluids to avoid dehydration, which increases the tendency for a blood clot to form and obstruct the flow of urine. Signs of complications, such as bleeding, passage of blood clots, a decrease in the urinary stream, urinary retention, or symptoms of UTIs, should be reported to the primary provider (see [Chart 53-5](#)). Patients who have undergone robotic-assisted prostatectomy are often able to return to their usual activities in approximately 7 to 10 days (Cheng et al., 2019).

Chart 53-5



HOME CARE CHECKLIST

Postprostatectomy Care

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

- Name the procedure that was performed and identify any permanent changes in anatomic structure or function as well as changes in ADLs, IADLs, roles, relationships, and spirituality.
- Locate list of names and telephone numbers of resource personnel involved in care (e.g., health care professionals, home health nurse, urinary catheter/dressing supply vendor).
- Identify the equipment necessary and how to obtain medical supplies to carry out dressing changes, wound care, and other prescribed regimens.
- Describe ongoing postoperative therapeutic regimen, including diet and activities to perform (e.g., increased activity and ambulation, perineal exercises) and to limit or avoid (e.g., lifting weights, driving a car, contact sports).
 - Describe measures to relieve postoperative pain and discomfort (e.g., take analgesics as prescribed; use nonpharmacologic interventions).
 - Demonstrate appropriate care of urinary catheter and collection receptacle.
 - Demonstrate appropriate dressing change/wound care.
 - When appropriate, demonstrate performance of perineal muscle exercises to facilitate bladder control.
- State the name, dose, side effects, frequency, and schedule for all medications.
- Identify signs and symptoms of complications that should be reported to surgeon (e.g., decreased output, blood or clots in urine or urine drainage system, change in wound drainage, fever or symptoms of urinary tract infections, calf tenderness).
- Explain treatment plan and importance of follow-up care to all health care providers.
- State time and date of follow-up appointments, therapy, and testing.
- Identify community resources for peer and caregiver/family support:
 - Identify sources of support (e.g., friends, relatives, faith community).
 - Identify the contact details for support services for people with cancer and their caregivers/families.
- Identify the need for health promotion, disease prevention, and screening activities.

ADL, activities of daily living; IADL, instrumental activities of daily living.

Continuing and Transitional Care. Referral for home, community-based, or transitional care may be indicated if the patient is an older adult or has other health problems, if the patient and family cannot provide care in the home, or if the patient lives alone without available supports. The nurse making a home visit assesses the patient's physical status (cardiovascular and respiratory status, fluid and nutritional status, patency of the urinary drainage system, wound and nutritional status) and provides catheter and wound care, if indicated. The nurse reinforces previous education, assesses the ability of the patient and family to manage required care, and encourages the patient to ambulate and to carry out perineal exercises as prescribed. The patient may need to be reminded that return of bladder control may take time.

The patient is reminded about the importance of routine health screening and other health promotion activities. If the prostatectomy was performed to treat prostate cancer, the patient and family are also instructed about the importance of follow-up and monitoring with the primary provider.

Evaluation

Expected preoperative patient outcomes may include:

1. Demonstrates reduced anxiety
2. States that pain and discomfort are decreased
3. Relates understanding of the surgical procedure and postoperative course and practices perineal muscle exercises and other techniques useful in facilitating bladder control

Expected postoperative patient outcomes may include the following:

1. Reports relief of discomfort
2. Exhibits fluid and electrolyte balance
 - a. Irrigation fluid and urinary output are within parameters determined by surgeon
 - b. Experiences no signs or symptoms of fluid retention
3. Participates in self-care measures
 - a. Increases activity and ambulation daily
 - b. Produces urine output within normal ranges and consistent with intake
 - c. Performs perineal exercises and interrupts urinary stream to promote bladder control
 - d. Avoids straining and lifting heavy objects
4. Is free of complications
 - a. Maintains vital signs within normal limits
 - b. Exhibits wound healing, without signs of inflammation or hemorrhage
 - c. Maintains acceptable level of urinary elimination
 - d. Maintains optimal drainage of catheter and other drainage tubes
 - e. Reports understanding of changes in sexual function

DISORDERS AFFECTING THE TESTES AND ADJACENT STRUCTURES

Orchitis

Orchitis is an acute inflammation of one or both testes as a complication of systemic infection or as an extension of an associated epididymitis caused by bacterial, viral, spirochetal, or parasitic organisms. Microorganisms may reach the testes through the blood, lymphatic system, or, more commonly, by traveling through the urethra, vas deferens, and epididymis; bacteria usually spread from an associated epididymitis in sexually active men. The majority of cases are caused by viral mumps but other causative organisms include *Neisseria gonorrhoeae*, *Chlamydia trachomatis*, *E. coli*, *Klebsiella*, *Pseudomonas aeruginosa*, *Staphylococcus* species, and *Streptococcus* species (Norris, 2019).

Signs and symptoms of orchitis include fever; pain, which may range from mild to severe; tenderness in one or both testicles; bilateral or unilateral testicular swelling; penile discharge; blood in the semen; and leukocytosis.

Treatment of orchitis is based on whether the causative organism is bacterial or viral. Bacterial orchitis is treated with antibiotic agents and supportive comfort measures. If the cause of the orchitis is an STI, the partner should be treated as well. Viral orchitis is treated using supportive treatments of rest, elevation of the scrotum, ice packs to reduce scrotal edema, analgesic agents, and anti-inflammatory medications. Bilateral orchitis can cause sterility in some men. Mumps vaccination is recommended for men who have not had mumps or received inadequate immunization in childhood. Orchitis develops in approximately 30% of males who are post puberty with mumps 4 to 6 days after parotitis starts, and one third of men have irreversible loss of spermatogenesis (Norris, 2019).

Epididymitis

Epididymitis is an infection of the epididymis, which usually spreads from an infected urethra, bladder, or prostate. The incidence is less than 1 in 1000 males per year. Prevalence is greatest in men 19 to 35 years of age. Acute epididymitis occurs bilaterally in 5% to 10% of affected patients (Cheng et al., 2019). Risk factors for epididymitis include recent surgery or a procedure involving the urinary tract, participation in high-risk sexual practices, personal history of an STI, past prostate infections or UTIs, lack of circumcision, history of an enlarged prostate, and the presence of a chronic indwelling urinary catheter.

Pathophysiology

A causative organism can be identified in 80% of patients. In prepubertal males, older men, and gay men, the predominate causal organism is *E. coli*; although in

older men, the condition may also be a result of urinary obstruction. In sexually active men 35 years and younger, the pathogens usually are related to bacteria associated with STIs (e.g., *C. trachomatis*, *N. gonorrhoeae*). The infection moves in an upward direction, through the urethra and the ejaculatory duct, and then along the vas deferens to the epididymis (Teelin, Babu, & Urban, 2019).

Clinical Manifestations

Epididymitis often slowly develops over 1 to 2 days, beginning with a low-grade fever, chills, and heaviness in the affected testicle. The testicle becomes increasingly tender to pressure and traction. The patient may report unilateral pain, soreness in the inguinal canal along the course of the vas deferens, and pain and swelling in the scrotum and the groin. The epididymis becomes increasingly swollen, with extreme pain in the lower abdomen and pelvis. Occasionally, there may be discharge from the urethra, blood in the semen, pyuria and bacteriuria (pus and bacteria in the urine), and pain during sexual activity and ejaculation. The patient may report urinary frequency, urgency, or dysuria, and testicular pain aggravated by bowel movement.

Assessment and Diagnostic Findings

Laboratory assessment includes urinalysis, complete blood cell count, Gram stain of urethral drainage, urethral culture or deoxyribonucleic acid (DNA) probe, and referral for syphilis and HIV testing in sexually active patients. Acute testicular pain should never be ignored, and it should be distinguished from testicular torsion, which is a surgical emergency.

Medical Management

The selection of an antibiotic depends on the causative organism; if epididymitis is associated with an STI, the patient's partner should also receive antimicrobial therapy. The spermatic cord may be infiltrated with a local anesthetic agent to relieve pain if the patient is seen within the first 24 hours after onset of pain. Supportive interventions also include reduction in physical activity, scrotal support and elevation, ice packs, anti-inflammatory agents, analgesics (including nerve blocks), and sitz baths. Urethral instrumentation (e.g., catheter insertion) is avoided. The patient is observed for scrotal abscess formation as well.

In chronic epididymitis, a 4- to 6-week course of antibiotic therapy for bacterial pathogens is prescribed. An epididymectomy (excision of the epididymis from the testis) may be performed for patients who have recurrent, refractory, and incapacitating episodes of this infection. With long-term epididymitis, the passage of sperm may be obstructed. If the obstruction is bilateral, infertility may result.

Nursing Management

Bed rest is prescribed, and the scrotum is elevated with a scrotal bridge or folded towel to prevent traction on the spermatic cord, to promote venous drainage, and to relieve pain. Antimicrobial agents are given as prescribed until the acute inflammation subsides. Intermittent cold compresses to the scrotum may help ease the pain. Later, local heat or sitz baths may help resolve the inflammation. Analgesic medications are given for pain relief as prescribed.

The nurse instructs the patient to avoid straining, lifting, and sexual stimulation until the infection is under control. He should continue taking analgesic agents and antibiotics as prescribed and using ice packs if necessary, to relieve discomfort. He needs to know that it may take 4 weeks or longer for the inflammation to resolve.

Testicular Torsion

Testicular torsion is a surgical emergency requiring immediate diagnosis to avoid loss of the testicle. Torsion of the testis is rotation of the testis, which twists the blood vessels in the spermatic cord and therefore impedes the arterial and venous supply to the testicle and surrounding structures in the scrotum. The patient presents with sudden pain in the testicle, developing over 1 to 2 hours, with or without a predisposing event. Nausea, lightheadedness, and swelling of the scrotum may develop. On physical examination, testicular tenderness, an elevated testis, a thickened spermatic cord, and a swollen, painful scrotum may be present. If the torsion cannot be reduced manually, surgery to untwist the spermatic cord and anchor both testes in their correct position to prevent recurrence should occur within 6 hours of the onset of symptoms in order to save the testis (Norris, 2019). After 6 hours of impaired blood supply, the risk of loss of the testicle increases.

Testicular Cancer

Although only accounting for about 1% of all cancers in men, testicular cancer is the most common cancer diagnosed in men between 15 and 35 years of age; approximately 9610 new cases and 440 deaths occur in the United States annually (ACS, 2020). It is the second most common malignancy in those 35 to 39 years of age. For unknown reasons, worldwide incidence of testicular tumors has more than doubled in the past 40 years. Because of advances in cancer therapy, testicular cancer is a highly treatable and usually curable form of cancer. The 5-year relative survival rate for all testicular cancers is more than 95% and approaches 99% if the cancer has not spread outside of the testes (ACS, 2020). After treatment, most patients with testicular cancer have a near-normal life expectancy.

Classification of Testicular Tumors

The testicles contain several types of cells, each of which may develop into one or more types of cancer. The type of cancer cell determines the appropriate treatment and affects the prognosis. Testicular cancer is classified as germinal or nongerminal (stromal). Secondary testicular cancers may also occur.

Germinal Tumors

Germinal tumors make up approximately 90% of all cancers of the testis; germinal tumors are further classified as seminomas or nonseminomas. These cancers grow from the germ cells that produce sperm, thus the name *germinal tumors*. Seminomas are slow-growing forms of testicular cancer that are usually found in men in their 30s and 40s (ACS, 2020; NCCN, 2020c). Although seminomas can spread to the lymph nodes, the cancer is usually localized in the testes. Nonseminomas are more common and tend to grow more quickly than seminomas. Nonseminomas are often made up of different cell types and are identified according to the cells in which they start to grow. Nonseminoma testicular cancers include choriocarcinomas (rare), embryonal carcinomas, teratomas, and yolk sac tumors. It is crucial to distinguish between seminomas and nonseminomas because the differences affect prognosis and treatment.

Nongerminal Tumors

Nongerminal tumors account for less than 10% of testicular cancers. These cancers may develop in the supportive and hormone-producing tissues, or stroma, of the testicles. The two main types of stromal tumors are Leydig cell tumors and Sertoli cell tumors. Although these tumors infrequently spread beyond the testicle, a small number metastasize and tend to be resistant to chemotherapy and radiation therapy.

Secondary Testicular Tumors

Secondary testicular tumors are those that have metastasized to the testicle from other organs. Lymphoma is the most common cause of secondary testicular cancer. Cancers may also spread to the testicles from the prostate gland, lung, skin (melanoma), kidney, and other organs. The prognosis with these cancers is usually poor because they typically also spread to other organs. Treatment depends on the specific type of cancer (ACS, 2020).

Risk Factors

Risk factors for testicular cancer include cryptorchidism (undescended testicles), family history of testicular cancer, and personal history of testicular cancer (ACS, 2020). Other risk factors include race and ethnicity: Caucasian American men have a five times greater risk than African American men and more than two to three times greater risk than Asian, Native American, and Hispanic American men. The risk of developing testicular cancer is higher in HIV-positive men (ACS, 2020). Occupational hazards, including exposure to chemicals encountered

in mining, oil and gas production, and leather processing, have been suggested as possible risk factors. No evidence has linked testicular cancer to prenatal exposure to diethylstilbestrol or to vasectomy (ACS, 2020).

Clinical Manifestations

The symptoms appear gradually, with a mass or lump on the testicle and usually painless enlargement of the testis. The patient may report heaviness in the scrotum, inguinal area, or lower abdomen. Backache (from retroperitoneal node extension), abdominal pain, weight loss, and general weakness may result from metastasis. Enlargement of the testis without pain is a significant diagnostic finding. Some testicular tumors tend to metastasize early, spreading from the testis to the lymph nodes in the retroperitoneum and to the lungs.

Assessment and Diagnostic Findings

Educating young men about testicular cancer and the need for urgent evaluation of any mass or enlargement or unexplained testicular pain is key to early detection (Li, Lu, Wang, et al., 2020). Education about TSE, starting in adolescence, alerts men to the importance of seeking medical attention if a testicle becomes indurated, enlarged, atrophied, nodular, or painful (see [Chart 53-6](#)). TSE should be performed monthly. Testicular cancers generally grow rapidly and are easily detected against a typically smooth and homogeneous texture. Annual testicular examination by a clinician can reveal signs and lead to early diagnosis and treatment of testicular cancer. Promoting awareness of this disease is an important health promotion intervention; men should seek medical evaluation for signs or symptoms of testicular cancer without delay (Li et al., 2020; Ustundag, 2019). See the Nursing Research Profile in [Chart 53-7](#). Any suspicious testicular mass warrants prompt evaluation with a thorough history and physical examination, focusing on palpation of the affected testicle.

The tumor markers, alpha-fetoprotein (AFP) and beta-human chorionic gonadotropin (beta-hCG), may be elevated in patients with testicular cancer. Tumor marker levels in the blood are used for diagnosis, staging, and monitoring the response to treatment. Blood chemistry, including lactate dehydrogenase, is also necessary.

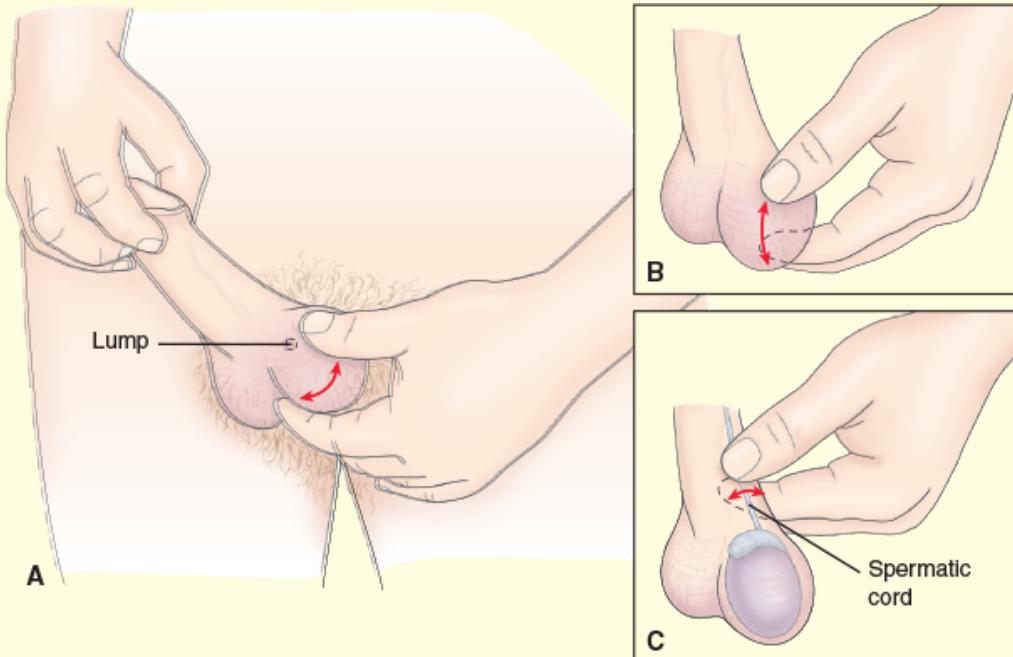
Chart 53-6



PATIENT EDUCATION

Testicular Self-Examination

Testicular self-examination is to be performed once a month. The test is neither difficult nor time-consuming. A convenient time is usually after a warm bath or shower when the scrotum is more relaxed.



The nurse instructs the patient to:

1. Use both hands to palpate the testis. The normal testicle is smooth and uniform in consistency.
2. Place the index and middle fingers under the testis and the thumb on top; roll the testis gently in a horizontal plane between the thumb and fingers (**A**).
3. Feel for any evidence of a small lump or abnormality.
4. Follow the same procedure and palpate upward along the testis (**B**).
5. Locate and palpate the epididymis (**C**), a cordlike structure on the top and back of the testicle that stores and transports sperm. In addition, locate and palpate the spermatic cord.
6. Repeat the examination for the other testis, epididymis, and spermatic cord. It is normal to find that one testis is larger than the other.
7. If you find any evidence of a small, pea-sized lump or if the testis is swollen (possibly from an infection or tumor), consult your primary provider.

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

Chart 53-7



NURSING RESEARCH PROFILE

Testicular Self-Examination Knowledge

Ustundag, H. (2019). Assessment of the testicular self-examination knowledge and Health Belief Model of health sciences students. *International Journal of Caring Sciences*, 12(2), 972–978.

Purpose

Early detection of testicular cancer is possible if men perform monthly testicular self-examinations. However, many men are not aware of the benefits of doing a testicular self-examination. The purpose of this study was to describe young male health sciences students' knowledge of testicular cancer and practice of testicular self-examination, along with their personal health beliefs.

Design

This descriptive survey research study was conducted in a state university in Turkey. There were 372 male students who were given the opportunity to participate, and 262 students (70%) completed the demographic data form and the Turkish version of the Champion Health Belief Model Scale. This scale contains five sub scales: (1) Sensitiveness, an individual's perception of personal risks or sensitivities to a disease or health problem; (2) Caring/Seriousness, an individual's view of the seriousness of the disease outcomes; (3) Benefits, an individual's belief in the benefit of protective behavior to prevent the disease from occurring or decrease the severity of symptoms if it occurs; (4) Perceived barriers to instituting new behaviors and adapting to new situations; and (5) Self-efficacy/Confidence, an individual's belief in the ability to take on the new initiative. Each subscale has its own minimum and maximum scores, and a separate score is determined for each of the five subscales. There is no total calculated score. The statistical analysis was performed using basic descriptive statistics such as frequency, percentage, mean scores, and the nonparametric tests, the Kruskal-Wallis test and Mann-Whitney U test.

Findings

The study participants were 18 to 27 years of age, with approximately 60% of participants in the 18- to 21-year-old age range. Most of the participants (40%, $n = 104$) were in their second year of education at the university. All the participants indicated that they had knowledge about testicular cancer, with 42% ($n = 109$) revealing that their knowledge was obtained from the internet or from social media. There were 7% of the sample ($n = 18$) who acknowledged that they had had a testicular health problem. In their family histories, 93% ($n = 244$) of the participants stated that there was no history of testicular health problems. There were 225 of the participants (86%) who had no experience doing a self-examination. The most common reason for not performing a testicular self-examination was that 74% ($n = 195$) did not take the reason for doing the self-examination seriously. The Champion Health Beliefs Model Scale identified that the caring/seriousness subscale had the highest score and that the perceived benefits of performing a testicular self-examination had the lowest score.

Nursing Implications

The study confirmed that young males lack knowledge about testicular cancer and lack experience performing a testicular self-examination. It is important for nurses and other health care providers to address the patient's need for knowledge and practical education on the performance of testicular self-examination. Emphasis must be placed on the fact that testicular self-examination is a significant risk reduction strategy for testicular cancer. The screening for testicular cancer is a topic that not only must be addressed by health care providers, but also included in the curriculum of health science and other educational programs. Frequent discussion and materials about testicular screening must be made available to all males.

A chest x-ray to assess for metastasis in the lungs and a transscrotal testicular ultrasound will be performed. Microscopic analysis of tissue is the only definitive way to determine if cancer is present, but it is usually performed at the time of surgery rather than as a part of the diagnostic workup to reduce the risk of promoting spread of the cancer (ACS, 2020). Inguinal orchiectomy is the standard way to establish the diagnosis of testicular cancer. Other staging tests to determine the extent of the disease in the retroperitoneum, pelvis, and chest include an abdominal/pelvic CT scan and chest CT scan (if the abdominal CT or chest x-ray is abnormal). A brain MRI and bone scan may be obtained if indicated (NCCN, 2020c). Discussion of the option to bank sperm should take place prior to orchiectomy and treatment.

Medical Management

Testicular cancer—one of the most curable solid tumors—is highly responsive to treatment. Early-stage disease is curable more than 95% of the time; thus, prompt diagnosis and treatment are essential. The NCCN practice consensus guidelines for testicular cancer are used to guide diagnostic workup, primary treatment, follow-up, and salvage therapy (treatment given when the cancer does not respond to standard treatment) for both seminomas and nonseminomas (NCCN, 2020c). The goals of management are to eradicate the disease and achieve a cure. Therapy is based on the cell type, the stage of the disease, and risk classification tables (determined as good, intermediate, and poor risk). Primary treatment includes removal of the affected testis by orchiectomy through an inguinal incision with a high ligation of the spermatic cord. The patient is offered the option of implantation of a testicular prosthesis during the orchiectomy. Although most patients experience no impairment of endocrine function after unilateral orchiectomy for testicular cancer, some patients have decreased hormonal levels, suggesting that the unaffected testis is not functioning normally. Retroperitoneal lymph node dissection may be performed after orchiectomy to diagnose and prevent lymphatic spread of the cancer. Alternatives to the more invasive open retroperitoneal lymph node dissection for early-stage germ cell testicular cancer include nerve-sparing and laparoscopic retroperitoneal lymph node dissection, which improve sexual function and promote rapid recovery (Mano, Di Natale, &

Sheinfeld, 2019). Although libido and orgasm are usually unimpaired after a retroperitoneal lymph node dissection, ejaculatory dysfunction with resultant infertility may develop. Two thirds of men who are newly diagnosed with testicular cancer may be considering future fatherhood, and sperm quality is reduced in men with testicular cancer; therefore, sperm banking before treatment may be considered (Mano et al., 2019). Half of patients will not recover fertility as a result of radiation therapy, cytotoxic therapy, unilateral excision of a testis, and retroperitoneal lymph node dissection. Counseling about fertility issues may help the patient make the appropriate choices (Halpern, Brannigan, & Schlegel, 2019).

Radiation therapy is more effective with seminomas than with nonseminomas. Postoperatively, radiation may be used in early-stage seminomas. It is delivered only to the affected side; the other testis is shielded from radiation to preserve fertility. Radiation is also used in patients whose disease does not respond to chemotherapy and in those for whom lymph node surgery is not recommended.

Chemotherapy may be used for seminomas, nonseminomas, and advanced metastatic disease. Cisplatin can be used in combination with other chemotherapeutic agents, such as etoposide, bleomycin, paclitaxel, ifosfamide, and vinblastine, and results in a high percentage of complete remissions. With nonseminomas, aggressive surgical resection of all residual masses following chemotherapy is standard therapy. Good results may also be obtained by combining different types of treatment, including surgery, radiation therapy, and chemotherapy. Even with metastatic testicular cancer, the prognosis is favorable because of advances in treatment. However, for patients who do not respond to high-dose salvage chemotherapy, the cancer is nearly always incurable.

A patient with a history of one testicular tumor has a greater chance of developing subsequent tumors. Late relapse of testicular cancer is currently defined as tumor recurrence more than 2 years after complete remission following primary treatment that included chemotherapy. The most common site of recurrence is the retroperitoneum. Follow-up studies include chest x-rays, excretory urography, radioimmunoassay of beta-hCG and AFP levels, and examination of lymph nodes.

Long-term side effects associated with treatment for testicular cancer include renal insufficiency from kidney damage, hearing problems, gonadal damage, peripheral neuropathy, and, rarely, secondary cancers. Management of a patient with testicular carcinoma is therapy aimed at cure followed by close monitoring to detect and promptly treat any recurrences (NCCN, 2020c). Investigations of new medications, combinations of chemotherapeutic agents, and stem cell transplantation are ongoing.

Nursing Management

Nursing management includes assessment of the patient's physical and psychological status and monitoring of the patient for response to and possible effects of surgery, chemotherapy, and radiation therapy (see [Chapter 12](#)). Pre- and

postoperative care is described in Chapters 14 and 16, respectively. In addition, because the patient may have difficulty coping with his condition, issues related to body image and sexuality should be addressed.

Patients may be required to endure a long course of therapy and will need encouragement to maintain a positive attitude. After completing treatment, patients enter a follow-up surveillance period. Nurses educate these cancer survivors about the importance of adhering to follow-up appointments for early detection of cancer recurrence (most often occurring within 2 years posttreatment) and evaluation of late effects of treatment (including secondary cancers). Additional concerns include infertility, cardiotoxicity, neurotoxicity, nephrotoxicity, pulmonary toxicity, and metabolic syndrome; and alterations in quality of life (Brant, 2019). The nurse carefully assesses cultural aspects of care related to testicular cancer and its treatment. The nurse reminds the patient about the importance of performing TSE in the treated or remaining testis. The patient is encouraged to participate in healthy behaviors, including smoking cessation, healthy diet, minimization of alcohol intake, and cancer screening activities. Most experts agree that couples should use birth control for 18 to 24 months after the last cycle of chemotherapy as this is the usual period of time after treatment for sperm to return to normal (Brant, 2019).

Hydrocele

A **hydrocele** is a collection of fluid most commonly located between the visceral and parietal layers of the tunica vaginalis of the testis, although it may also collect within the spermatic cord. This condition is the most common cause of scrotal swelling. At birth, 1 in 10 infants has a hydrocele, which usually resolves without treatment within the first year of life. Acute hydroceles primarily develop in adults older than 40 years; they may occur in association with inflammation (e.g., radiation therapy), infection, epididymitis, local injury, or systemic infectious disease (e.g., mumps). Chronic hydroceles may occur related to the imbalance between fluid secretion and reabsorption in the tunica vaginalis. On physical examination, an easily transilluminated, painless, extratesticular mass is found. Hydrocele can be differentiated from a hernia by transillumination; a hydrocele transmits light, whereas a hernia does not. Ultrasonography is recommended for large hydroceles to differentiate them from testicular tumors (Chapple et al., 2020).

Treatment is usually not required unless the hydrocele is large, bulky, tense, or uncomfortable; compromises testicular circulation; or causes an undesirable appearance. Treatment may involve surgical excision or needle aspiration. Hydrocelectomy (surgical excision) may be performed in an outpatient setting under general or spinal anesthesia with the goal of prevention of recurrence by excising the tunica vaginalis or sclerosing the visceral and parietal layers. Surgical excision involves resection or suturing together the two layers. A drainage tube may be required, and the patient is advised to wear a bulky dressing

over the incisional site for a few days after the procedure. To reduce swelling, ice packs are applied to the scrotal area during the first 24 hours. A scrotal athletic supporter may be worn for a period of time postoperatively for comfort and support. Surgical risks include hematoma in the loose scrotal tissues, infection, or injury to the scrotum.

Needle aspiration is another option used to remove the fluid in the scrotum. Because it is common for fluid to reaccumulate, this treatment may be followed by the injection of a sclerosing agent to prevent this recurrence. This option may be used for men who are at poor surgical risks. Potential risks include infection and scrotal pain.

Varicocele

A **varicocele** is an abnormal dilation of the pampiniform venous plexus and the internal spermatic vein in the scrotum (the network of veins from the testis and the epididymis, which constitute part of the spermatic cord). Varicoceles occur in approximately 15% to 20% of healthy adult men and 40% of men with infertility; the large majority (95%) are in the left testicle because incompetent valves are more common in the left internal spermatic veins (Norris, 2019). Although men may report scrotal pain, tenderness, heaviness in the inguinal area, and infertility, varicoceles are often asymptomatic.

If the varicocele is mild and fertility is not an issue, no treatment is required, and a scrotal support is usually sufficient to relieve symptoms of heaviness. If the condition results in ongoing distressing symptoms or fertility is an issue, the varicocele can be corrected surgically. Postprocedural education and care include an ice pack applied to the scrotum for the first few hours after surgery to relieve edema, dressing removal after 48 hours, nonstrenuous exercise for the first 2 days, scrotal support, pain control, and reporting complications such as infection and hematoma.

Vasectomy

Vasectomy, or male sterilization, involves the surgical interruption of both vas deferens—the tubes that carry the sperm from the testicles and epididymis to the seminal vesicles—to prevent fertilization of an egg after ejaculation. During the outpatient procedure, the surgeon exposes the vas deferens through a small surgical opening or puncture in the scrotum using a sharp, curved hemostat (see Fig. 53-6). The vas is then ligated (cut) or cauterized (burned), with the severed ends occluded by ties or clips to seal the lumens and then placed back into the scrotum. A section of the vas deferens may or may not be removed. The spermatozoa, which are manufactured in the testes, cannot travel up the vas deferens after this surgery (Cheng et al., 2019).

Because seminal fluid is manufactured predominantly in the seminal vesicles and prostate gland, which are unaffected by vasectomy, no noticeable decrease in the amount of ejaculate occurs (volume decreases approximately 3%), even though it contains no spermatozoa. Because the sperm cells have no exit, they are resorbed into the body. A vasectomy usually has no effect on sexual potency, erection, ejaculation, or production of male hormones and provides no protection against STIs.

Couples who were once worried about pregnancy resulting from contraceptive failure often report a decrease in concern and an increase in spontaneous sexual arousal after vasectomy. Concise and factual preoperative explanations may minimize or relieve the patient's concerns related to pain and reduced masculinity. The patient is advised that he will be sterile, but that potency will not be altered after a bilateral vasectomy. On rare occasions, a spontaneous reanastomosis of the vas deferens occurs, making it possible to impregnate a partner.

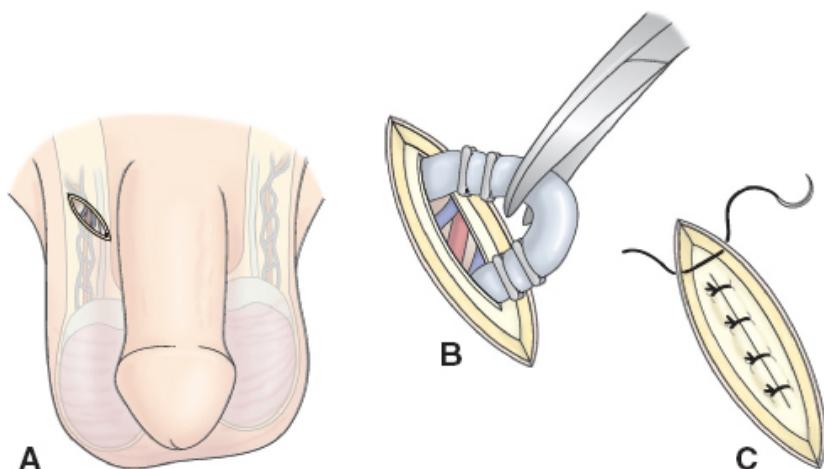


Figure 53-6 • A vasectomy is a resection of the vas deferens to prevent passage of sperm from the testes to the urethra during ejaculation. **A.** An incision or small puncture is made to expose the vas deferens. **B.** The vas deferens is isolated and severed. **C.** The severed ends are occluded with ligatures or clips, or the lumen of each vas is sealed by electrocautery and the incision is sutured closed. (Suturing may not be required if a puncture approach has been used.)

Complications of vasectomy include scrotal ecchymoses and swelling, superficial wound infection, vasitis (inflammation of the vas deferens), epididymitis or epididymo-orchitis, hematomas, chronic pain, and spermatic granuloma. A spermatic granuloma is an inflammatory response to the collection of sperm leaking from the severed end of the proximal vas deferens into the scrotal tissue. A painless small lump is formed, which usually does not require surgical intervention.

Nursing Management

Nursing education focuses on self-management of swelling and discomfort post vasectomy. Applying ice bags intermittently to the scrotum for several hours after surgery can reduce swelling and relieve discomfort. The nurse advises the patient to wear snug cotton underwear or a scrotal support for added comfort and support. Explanation of expected discoloration of the scrotal skin and superficial swelling may alleviate anxiety and concerns. These conditions may be relieved by sitz baths.

Sexual activity may be resumed as desired, usually after 1 week. Fertility remains for a varying time after vasectomy until the spermatozoa stored distally in the seminal vesicles have been evacuated. Sterility is often achieved after 10 to 20 ejaculations following the vasectomy procedure but may take longer. A reliable method of contraception should be used until infertility is confirmed by examination of an ejaculate specimen in the urologist's office at a follow-up appointment, usually 4 to 8 weeks after the vasectomy.

Vasovasostomy (Sterilization Reversal)

Men choosing to undergo vasectomy should not consider the surgical procedure as reversible. However, microsurgical techniques can be used sometimes to reverse a vasectomy and restore patency to the vas deferens in a procedure called vasovasostomy. Many men have sperm in their ejaculate after a reversal, and 50% to 70% can impregnate a partner. The success of the procedure depends on the vasectomy method performed and the amount of time since the vasectomy. The procedure can be very costly, is not covered by insurance, is not permanent with occlusion of the vas recurring 2 or more years after vasovasostomy, and results in sperm counts at lower than prevasection levels (Sun & Premal, 2020).

Semen Cryopreservation (Sperm Banking)

Storing fertile semen in a sperm bank before a vasectomy is an option for men who experience a major life change and may want to father a child at a later time. In addition, if a man has just sustained an injury to the spinal cord or is about to undergo a procedure or treatment (e.g., radiation therapy to the pelvis, chemotherapy, orchietomy) that may affect his fertility, sperm banking may be considered (Halpern, Hill, & Brannigan, 2020). This procedure usually requires several visits to the facility where the sperm is stored under hypothermic conditions. The semen is obtained by masturbation and collected in a sterile container for storage. Insurance carriers rarely cover the cost of semen collection and banking. The costs of semen cryopreservation vary according to facility, method of sperm retrieval, number of specimens, and length of time in storage, making the process cost-prohibitive for some men.

DISORDERS AFFECTING THE PENIS

Phimosis

Phimosis is a condition in which the prepuce (foreskin) cannot be retracted over the glans in uncircumcised males. With the decrease in routine circumcision of newborns, early education should be given to parents about cleansing the foreskin and the need for retraction to cleanse the glans. If the glans is not cleaned, secretions accumulate, causing balanitis (inflammation of the glans penis), which can later lead to adhesions and fibrosis. Phimosis often develops in adults as a result of inflammation, edema, and constriction because of poor hygiene or underlying medical conditions such as diabetes. The thickened secretions, called smegma, can become encrusted with urinary salts and calcify, forming calculi in the prepuce and increasing the risk of penile carcinoma. Treatment for phimosis secondary to inflammation is the application of steroid cream to the foreskin to soften and correct the narrowness, resulting in decreased constriction. Although phimosis is the most common indication for adult circumcision, it is rarely necessary to surgically correct the condition by loosening or removing the foreskin.

Paraphimosis is a condition in which the foreskin, once retracted over the glans, cannot be returned to its usual position. Chronic inflammation under the foreskin leads to formation of a tight ring of skin when the foreskin is retracted behind the glans, causing venous congestion, edema, and enlargement of the glans, which makes the condition worse. As the condition progresses, arterial occlusion and necrosis of the glans may occur. Paraphimosis usually can be treated by firmly compressing the glans for 5 minutes to reduce the tissue edema and size and then pushing the glans back while simultaneously moving the foreskin forward (manual reduction). The constricting skin ring may require incision under local anesthesia. Circumcision is usually indicated after the inflammation and edema subside (Chapple et al., 2020).

Cancer of the Penis

Penile cancer accounts for less than 1% of cancers among men in the United States. An estimated 1290 new cancer cases and 300 expected deaths occur each year (ACS, 2020). The 5-year survival rates for cancer localized to the penis approaches 80%, but this statistic drops to 52% if the lymph nodes are involved and to 18% if the cancer has spread beyond the inguinal lymph nodes (Chapple et al., 2020). Penile cancer is much more common in some parts of Africa and South America, where it accounts for up to 10% of cancers in men. Because the penis contains different cell types, penile cancer can arise in each type of cell, which determines the prognosis. Types of penile cancer include squamous cell carcinoma (most common; 95% of cases), epidermoid penile cancer, verrucous carcinoma, adenocarcinoma, *in situ* carcinomas (erythroplasia of Queyrat and Bowen disease), basal cell penile cancer, melanoma, and sarcomas (Cheng et al., 2019). Several risk factors for penile cancer have been identified, including lack

of circumcision, poor genital hygiene, phimosis, HPV, smoking, ultraviolet light treatment of psoriasis on the penis, increasing age (two thirds of cases occur in men older than 65 years), penile metastasis secondary to bladder cancer, lichen sclerosus, and balanitis xerotica obliterans (Chapple et al., 2020). However, the exact cause remains unclear. Because penile cancer is rare, there has been little improvement in diagnostic and staging tests, understanding of risk factors, and development of treatment modalities.

Clinical Manifestations

The penile lesion usually alerts the patient to the presence of penile cancer; however, men may delay seeking treatment for more than a year because of embarrassment, fear, or lack of understanding. Common clinical presentations are a painless lump, ulcer, or wartlike growth on the skin of the penis; a change in skin color such as a red rash, bluish growths, or whitish patches; and malodorous and persistent discharge in late stages.

Assessment and Diagnostic Findings

Penile cancer involves the glans most frequently (48%), followed by lesions of the foreskin (21%), the coronal sulcus (6%), the penile shaft (less than 2%), the urethra, and regional or distant lymph nodes (Chapple et al., 2020). A thorough physical examination is necessary, including assessment and palpation of the penis and the inguinal lymph nodes. The size, location, borders, consistency, fixation, and character and time of onset of the penile lesions should be noted. Incisional or excisional biopsy is performed to determine the cell types of the penile cancer. Further staging tests using ultrasonography, MRI, or CT scan may be obtained to determine the extent of local lesions, if metastatic disease is present, and treatment options.

Prevention

The best way to reduce the risk of penile cancer is to avoid known risk factors whenever possible (ACS, 2020). Avoidance of sexual practices that are likely to result in HPV infection may reduce the risk of penile cancer. Gardasil, a vaccine that protects against infection with HPV, the cause of 90% of genital warts, is recommended for males 9 through 26 years old (ACS, 2020). Although men who are uncircumcised have a greater incidence of penile cancer than men who are circumcised, the more important factor in preventing penile cancer is good genital hygiene. Circumcision is not recommended as a prevention strategy (ACS, 2020).

Medical Management

Treatment varies depending on the type and stage of penile cancer, location of the lesion, overall physical health, and personal preferences about treatments and side

effects. Treatment emphasis is on minimizing the cancer's invasiveness and preserving organ function (Goonewardene, Pietrzak, & Albala, 2019). The goal of treatment in invasive penile cancer is complete excision with adequate margins. Surgery is the most common treatment method used in all forms of the disease. Depending on the stage and invasiveness of the cancer, therapeutic options may include simple excision, electrodesiccation and curettage, cryosurgery, Mohs surgery (microscopically controlled surgery), yttrium aluminum garnet (YAG) laser surgery, wide local excision, circumcision, and penectomy (surgical removal of part of the penis or the entire penis). Organ-sparing surgical approaches are preferable. Partial penectomy is preferred to total penectomy because patients can then participate in sexual activity, stand for urination, and maintain cosmesis. Modern reconstructive surgical techniques are providing more options for patients. The shaft of the penis can still respond to sexual arousal with an erection and has the sensory capacity for orgasm and ejaculation. Total penectomy is indicated if the tumor is not amenable to conservative treatment. After a total penectomy, the patient may still experience orgasm with stimulation of the perineum and scrotal area.

Topical chemotherapy with 5-fluorouracil cream or biologic therapy may also be effective. Radiation therapy is used to treat small squamous cell carcinomas of the penis and for palliation in advanced tumors or cases of lymph node metastasis.

Penile cancer spreads primarily to the inguinal lymph nodes; thus, appropriate lymph node management plays a significant role in survival. Because enlarged inguinal lymph nodes are caused by inflammation in 50% of cases, patients who present with enlarged lymph nodes should undergo treatment of the primary lesion followed by a 4- to 6-week course of oral broad-spectrum antibiotic agents. Persistent enlarged lymph nodes after antibiotic therapy should be considered to be metastatic disease and treated with either a sentinel lymph node biopsy (to determine presence of cancer) or with pelvic and bilateral inguinal lymph node dissection. If extensive pelvic lymph node involvement is present, the patient should receive adjuvant or neoadjuvant chemotherapy and postoperative radiation therapy (Goonewardene et al., 2019).

Priapism

Priapism, a relatively uncommon disorder, is defined as a persistent penile erection that may or may not be related to sexual stimulation. The penis becomes large, hard, and painful. Priapism results from either neural or vascular causes, including sickle cell disease, leukemic cell infiltration, polycythemia, spinal cord tumors or injury, and tumor invasion of the penis or its vessels. It may also occur with use of vasoactive agents that affect the central nervous system, antihypertensive agents, antipsychotic and antidepressant medications, substances injected into the penis to treat erectile dysfunction, alcohol, and cocaine. There

are three forms of priapism: ischemic (venoocclusive; low flow), nonischemic (high flow), and stuttering (intermittent).

The ischemic form, which is described as nonsexual, persistent erection with little or no cavernous blood flow, must be treated promptly to prevent permanent damage to the penis. The goal of therapy is to improve venous drainage of the corpora cavernosa to prevent ischemia, fibrosis, and erectile dysfunction. The initial treatment is directed at relieving the erection, preventing penile damage, and simultaneously treating the underlying disease. Recommended treatment is aspiration of the corpora cavernosa (with or without irrigation) or injection of sympathomimetic agents (e.g., phenylephrine). Repeated injections may be needed to resolve priapism. Surgical shunts are used to reestablish penile circulation if repeated injections of the sympathomimetic are ineffective (Goonewardene et al., 2019).

Nonischemic priapism and stuttering are generally not considered emergencies and often resolve without treatment. Conservative treatment (e.g., application of ice and site-specific compression to the injury) may be used. If repeated episodes occur, surgical shunting is considered. Patients with the intermittent form of priapism may be instructed in intracavernosal self-injection of phenylephrine.

Peyronie Disease

Peyronie disease is an acquired, benign condition that involves the buildup of fibrous plaques in the sheath of the corpus cavernosum. These plaques are not visible when the penis is relaxed. However, when the penis is erect, curvature occurs that can be painful and can make penile-vaginal intercourse difficult or impossible. Peyronie disease typically begins between 45 and 65 years of age. Medical management in the first year of active disease includes systemic, topical, intralesional, or extracorporeal techniques, with 50% of men experiencing spontaneous resolution. Surgical removal of mature plaques is used to treat severe disease. Patients should be fully informed of available treatment options and their likely outcomes (Martins, Kulkarni, & Kohler, 2020).

Urethral Stricture

Urethral stricture is a condition in which a section of the urethra is narrowed. It can occur congenitally or from a scar along the urethra. Traumatic injury to the urethra (e.g., from instrumentation or infections) can result in strictures that restrict urine flow and decrease the urinary stream, leading to spraying or double stream, postvoiding dribbling, and dilation of the proximal urethra and prostatic ducts. Prostatitis is a common complication. Treatment involves dilation of the urethra or, in severe cases, urethrotomy (surgical removal of the stricture). Antimicrobial agents are necessary for resolution of UTIs, followed by long-term prophylactic therapy until the stricture is corrected. Treatment should not be

considered successful until at least 1 year has passed, because strictures may recur anytime during that period (Spilotros, Venn, Anderson, et al., 2019).

Circumcision

Circumcision is the surgical excision of the prepuce (foreskin) of the glans penis. Approximately 80% of men are circumcised in the United States, and circumcision is one of the oldest surgical procedures performed worldwide (CDC, 2019). There is controversy about the guidelines to determine the validity of male circumcision as a prevention of disease transmission (Osinibi, Smith, & Henderson, 2020). In adults, circumcision may be indicated as part of treatment for phimosis, paraphimosis, and recurrent infections of the glans and foreskin. It also may be performed at the patient's request.

The primary method of circumcision in adults is surgical excision. Postoperatively, a petrolatum gauze dressing is applied and changed as indicated. The patient is observed for bleeding. Because considerable pain may occur after circumcision, analgesic agents are given as needed.

CRITICAL THINKING EXERCISES

1 pq Address the priorities and the approach you would use to care for and to educate a 46-year-old male patient and his wife from the Middle East about self-care management priorities after undergoing surgery for prostate cancer. How will your priorities and approach to care and patient education integrate cultural considerations into essential information required for effective self-care management for discharge?

2 ebp A 78-year-old male patient who has a history of myocardial infarction with quadruple bypass surgery, hypertension, and type II diabetes is diagnosed with cancer of the penis. What evidence-based information would you provide to the patient and his spouse to assist in preventing postoperative complications during the recovery period? Identify the evidence for and the criteria used to evaluate the strength of the evidence for the nursing care identified.

3 ipc Your patient is a 28-year-old man diagnosed with testicular cancer. You are providing education for the patient and his spouse about the treatment and management of his pre- and postoperative care. The patient asks you about infertility and requests information on sperm banking. Which members of the interdisciplinary health team would you consult to provide this patient with the requested information on sperm banking?

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*Asterisk indicates nursing research.
**Double asterisk indicates classic reference.

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Resources

- American Cancer Society, www.cancer.org/cancer/prostate-cancer.html
 American Urological Association, www.auanet.org
 CancerCare, www.cancercare.org
 Centers for Disease Control and Prevention (CDC), www.cdc.gov/cancer
 National Cancer Institute (NCI), www.cancer.gov
 National Comprehensive Cancer Network (NCCN), www.nccn.org
 National Institutes of Health, National Center for Complementary and Integrative Health (NCCIH), www.nccih.nih.gov
 Prostate Cancer Foundation, www.pcf.org
 Testicular Cancer Society (TCS), www.testicularcancersociety.org
 Urology Care Foundation, www.urologyhealth.org
 Us TOO International Prostate Cancer Education and Support Network,
www.ustoo.org

54 Assessment and

Management of Patients Who Are LGBTQ

LEARNING OUTCOMES

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

- 1.** Describe the importance of providing inclusive healthcare environments for people who are lesbian, gay, bisexual, transgender, and queer.
- 2.** Use inclusive terminology when communicating and conducting an assessment with a person who is lesbian, gay, bisexual, transgender, and queer.
- 3.** Explain and demonstrate the proper techniques to perform a health history and physical assessment and discriminate between normal and abnormal findings identified in the patient who is lesbian, gay, bisexual, transgender, and queer.
- 4.** Describe the various medical procedures and hormone treatments available for the person who is undergoing gender reassignment.
- 5.** Compare and contrast surgical procedures available to people seeking gender reassignment in terms of indications and preoperative and postoperative complications.
- 6.** Use the nursing process as a framework for care of the patient who undergoes gender reassignment surgery.

NURSING CONCEPTS

Assessment
Communication
Development/Human Development
Family
Identity
Professionalism/Professional Behaviors
Sexuality

GLOSSARY

bisexual: people who are romantically, emotionally, or sexually attracted to both male and female genders

cisgender: people who identify with the gender that matches the sex assigned to them at birth

gay: people who are romantically, emotionally, or sexually attracted to the same gender, such as men attracted to men

gender: set of socially constructed norms and behaviors that are taught to women and men

gender dysphoria: distress a person feels due to a mismatch between their gender identity and sex assigned at birth

gender identity: the internal self-conception of one's gender

intersex: a term used for a person who is born with biological traits that do not fit into those that traditionally characterize either male or female

lesbian: a term that gay women, or those women who are romantically, emotionally, or sexually attracted to other women, may prefer to use

LGBTQ: acronym that stands for lesbian, gay, bisexual, transgender, and queer

queer: people who are romantically, emotionally, or sexually attracted to numerous genders (male, female, transgender, intersex, etc.) or people who identify as nonheterosexual but do not want to use labels, such as gay, lesbian, or bisexual

questioning: a person who is unsure or is still exploring their sexual orientation or is concerned about applying a social label to themselves

sex: refers to the physical or biological characteristics that distinguish women and men, such as chromosomes, genitals, and hormones

sexual orientation: umbrella term that refers to romantic, emotional, or sexual attraction to persons of the opposite gender, the same gender, or to both or more than one gender

third-person pronouns: a way of referencing a person other than the self that may or may not use gender-specific labels (e.g., he/him, she/her, they/them)

transgender: umbrella term used to describe the full range of people whose gender identity does not match with the sex assigned to them at birth

transgender man: refers to a person who was assigned a female sex at birth but identifies with a male or masculine gender

transgender woman: refers to a person who was assigned a male sex at birth but identifies with a female or feminine gender

transition: process of aligning a person's gender expression with their self-identified gender identity, which can include social, medical, surgical, and legal changes

People who are **LGBTQ** (lesbian, gay, bisexual, transgender, and queer) have unique health care needs. They also experience particular health risks and disparities based on sexuality and gender identity. Increasingly, nursing and medical professionals are recognizing these risks and disparities; furthermore, these professionals are acknowledging the importance of providing culturally appropriate care to people who identify as LGBTQ. Nurses will encounter people who are LGBTQ and their families in every practice setting. As they would for other diverse populations, nurses should be prepared to provide quality and culturally appropriate care. This chapter focuses on the terminology around sexuality and gender identity, culturally appropriate assessment and communication, and assessment and management of patients who identify as LGBTQ, and, in particular, the unique health care needs of those patients seeking gender reassignment. The management of patients seeking gender reassignment using both nonsurgical and surgical treatments is discussed.

Sexuality and Gender Identity

Understanding the meaning and significance of the concepts and terminology for sexuality and gender identity is important to caring for patients who are LGBTQ.

Sexuality

Human sexuality is the way people experience and express themselves sexually. This involves biological, physical, emotional, or social feelings. Sexual orientation, which is a component of sexuality, is different than gender (see discussion below). **Sexual orientation** is an umbrella term that refers to romantic, emotional, or sexual attraction to persons of the opposite gender, the same gender, or to more than one gender. There are many terms that people use to describe their sexual orientation; however, the most commonly used terms are *heterosexual* or *straight*, *gay* or *lesbian*, *bisexual*, and *queer*.

People who are attracted to a different gender, such as women who are attracted to men, typically identify as heterosexual or straight. People who are attracted to the same gender, such as men attracted to men, often identify as **gay**. Gay women may prefer the term **lesbian**. People who are attracted to both male and female genders usually identify as **bisexual**.

Although the term *queer* was historically used as a word of insult, many people now choose to use it to identify their sexual orientation. People who are **queer** typically experience attractions to numerous genders (male, female, transgender, intersex, etc.). A person who does not want to use labels, such as

gay, lesbian, or bisexual, may also use the term queer to identify as a nonheterosexual.

People who are exploring or are unsure of their sexual orientation may refer to themselves as **questioning**. Questioning one's own sexuality can be difficult and confusing and can take years to understand. This term can also apply to people who are concerned about applying a social label (e.g., gay, lesbian, bisexual, queer) to themselves and may prefer to use this term.

Gender Identity

To fully understand the term *gender identity*, the concepts of *sex* and *gender* must be discussed first. **Sex** in the context of gender identity refers to the physical or biological characteristics that distinguish women and men, such as chromosomes, genitals, and hormones (Eliason & Chinn, 2018). For example, women have XX chromosomes, a uterus and ovaries, and the primary sex hormone is estrogen; whereas, men have XY chromosomes, a penis and testicles, and the primary sex hormone is testosterone. In most societies, people are assigned either the male or female sex at birth. However, some persons do not clearly have these defined binary sets of sex chromosomes or may not have clearly distinguishable genitalia. **Intersex** is a term used for a person who is born with biological traits that do not fit into those that traditionally characterize either male or female.

Gender is a set of socially constructed characteristics of women and men (World Health Organization, 2019). Although a person is either assigned as male or female at birth based on sex characteristics, they are taught norms and behaviors that are appropriate for their gender. Gender is usually the first thing we notice about a person based on cues, such as voice, communication style, hairstyle, clothing, and mannerisms. Gender norms, behaviors, and cues vary from society to society and can be changed.

Gender identity refers to how a person feels about themselves or their self-concept as female or male, feminine or masculine, or as something on the continuum between the two extremes (Eliason & Chinn, 2018). **Cisgender** is a term that often refers to people who identify with the gender that matches the sex assigned to them at birth (e.g., a person with a female sex that identifies as a woman). **Transgender** is an umbrella term used to describe the full range of people whose gender identity does not match with the sex assigned to them at birth. Although there is a diversity of terms that transgender people may use to identify their gender (e.g., trans, gender nonconforming, agender, and genderqueer), this chapter will use two main terms: transgender woman and transgender man. **Transgender woman**, or male to female, refers to a person who was assigned a male sex at birth but identifies with a female or feminine gender. **Transgender man**, or female to male, refers to a person who was assigned a female sex at birth but identifies with a male or masculine gender.

It is important to remember that gender identity and sexual orientation are two different self-concepts. Sexual orientation refers to a person's attraction, and gender identity refers to how a person feels about their gender. For example, a transgender man who is attracted only to men has a male gender identity and a gay sexual orientation. Health care professionals should never assume a person's sexual orientation or gender identity based on physical characteristics, mannerisms, communication style, voice, clothing, or hairstyle.

Statistics on LGBTQ Populations

There are many challenges to estimating the LGBTQ population in the United States. The biggest challenge is the lack of federal-level data. Historically, the U.S. government has not collected sexual orientation and gender identity data on surveys such as the census count. Consequently, researchers have had to use statistical modeling to estimate LGBTQ population sizes.

The Williams Institute (2018), a prominent LGBTQ public policy organization, estimates that approximately 4.5% of the U.S. population is LGBTQ. That percentage translates into nearly 15 million people. Although that number encompasses sexual orientation and gender identity, at least 1 million people in the United States identify as transgender (Meerwijk & Sevelius, 2017). Of the 15 million people who are LGBTQ, 58% identify as female and 42% as male; it is important to note that these survey data did not include nonbinary or gender-fluid gender identity options. The distribution of race and age among the LGBTQ population is shown in Figures 54-1 and 54-2, respectively (The Williams Institute, 2019).

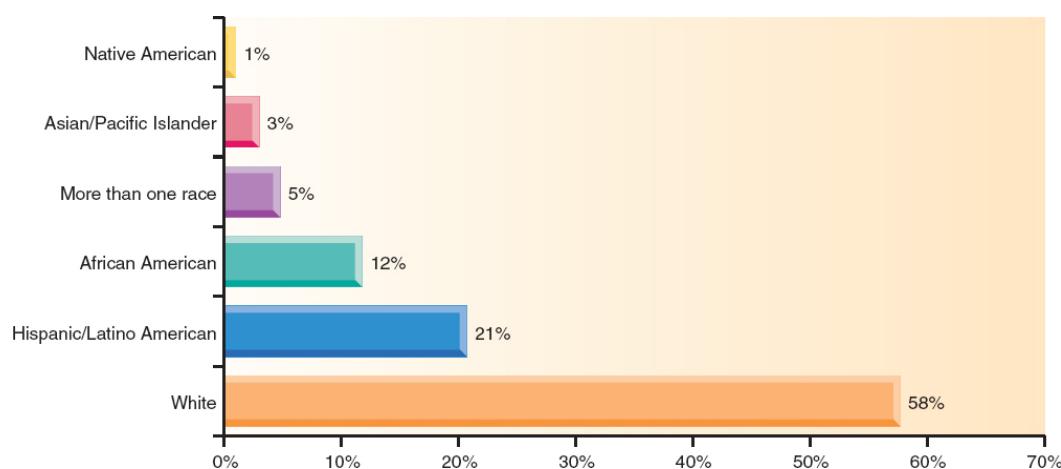


Figure 54-1 • Distribution of race among people in the United States who are LGBTQ. Adapted from The Williams Institute. (2019). LGBT demographic data interactive. Retrieved on 2/17/2020 at: williamsinstitute.law.ucla.edu/visualization/lgbt-stats/?topic=LGBT

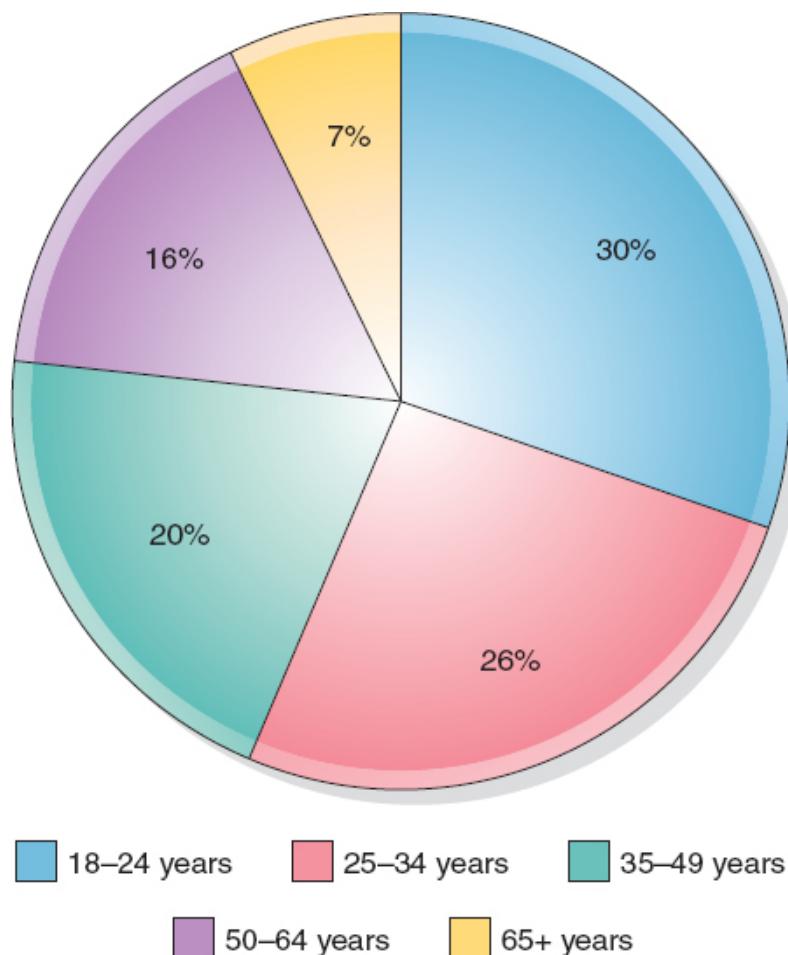


Figure 54-2 • Distribution of age among people in the United States who are LGBTQ. Adapted from The Williams Institute. (2019). LGBT demographic data interactive. Retrieved on 2/17/2020 at: williamsinstitute.law.ucla.edu/visualization/lgbt-stats/?topic=LGBT

Like parents who are heterosexual, parents who are LGBTQ are married, unmarried and cohabiting, separated or divorced, and single. There are intact families and blended families, and children who live between households. There are at least 1.1 million people who are LGBTQ in a legal same-sex marriage, over 1.2 million people who are LGBTQ who are in an unmarried same-sex relationship, and upwards of 3.7 million children under the age of 18 with at least one parent who is LGBTQ (Family Equality Council, 2017). Given the numerous limitations to accurately counting the number of families headed by people who are LGBTQ, these numbers are likely much higher. Also, it is important to note that on June 26, 2015, the U.S. Supreme Court ruled in *Obergefell v. Hodges* (576 U.S.) that the Constitution guarantees same-sex couples the right to marry and have their marriages recognized by the states. In the United States, there are over 1000 statutory provisions

classified in the U.S. Code that provide benefits, rights, and privileges to legally married couples. This ruling was important to protecting couples who are LGBTQ and their children, especially in the health care setting. For example, marriage allows people to make medical, legal, and financial decisions on behalf of an incapacitated spouse even when the spouse does not designate a durable power of attorney. Without legal marriage, people can be barred from visiting their partner in the hospital. Without marriage, people could not easily cover the health care needs of their entire family with health insurance.

Health Risks

The root cause of health risks or disparities among people who are LGBTQ is stigma (i.e., negative and unfair beliefs). For reasons beyond the scope of this chapter, people learn to stigmatize some human differences such as skin color and sexual orientation, whereas other differences are not stigmatized, such as eye color or left-handedness (Eliason & Chinn, 2018). People who are LGBTQ have historically been viewed as different or deviant, which is known as stigmatization. The stigma of people who are LGBTQ has led to many social effects, such as lack of recognition of relationships and family, the right to adopt, hate crimes and violence, discrimination in employment and education, and discrimination in housing (Eliason & Chinn, 2018). A person who is LGBTQ does not experience health risks simply because they identify as gay, lesbian, bisexual, or transgender; the stigma associated with their LGBTQ identity is what puts them at risk for certain health disparities.

As compared to people who are heterosexual and cisgender, people who are LGBTQ are at greater risk for certain physical and mental health issues. In terms of mental health disorders, people who are LGBTQ have a higher rate of depression and anxiety (Bostwick, Hughes, Steffen, et al., 2019; Ross, Salway, Tarasoff, et al., 2018; Witcomb, Bouman, Claes, et al., 2018) and experience more suicidality (Lyons, Walters, Jack, et al., 2019; McNeil, Ellis, & Eccles, 2017). Nearly 50% of people who are transgender have reported suicide attempts. Moreover, people who are LGBTQ tend to experience more victimization, such as physical or verbal harassment, which is associated with higher rates of depression and suicidality (Burks, Cramer, Henderson, et al., 2018).

Women who are lesbian, bisexual, or queer tend to be at greater risk for obesity and cardiovascular disease as compared to heterosexual women (Simoni, Smith, Oost, et al., 2017). Obesity in women who are lesbian, bisexual, or queer is linked to dysregulated eating, such as emotional- or binge-eating. The causes of dysregulated eating are complex and include biological, psychological, and social factors. In women who are lesbian,

bisexual, or queer, stigma is one of the root causes of obesity. Stigmatizing experiences, such as discrimination or victimization, leads to emotional distress, which in turn is associated with dysregulated eating as a coping strategy (Mason, Smith, & Lavender, 2019) (see [Chapter 42](#) for further discussion on obesity).

Men who are gay or bisexual and transgender women have higher rates of infection with the human immune deficiency virus (HIV) as compared to the general population. Men who are gay or bisexual is the population most affected by HIV in the United States (Centers for Disease Control and Prevention [CDC], 2019a). People who are transgender receive an HIV diagnosis at three times the rate of the national average (CDC, 2019b). Among these populations, rates of HIV are even higher among certain subgroups, especially people who are African American and young adult (see [Chapter 32](#) for further discussion on HIV).

Assessment

Nurses should strive to create a welcoming, inclusive, and therapeutic relationship with every patient. To better achieve this type of relationship with people who are LGBTQ, nurses should use inclusive terms and language. This will increase the likelihood of eliciting accurate information from anyone whose experience is different from cultural norms (Eliason & Chinn, 2018). Using inclusive language conveys to the person who is LGBTQ that the interviewer is open to hearing about their sexuality, gender identity, and relationships. If a nurse does not yet know a patient's sexual orientation and gender identity, they should always use neutral language to ensure the patient is comfortable during the assessment (see the Resources section at the end of the chapter for educational materials that promote developing welcoming and inclusive patient-provider relationships).

TABLE 54-1 Sample Questions and Statements Using Gender-Neutral Language

Question/Statement	Question/Statement with Neutral Language
Good morning, sir.	Good morning.
How may I help you, ma'am?	How may I help you?
She is scheduled for an x-ray.	They are scheduled for an x-ray.
Do you have a husband?	Are you in a relationship?
What are the names of your mom and dad?	What are the names of your parents or guardians?

In the United States, people tend to communicate using a binary gender system (female or male) and based on the assumption that people are heterosexual. This type of communication practice can be harmful to people who are LGBTQ, especially in the health care setting. Nurses should strive to use language terms that avoid assumptions about a patient's gender identity and sexual orientation. For example, nurses should avoid using singular **third-person pronouns** (a way of referencing a person other than the self that may use gender-specific labels) and salutations that use gender-specific labels (e.g., sir/miss/madam, Mr./Mrs./Ms.) until confirming the patient's preferences. They should also avoid using terms that assume sexual orientation of the patient and their family (e.g., wife/husband, boyfriend/girlfriend, mother/father). [Table 54-1](#) provides specific examples of neutral questions and statements.

Nurses should routinely assess each patient's sexual orientation and gender identity (SO/GI), including preferred pronouns. In fact, national and federal recommendations for routine collection of SO/GI in health care settings have spanned nearly 20 years (Maragh-Bass, Torain, Adler, et al., 2017). Assessing for SO/GI in the health care setting facilitates the provision of enhanced, holistic, person-centered care. For example, people who are LGBTQ may have unique health risks that need attention or may have a diverse family structure. People who are LGBTQ typically want to disclose their SO/GI to health care professionals. However, most health care professionals do not ask about SO/GI and instead make assumptions about a patient's gender identity and presume every patient is heterosexual. These assumptions put the burden on the patient to disclose ("come out" about their SO/GI), putting them in a vulnerable position (Eliason & Chinn, 2018). Thus, nurses should be skilled at properly assessing for SO/GI and preferred pronouns ([Chart 54-1](#)).

Assessing for family structure and other important relationships should be routine for every patient. People who are LGBTQ may have diverse or nontraditional family structures and may include people who are not biologically related. Nurses should assess for family and family of choice. Family of choice is a commonly used term among people who are LGBTQ. Some people who are LGBTQ have been rejected by their family of origin and thus create their own family network of people who support and care for them (Eliason & Chinn, 2018). Moreover, some people who are LGBTQ fear discrimination and exclusion of not only themselves but also their family. This is especially true of people who live in states that sanction narrow definitions of legal relationships (Eliason & Chinn, 2018).

Chart 54-1 ASSESSMENT



Personal Information

The nurse introduces these assessment questions by stating:

- “I am going to ask you a few questions about your sexual orientation and gender identity so we can provide personalized and affirmative care to you. These are questions I ask every patient. If you do not feel comfortable answering these questions, we can skip them.”

The nurse assesses for gender identity using a two-step question:

- “What sex was listed on your birth certificate?”
- “What is your current gender identity?” or “How do you describe your gender identity?”

Assessing for pronouns:

- “What pronouns do you prefer we use?”
- If the patient is unsure of what this means, you can ask, “Do you use the pronouns he/him, she/her, or something else?”

Assessing sexual orientation:

- “What is your sexual orientation?” or “How do you describe your sexual orientation?”

Assessing for preferred name:

- “What name do you prefer to be called?” or “What is the name that you would like us to use?”

Adapted from Centers for Disease Control and Prevention (CDC). (2020). Collecting sexual orientation and gender identity information. Retrieved on 4/20/2020 at:

www.cdc.gov/hiv/clinicians/transforming-health/health-care-providers/collecting-sexual-orientation.html; The Fenway Institute. (2017). Collecting sexual orientation and gender identity (SO/GI) data in electronic health records. Retrieved on 4/20/2020 at:

www.lgbthealtheducation.org/wp-content/uploads/2017/05/SOGI-Office-Hours-Update-Final.pdf; The Fenway Institute. (2018). Ready, set go! Guidelines and tips for collecting patient data on sexual orientation and gender identity. Retrieved on 4/21/2020 at:

www.lgbthealtheducation.org/wp-content/uploads/2018/03/Ready-Set-Go-publication-Updated-April-2018.pdf

Nurses should use neutral terms and be sensitive when interviewing all people about their family structure. Since some people who are LGBTQ have nontraditional family structures and families of choice, it is best to start the interview with an open-ended question, such as “Tell me about your family and social support system.” As the nurse asks follow-up questions, neutral terms should be used when inquiring about partners/significant others and parents/guardians (examples are listed in [Table 54-1](#)). Also, the nurse should not assume a person who is LGBTQ does not have children. Many people who are LGBTQ have children through adoption, surrogacy, and previous relationships. If the patient has children, the nurse should avoid making assumptions about the family structure. Finally, the nurse should mirror the language and terms used by the patient and their family. For example, if a

male-identifying patient refers to his significant other as “husband,” the nurse should not choose to use a different term, such as “partner.”

In terms of health assessment, people who are LGBTQ typically do not require specific assessments or diagnostic tests. They should receive nursing and medical person-centered care like any other patient. Depending on the health care setting, the nurse may want to focus parts of their assessment on those health risks mentioned earlier in the chapter. Time could be spent asking the person who is LGBTQ about anxiety, depression, suicidality, and discrimination and victimization. Since gay and bisexual men and transgender women have higher rates of HIV, sexual activity, safe sex practices, and HIV status should be assessed. People who identify as transgender should be asked about hormone treatment and surgical procedures only if it is relevant to the care being provided.



Gerontologic Considerations

In understanding older adults who are LGBTQ, it is important to recognize their social, historical, and cultural experiences. The lived experience of older adults who are LGBTQ is vastly different than younger people who are LGBTQ. Older adults who are LGBTQ lived their younger years in stigmatizing and dangerous environments (Ducheny, Hardacker, Claybren, et al., 2019). They frequently experienced discrimination and abuse in multiple areas, including physical, mental, and verbal abuse (Witten & Eyler, 2016). For many decades, it was dangerous for people who were LGBTQ to “come out” (disclose their sexual orientation or gender identity) and extremely difficult to find affirming health care services. Before the 1960s, people who identified as transgender were often committed to psychiatric institutions or forced to live in seclusion. From 1960 through 1990, people who identified as transgender could access rigid and isolating treatment and were made to adhere to narrow requirements (Ducheny et al., 2019). Until 1973, homosexuality was a diagnosed psychiatric mental illness. Moreover, older people who are LGBTQ faced significant discrimination that was sanctioned by state and federal governments. This history has profoundly affected the way in which older adults who are LGBTQ view and access all facets of health care, including clinics, hospitals, and assisted living/nursing homes (Witten & Eyler, 2016). To care for and promote the health of older adults who are LGBTQ, nurses should be mindful and understanding of this background. Moreover, this amplifies the importance of nurses needing to always provide a safe and welcoming space for all patients that promotes human dignity. Older adults who have hidden their sexual orientation or gender identity for many years due to fears of discrimination will be more likely to disclose this information if the nurse uses language and questions that signals to the patient that they are accepting and safe.

Assessment and Management of Patients Seeking Gender Reassignment

People who are transgender may experience **gender dysphoria**, which is the distress caused by the dissonance between the person's gender identity and that person's sex assigned at birth. To assist people with this distress and find a gender role that is comfortable for them, treatment is available and may include medical and surgical interventions. Treatment is individualized, meaning that interventions that effectively alleviate gender dysphoria in one patient may not work for a different patient.

Health care teams who provide psychological, medical, and surgical treatments to people who are transgender often follow the Standards of Care published by the World Professional Association for Transgender Health (WPATH, 2012). Even though the latest version of the Standards of Care was released in 2012, at the time of this book print, it is still the leading resource for the care of people who are transgender. Other important resources include the Guidelines for the Primary and Gender-Affirming Care of Transgender and Gender Nonbinary People from the University of California, San Francisco (Deutsch, 2016) and the Principles of Transgender Medicine and Surgery (Ettner, Monstrey, & Coleman, 2016) (see References and Resources sections at the end of the chapter).

Providing treatment to people who are seeking gender reassignment almost always starts with confirming a diagnosis of gender dysphoria. Many health insurance companies require a gender dysphoria or related diagnosis before covering the costs of gender reassignment treatments. Gender dysphoria is a diagnosis in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5). [Chart 54-2](#) lists the criteria used to diagnose a person with gender dysphoria. In short, to be diagnosed with gender dysphoria, a person must exhibit specific thoughts and feelings about the incongruence of their gender identity and their secondary sex characteristics for a period of at least 6 months (American Psychiatric Association, 2013). An experienced mental health care professional, such as a psychiatric mental health nurse practitioner, clinical social worker, psychologist, or psychiatrist, can assess, diagnose, and provide psychological treatment for gender dysphoria. Before a health care provider prescribes medical or surgical treatments (e.g., hormones, gender reassignment surgery), they usually require that the person has consulted with a mental health care provider and received a diagnosis of gender dysphoria.

Chart 54-2

DSM-5^a Diagnostic Criteria for Gender Dysphoria in Adolescents and Adults

- A.** A marked incongruence between one's experienced/expressed gender and assigned gender, of at least 6 months duration, as manifested by at least two of the following:
- 1.** Marked incongruence between one's experienced/expressed gender and primary and/or secondary sex characteristics (or in young adolescents, the anticipated secondary sex characteristics).
 - 2.** A strong desire to be rid of one's primary and/or secondary sex characteristics because of a marked incongruence with one's experienced/expressed gender (or in young adolescents, a desire to prevent the development of the anticipated secondary sex characteristics).
 - 3.** A strong desire for the primary and/or secondary sex characteristics of the other gender.
 - 4.** A strong desire to be of the other gender (or some alternative gender different from one's assigned gender).
 - 5.** A strong desire to be treated as the other gender (or some alternative gender different from one's assigned gender).
 - 6.** A strong conviction that one has the typical feelings and reactions of the other gender (or some alternative gender different from one's assigned gender).
- B.** The condition is associated with clinically significant distress or impairment in social, occupational, or other important areas of functioning.

^aDSM-5, *Diagnostic and Statistical Manual of Mental Disorders* (5th edition).

Reprinted with permission from American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: Author.

When a person wants to address the distress or other negative emotions associated with having a gender that does not align with their sex assigned at birth (gender dysphoria), they will usually work with an interdisciplinary health care team. This team typically includes a mental health care professional, a health care provider experienced in endocrinology, and a surgeon. The mental health care professional will provide psychological support to the person during their gender identity journey; the endocrinology health care provider will prescribe hormones and monitor outcomes; the surgeon will handle gender reassignment surgeries. Depending on the treatment settings, nurses are involved in various capacities along the treatment continuum.

Medical Management

Hormone Therapy

In addition to alleviating gender dysphoria, the goal of hormone gender-affirming therapy is the acquisition of the secondary sex characteristics of the other gender, to the fullest extent possible (Gooren, 2016). To achieve the secondary sex characteristics of the opposite gender, sex steroids/hormones are needed. There is no known difference in sensitivity to the action of sex hormones on the basis of genetics or gonadal/sex status (Gooren, 2016), meaning that a person can develop secondary sex characteristics of the opposite gender by taking sex hormones. However, certain effects of sex hormones cannot be reversed. For example, in people who are transgender women (male to female), the previous effects of androgens on the skeleton (average greater height; size and shape of hands, feet, and jaw; and pelvic structure) cannot be reversed by hormones (Gooren, 2016) ([Table 54-2](#)).

For patients who are transgender women, estrogen is prescribed to produce the desired physical changes. The prescribed dose of estrogen is individualized and depends on many different factors, such as the patient's goals, risk/benefit ratio, presence of other medical conditions, presence or absence of gonads, and social and economic issues (WPATH, 2012). Estrogen treatment should produce changes in body hair, breast development, skin, body fat composition, muscle mass, testes, and prostate. In addition to estrogen, androgen-reducing medications to reduce testosterone levels are also often prescribed, which diminish masculine characteristics and minimize the dosage of estrogen needed to suppress testosterone. Common androgen-reducing medications include spironolactone, cyproterone acetate, GnRH agonists (e.g., goserelin, buserelin, triptorelin), and 5-alpha reductase inhibitors (e.g., finasteride, dutasteride) (WPATH, 2012). Progestogen does not add to the feminization process and is typically not recommended due to the higher incidence of breast cancer and cardiovascular disease (Gooren, 2016). See Table 54-3 for commonly prescribed medications.

In people who are transgender men (female to male), testosterone is prescribed to produce the desired physical changes. Like estrogen, the prescribed dose of testosterone is individualized and depends on many different factors. Testosterone treatment should produce changes in scalp hair, skin oiliness, facial and body hair, voice, body fat composition, muscle mass, menses, clitoris, and vagina (see [Tables 54-2](#) and [54-3](#)).

TABLE 54-2 Physical Effects of Hormone Treatment for Gender Reassignment

Feminizing Hormones (Male to Female)	Masculinizing Hormones (Female to Male)
Reduction in growth and thinning of body hair	Growth of facial and body hair; scalp hair loss
Breast formation	Decrease in glandular activity of breasts
Softening of skin and decreased oiliness	Skin oiliness and acne
Increase in body fat and decrease in muscle mass	Decrease in subcutaneous fat, increase in abdominal fat, and increase in muscle mass
Testicular and prostate volume atrophy	Clitoral enlargement and vaginal atrophy
Decreased sperm production	Cessation of menses
Male sexual dysfunction	Deepening of voice

Adapted from World Professional Association for Transgender Health (WPATH). (2012). Standards of care for the health of transsexual, transgender, and gender-nonconforming people (version 7). Retrieved on 2/17/2020 at: www.wpath.org/publications/soc

As with any medical treatment, hormones carry risks to the person. The likelihood of a serious adverse event is dependent on numerous factors, such as dose, route of administration (e.g., oral vs. transdermal vs. intramuscular), and the patient's characteristics (e.g., age, comorbidities, health behaviors). People who take estrogen are at increased risk of venous thromboembolism (VTE), gallstones, elevated liver enzymes, weight gain, and hypertriglyceridemia. People who take testosterone are at increased risk for polycythemia, weight gain, acne, androgenic alopecia (male-patterned balding), and sleep apnea. In addition, both estrogen and testosterone can increase the risk of the person developing type 2 diabetes when they have additional risk factors, such as older age (WPATH, 2012).

TABLE 54-3 Medications Prescribed to Facilitate Gender Transition

Medication	Adverse Effects ^a	Nursing Considerations
Androgen-Reducing Medications (Antiandrogen)		
Spironolactone (off-label use) Mechanism of action: diuretic that also directly inhibits testosterone secretion and androgen binding to the androgen receptor	Electrolyte imbalances, especially hyperkalemia Decreased blood pressure	This medication is a diuretic and patients must be advised of frequent urination and need to increase water intake. Caution in patients with adrenal insufficiency, diabetes, hyperkalemia, and chronic kidney disease.
Cyproterone acetate Mechanism of action: antiandrogenic and progestogenic/antigonadotropic properties, resulting in blocked binding of the active metabolite of testosterone and decreased production of testicular testosterone	Thromboembolism Hyperlipidemia Hepatotoxicity Glucose intolerance Mood changes	Assess for signs and symptoms of thromboembolism. Monitor mood changes (anxiety, depression, insomnia), especially during the first 4–6 wks. Monitor liver function tests prior to and during therapy for symptoms of hepatotoxicity.
Dutasteride Finasteride Mechanism of action: inhibits the enzyme 5-alpha reductase, which is responsible for converting testosterone to its potent metabolite	Prostatic hyperplasia	Assess for urinary hesitancy, feeling of incomplete bladder emptying, interruption of urinary stream, and dysuria.
Estrogen		
Ethinyl estradiol Mechanism of action: semisynthetic estrogen that binds to estrogen receptors, increasing estrogen levels and decreasing testosterone levels	Thromboembolism Edema Hypertension Pancreatitis	Assess for signs and symptoms of thromboembolism. Assess blood pressure before

and during therapy.
Monitor hepatic function during therapy.

Masculinizing Hormone Medication for Female to Male		
Medication	Adverse Effects	Nursing Considerations
Androgen Testosterone undecanoate Mechanism of action: synthetic testosterone that binds to androgen receptors throughout body	Glucose intolerance Hypertension	Assess blood pressure before and during therapy. Monitor for hypoglycemia, especially in people taking diabetes medications.

^aErectile dysfunction and gynecomastia are side effects of these medications. However, people who are male-to-female transgender are expecting these side effects.

Adapted from Comerford, K. C., & Durkin, M. T. (Eds.). (2020). *Nursing2020 drug handbook*. Philadelphia, PA: Wolters Kluwer.

Hair Removal

Hormone treatment does not typically fully eliminate unwanted hair, and thus people who are transgender may seek additional gender-affirming medical procedures. Transgender women typically seek hair removal on the face, neck, and in the genital area as preoperative preparation for vaginoplasty. Transgender men typically seek hair removal on the forearm and thigh when needing graft sites for phalloplasty. Like hormone treatment, hair removal is associated with both decreased dysphoria and increased well-being among people who are transgender (Bradford, 2019). Although numerous treatments exist to help manage unwanted hair, there are two primary medical procedures used for long-term treatment: laser hair removal and electrolysis (Reeves, Deutsch, & Stark, 2016).

Laser hair removal is the leading therapy option for long-term results and works on the principle of selective photothermolysis, whereby photons destroy the hair follicle while sparing the surrounding tissue (Thomas & Houreld, 2019). The main risks of this procedure are overheating resulting in redness, blisters, and burns. Treatments should be avoided when photosensitizing medications are being used, such as acne medications (e.g., isotretinoin, minocycline, doxycycline), antibiotics (e.g., tetracyclines, sulfonamides, quinolones), and spironolactone. Nurses should review a patient's medication list and identify those that are photosensitive. Electrolysis involves the use of

an electric current that destroys the root of individual hair follicles. This treatment is more time consuming and more painful than laser hair removal. The main risks of electrolysis are redness and pigment changes. To help manage the pain during laser hair removal and electrolysis, topical anesthetics (lidocaine-containing products) and acetaminophen are used (Reeves et al., 2016).

Acne Treatment

In transgender men, testosterone is the mainstay of masculinizing hormonal therapy. Although the exact mechanism in the pathogenesis of acne is not yet fully understood, testosterone increases the production of sebum (oily secretion) in sebaceous glands, leading to acne. Facial acne in transgender men who use testosterone peaks within the first 4 months of treatment; over 80% of testosterone-treated transgender men experience facial acne in the first year (Motosko, Zakhem, Pomeranz, et al., 2018). General guidelines for acne treatment can be followed for transgender men (Thiboutot, Dréno, Abanmi, et al., 2018); however, there are some specific considerations and risks. First, combining testosterone with some acne medications, especially minocycline, may lead to hepatotoxicity; thus, frequent monitoring of liver function tests is warranted. Second, some acne medications are teratogenic, such as minocycline, doxycycline, and isotretinoin. For transgender men who are still at risk of pregnancy (intact uterus and ovaries), careful sexual history and counseling should be performed before the initiation of any acne treatment. Third, some acne medications, especially isotretinoin, may delay wound healing and lead to keloid formation after surgery; thus, a discussion about surgical plans is needed before starting acne treatment (Motosko et al., 2018).

Fertility and Reproductive Health

Many people who are transgender will want to have biological children, but because hormone treatment limits fertility, patients should be educated about their options before starting hormone treatment or undergoing surgery to remove or alter their reproductive organs. Although the long-term effects of gender-affirming hormone therapy using testosterone or estrogen on fertility are not known, limited research suggests that testosterone and estrogen can affect the reproductive abilities of ovaries and testes, respectively (Cheng, Pastuszak, Myers, et al., 2019). There are cases of transgender women and men stopping hormone treatment and still having fertile oocytes or sperm; however, there are many cases to the contrary and thus patients who are transgender should be fully informed of the possible implications that hormones have on fertility and preservation options.

In the postpuberty age group, transgender men should be educated about oocyte cryopreservation, embryo cryopreservation, and uterus preservation.

Transgender women should be educated about sperm cryopreservation. In the prepuberty age group, trials are ongoing to determine the effectiveness of ovarian tissue cryopreservation and testicular tissue cryopreservation in transgender men and transgender women, respectively (Cheng et al., 2019).

Gerontologic Considerations

The synthesis and secretion of many endogenous hormones change and the expression of cell receptors in tissues changes in numbers and signaling capacity as the human body ages (Houlberg, 2019). Although there is very little research on the effect of exogenous cross-sex hormones in older adults who are transgender, there are important considerations given the endocrine changes in aging bodies. The major consideration for nurses is the effects of sex steroids on the metabolism of medication. With aging, the metabolism and excretion of many drugs decrease (Ruscin & Linnebar, 2018). Sex hormones also influence the absorption, metabolism, pharmacodynamics, and adverse effects of medications (Gooren & T'Sjoen, 2018). Nurses may need to take additional precautions to monitor for adverse effects and toxicity of certain medications when working with people who are transgender and taking exogenous sex hormones. The other two considerations are cardiovascular disease and bone health. In transgender women, estrogen increases the risk of cardiovascular morbidity and mortality. Additional preventive screening is warranted in these patients and lowering the dose of estrogen in transgender women over the age of 55 should be considered. Lastly, cross-sex hormone treatment can decrease bone health in both transgender women and men (Gooren & T'Sjoen, 2018). Findings from a pilot study suggest that despite having an increased risk for osteoporosis, transgender individuals' knowledge of their risks for osteoporosis can be poor (Sedlak, Roller, van Dulmen, et al., 2017) (see the Nursing Research Profile in [Chart 54-3](#)). To help reduce the risk of reduced bone mineral density, nurses should educate about osteoporosis risks and promote physical exercise and intake of vitamin D and calcium to people who are transgender and taking sex hormones (see [Chapter 36](#) for further discussion of osteoporosis). Given these considerations, the risks of hormone treatment can be managed and rarely pose an absolute contraindication (Houlberg, 2019).

Chart 54-3 NURSING RESEARCH PROFILE

Osteoporosis Prevention Among Transgender Persons

Sedlak, C. A., Roller, C. G., van Dulmen, M., et al. (2017). Transgender individuals and osteoporosis prevention. *Orthopaedic Nursing*, 36(4), 259–268.

Purpose

Many people who are transgender take sex hormones in order to achieve desirable characteristics of the gender that they feel is consonant with their personal identity. An adverse effect of these medications is that bone mineral density can become prematurely depleted, leading to early osteoporosis. The purpose of this mixed methods pilot study was to identify osteoporosis knowledge, beliefs, and prevention behaviors among transgender adults.

Design

Participants were recruited by advertising flyers at LGBTQ community centers and by advertising via LGBTQ support groups on the Internet. In order to be included in the study, participants had to be at least 30 years of age, the age when bone mineral density is considered maximal. Eligible participants could identify with male or female gender, and had to be able to read and speak English. Thirty-one participants were recruited and consented to complete a survey, which included a series of scales such as the *Osteoporosis Knowledge Test*, the *Osteoporosis Health Belief Scale*, the *Osteoporosis Self-Efficacy Scale*, the *Dietary Calcium Rapid Assessment Tool*, and the *Yale Physical Activity Survey*. Fifteen of these participants were randomly selected to participate in online qualitative interviews that focused on their views of bone health and osteoporosis.

Findings

The majority of participants (90.3%) took sex hormones. Most participants had poor knowledge of their osteoporosis risks, with 81% receiving failing scores on the *Osteoporosis Knowledge Test*. Participants selected to partake in the interviews confirmed that their knowledge of osteoporosis and their knowledge of their osteoporosis risks were poor. Several expressed frustration that health care providers had not disclosed these risks to them previously. The mean daily dietary calcium intake for the sample was less than recommended standards as was the minutes of average daily exercise. Most participants were not taking vitamin D supplements. Of those participants who were taking vitamin D supplements, more than half were taking less than recommended dosages.

Nursing Implications

Sex hormones are commonly taken by persons who are transgender; yet, findings from this study suggest that few people who are transgender and take sex hormones have knowledge of their associated higher risk for osteoporosis. Nurses should educate people who are transgender regarding the risk for osteoporosis that is associated with sex hormones. In addition,

nurses should encourage persons who are transgender and taking sex hormones to engage in strategies that can mitigate the effects of sex hormones on their bone mineral density, including increasing their dietary calcium and physical activities, and taking appropriate dosages of vitamin D supplements.

Surgical Management

People who are transgender have many different gender reassignment surgeries available to them as they **transition** from their sex assigned at birth to their gender identity ([Table 54-4](#)). Just like hormone treatment, gender reassignment surgeries help reduce gender dysphoria and improve quality of life. The WPATH (2012) recommends that people who are seeking gender reassignment surgeries meet certain criteria. They recommend that the person seeking surgery have (a) persistent, well-documented gender dysphoria; (b) capacity to make a fully informed decision and to give consent for treatment; (c) age of majority in a given country; and (d) any significant medical or mental health concerns be well controlled. For certain surgeries, including hysterectomy, phalloplasty, and vaginoplasty, WPATH (2012) also recommends that the person has had 12 continuous months of hormone therapy and has had 12 continuous months of living in a gender role that is congruent with their gender identity. This is based on clinical consensus, not empirical evidence, that living 12 months in a gender role that is congruent with their gender identity gives them ample opportunity to experience and socially adjust before undergoing irreversible surgery (Colebunders, Verhaeghe, Bonte, et al., 2016).

Male-to-Female Gender Reassignment Surgeries

There are numerous different gender reassignment surgeries for transgender women (see [Table 54-4](#)). Over the years, researchers have identified common differences between male and female faces. Typically, the female face is oval and heart-shaped with smooth lines, pointed chin, less pronounced mandibular angles, less nasal prominence, and less angular nasal tip (Colebunders, Verhaeghe, et al., 2016). For people who desire a more feminine face, surgeries are available to modify most structures in the face. Chondrolaryngoplasty, reducing the prominent thyroid cartilage, commonly referred to as the Adam's apple, and feminizing the voice are commonly desired changes in people who are male-to-female transgender; both surgeries can be performed during the same procedure. Feminizing the voice involves shortening the vocal cord length or increasing the vocal cord tension (Colebunders, Verhaeghe, et al., 2016).

TABLE 54-4 Select Gender Reassignment Surgeries

Male to Female	Female to Male
Facial feminization <ul style="list-style-type: none"> • Angle of mandible • Cheeks • Chin • Forehead • Nose • Upper lip 	Facial masculinization <ul style="list-style-type: none"> • Angle of mandible • Cheekbones • Chin • Forehead
Hair transplantation	Subcutaneous mastectomy
Chondrolaryngoplasty (tracheal shave)	Hysterectomy and salpingo-oophorectomy
Voice feminization	Phalloplasty
Breast augmentation	
Orchiectomy	
Vaginoplasty	

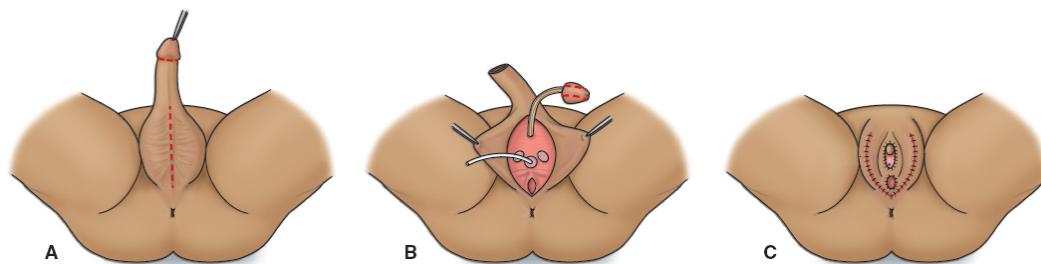


Figure 54-3 • Vaginoplasty in transgender woman (male to female). **A.** Surgically created penile skin flap and dorsal scrotal flap. **B.** Resection of penile and scrotal tissue. **C.** End surgical result is clitoroplasty.

For most transgender women, breast augmentation greatly increases subjective feelings of femininity. Surgeons typically recommend the person take estrogen for at least 12 months prior to the surgery to maximize breast growth and obtain better aesthetic results. Mammogenesis in transgender women receiving estrogen follows a pattern like the Tanner stages of breast development (see Breast Assessment in Chapter 52 for discussion of Tanner stages). Although there are some sexual differences in chest wall and mammary anatomy, the implantation of breast prostheses is not very different from breast augmentation in a female natal patient. The incision is typically made axillary, inframammary, or periareolar. The implant is created behind the glandular tissue or behind the pectoralis muscle (Colebunders, Verhaeghe, et al., 2016).

Some transgender women choose to have genital reassignment surgery. The goal of genital reassignment surgery in transgender women is to create a perineogenital complex as feminine in appearance and function as possible and free of poorly healed areas, scars, and neuromas. To achieve this goal, two procedures are required, including an orchiectomy (removal of the testicles) and vaginoplasty. The major steps of a vaginoplasty ([Fig. 54-3](#)) include amputation of the penis, creation of the neovaginal cavity and the lining, reconstruction of a urethral meatus, and construction of the labia and clitoris (Colebunders, Verhaeghe, et al., 2016). Lining the neovaginal cavity requires either a skin flap or skin graft. The penile–scrotal skin flap, or penile inversion vaginoplasty, is the technique of choice and involves inverting the penile and scrotal skin (Ferrando, 2018). If the skin graft technique is used by the surgeon, skin tissue can be harvested from numerous different areas on the body, such as the penile or scrotal area, abdomen, intestines, or buccal mucosa.

The goals of postoperative care of the patient undergoing male-to-female genital reassignment surgery are to prevent complications and infection and to ensure patency of the neovaginal cavity. After surgery, the patient typically remains in bed for five days with a vaginal dilator in place while receiving subcutaneous low-molecular-weight heparin (LMWH) (e.g., enoxaparin; see [Chapter 26](#) for further discussion on anticoagulation medications). After the fifth day, the dilator is periodically removed and daily cleansing of the neovaginal cavity begins. The patient will typically remain in the hospital for 8 days. After discharge, the patient is educated on how to dilate and cleanse their vaginal cavity for 3 to 6 months. Once fully healed, the patient can begin having penetrative vaginal intercourse and stop using the vaginal dilator. If the patient does not engage in regular intercourse, they will need to continue using the vaginal dilator (Colebunders, Verhaeghe, et al., 2016).

Female-to-Male Gender Reassignment Surgeries

There are also numerous different gender reassignment surgeries for transgender men (see [Table 54-4](#)). Male-sexed faces tend to have larger facial skeletons, be squarer with sharper angles and stronger jaws. Although facial masculinization procedures are far less common than facial feminization, surgeries are available to modify the forehead, angle of the mandible, chin, and cheekbones. Although the vocal cords can be surgically modified to reduce tension resulting in a more masculine voice, most people who are transgender male achieve their desired voice through testosterone treatment and behavioral therapies (Irwig, 2017; Schneider & Courey, 2016).

Testosterone treatment has little effect on reducing breast size, thus transgender men who desire a flat chest require a subcutaneous mastectomy ([Fig. 54-4](#)). From an anatomical standpoint, subcutaneous mastectomy in transgender males is nearly identical to mastectomies for breast disease. The main difference is the removal of breast tissue and excess skin and reduction

and repositioning of the nipple and areola to create an aesthetically pleasing male chest (Colebunders, D'Arpa, Weijers, et al., 2016). The complication rate of subcutaneous mastectomy is very low and carries similar risk to mastectomies for breast disease (Cuccolo, Kang, Boskey, et al., 2019) (see [Chapter 52](#) for further discussion on mastectomy).

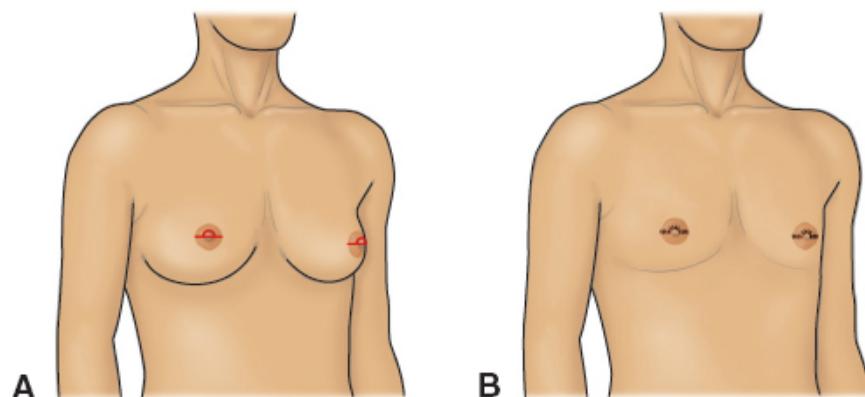


Figure 54-4 • Subcutaneous mastectomy in transgender man (female to male). **A.** Breast tissue with transareolar incision. **B.** Appearance postmastectomy.

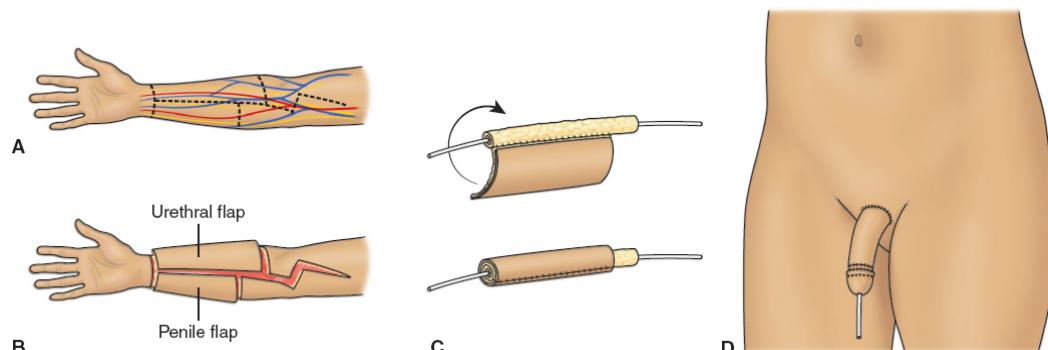


Figure 54-5 • Phalloplasty in transgender man (female to male). **A.** Selection of radial flap on forearm. **B.** The urethral (longer) and penile parts are dissected. **C.** Creation of a urethral tube within a penile tube. **D.** Postoperative results of phalloplasty.

Some transgender men choose to have phalloplasty, which is the construction of a penis. The goals of phalloplasty include (Colebunders, D'Arpa, et al., 2016):

- having an aesthetic appearing penis,
- achieving tactile and erogenous sensation,
- having the ability to urinate while standing, and
- having the ability to have an erection and engage in penetrative intercourse.

Phalloplasty is a complicated surgery that involves numerous subprocedures. Although the selection of subprocedures will depend on the patient's goals, they typically include phallic shaft creation, penile urethroplasty, urethral lengthening, perineoplasty (reconstructing the perineum), scrotoplasty, vaginectomy, hysterectomy and oophorectomy, glansplasty (constructing the head of penis), testicular implants, and erectile device implant (Heston, Esmonde, Dugi, et al., 2019). To help retain erogenous sensation and the ability to achieve orgasm, surgeons try to maintain clitoral nerves. Patients can also elect to have clitoral transposition where the clitoris is placed in a superficial location just below the surface of the neophallus.

Constructing the penis requires a flap of skin to be excised from either the radial forearm or anterolateral thigh. The forearm skin flap is considered as the standard in penis construction ([Fig. 54-5](#)), but some patients may choose the thigh to avoid having a wide circumferential scar on the forearm. Due to the size of the skin flap excised from the forearm or thigh, postoperative monitoring and care is imperative to prevent infection and complications. After surgery, the patient typically remains in bed for 1 week with a suprapubic urinary diversion and transurethral catheter. The patient may be prescribed an LMWH agent, such as enoxaparin, during this time frame. However, pelvic or groin hematomas sometimes develop postphalloplasty, which must then be managed by either drains or surgical drainage, and thus the individual risks versus the benefits of prescribing an LMWH agent are carefully considered (Crane, 2016). After the 1-week mark, the transurethral catheter is removed, and the suprapubic catheter is clamped so the patient can begin voiding. The patient will typically remain hospitalized for 2 to 3 weeks after a phalloplasty for close monitoring. To increase the aesthetic aspect of the phalloplasty, the patient may choose to tattoo the glans (head) of the penis after it has healed. Tattooing the glans allows for more natural coloring (Colebunders, D'Arpa, et al., 2016).

There are numerous challenges to achieving the last two goals of phalloplasty; namely, to urinate while standing and to achieve an erection. There have been many reported complications in patients who had urethral lengthening through construction of a neourethra, especially postoperative urethra fistulas and strictures/stenoses. Further, the long-term effects of urethral lengthening on bladder function is unknown. Lifelong follow-up with a urologist is usually required. Achieving rigidity (erection) after a phalloplasty remains a real challenge. There are numerous surgical approaches to creating rigidity, each with unique limitations and complications. One of the more common approaches is implanting an erectile device. Although infections can be a problem with penile implants, the latest erectile devices show promise in being durable and allowing the person to achieve an erection and sexual pleasure (Colebunders, D'Arpa, et al., 2016) (for further discussion of penile implants, see [Chapter 53, Table 53-2](#)).

An alternative technique to phalloplasty is metoidioplasty, which uses the clitoris to construct a microphallus. In metoidioplasty, the clitoris is detached from the pubic bone, allowing it to extend out further. This approach usually requires at least 12 months of testosterone treatment, which results in a hormonally hypertrophied clitoris. Metoidioplasty is the only procedure that enables creation of male genitalia with completely preserved protective and erogenous sensitivity. This means that the sexual sensation of the clitoris is preserved and intact, which differs from a phalloplasty that often requires reconstruction or transposition of the clitoris. The scrotum is usually created from labia majora flaps allowing for testicular implants. Compared to phalloplasty, metoidioplasty has a shorter hospital stay and minimal donor site complications. However, metoidioplasty does not allow the person to void while standing nor engage in penetrative sex (Djinovic, 2018).

NURSING PROCESS

The Patient Undergoing Gender Reassignment Surgery

Assessment

Preoperatively, the nurse should first gather details about the patient's gender identity, preferred name, preferred pronouns, and surgery. A person who is undergoing gender reassignment surgery will likely feel vulnerable and emotional. Gender reassignment surgery is a monumental moment for a person who is transgender. The nurse needs to ensure the patient and their family feel welcomed and safe. Using gender-neutral language (see [Table 54-1](#)) and properly assessing for gender identity and pronouns (see [Chart 54-1](#)) is imperative to creating a welcoming environment.

Preoperatively, the nurse ensures the patient has received education and counseling about their gender reassignment surgery, the possible risks and benefits, including complications, postsurgical outcomes, and need for possible long-term follow-up appointments. The nurse needs to assess the last time the patient took their hormone treatment (e.g., estrogen or testosterone) because certain procedures require the patient to stop hormones 2 to 3 weeks in advance of surgery. The nurse should ensure the patient completed their bowel preparation, especially in genital reassignment surgery. For patients undergoing phalloplasty, the nurse needs to assess smoking status because most surgeons require the patient to be free of tobacco products or inhaling nicotine and marijuana. This includes electronic nicotine delivery systems (ENDS) including e-cigarettes, e-pens, e-pipes, e-hookah, and e-cigars (Colebunders, D'Arpa, et al., 2016). Laboratory results, including complete blood count (CBC), electrolytes, blood urea nitrogen (BUN), and creatinine, should be assessed; however, the nurse should be aware that people who receive hormones may have alterations in their laboratory values (Tollinche, Walters, Radix, et al., 2018). For patients who are transitioning, regardless of whether the transition is female to male or male to female, the upper limit for creatinine, hemoglobin and hematocrit, and alkaline phosphatase should be based on male values. For patients who are transitioning from female to male, the lower limit of hemoglobin and hematocrit should be based on male values. For patients who are transitioning from male to female, the lower limit of hemoglobin and hematocrit should be based on female values (WPATH, 2012).

Postoperatively, the nurse assesses the patient to ensure the goals for recovery are met and that the patient exhibits absence of complications secondary to the surgical procedure(s). Gender reassignment surgeries often require very specific assessments to ensure proper healing and prevent complications. It is imperative that the nurse follow the surgeon's

prescribed postoperative care guidelines and educate the patient to prevent both complications and revisional surgeries (Colebunders, Verhaeghe, et al., 2016).

Diagnosis

NURSING DIAGNOSES

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

- Risk for compromised dignity associated with stigmatization
- Anxiety associated with impending surgery
- Acute pain associated with surgical procedure
- Risk for infection associated with surgical procedure
- Hope associated with gender reassignment surgery

COLLABORATIVE PROBLEMS/POTENTIAL COMPLICATIONS

Potential complications may include the following:

- Hemorrhage
- Venous thromboembolism (VTE)
- Tissue necrosis

Planning and Goals

The major goals for the patient include enhanced sense of dignity and respect, reduction of anxiety about the surgery and postoperative care, relief of pain, absence of infection, enhancement of hope related to life after surgery, effective peripheral tissue perfusion, and absence of postoperative complications.

Nursing Interventions

ENSURING HUMAN DIGNITY

The nurse needs to promote a welcoming and safe environment for the patient undergoing gender reassignment surgery. In addition, the nurse needs to promote the use of gender-neutral language, preferred third-person pronouns, and utmost respect for the patient and their family (Johnson, Wakefield, & Garthe, 2020). The patient should be able to safely disclose their gender identity and sexual orientation. In addition, nurses and other health care providers should avoid having discussions about the patient that can be overheard by neighboring patients and staff who are not involved in care. While this principle should be applied to all patients, it is of the utmost importance to the care of people who are transgender because of concerns over discriminatory health care treatment (Tollinche et al., 2018).

People who are transgender should be roomed in accordance with their gender identity. Careful communication between the nurse and individuals responsible for room assignments (e.g., charge nurse) is necessary. If a private room is available, it should be offered as an option because it will

provide increased privacy and comfort to the patient. However, the patient should not be forced into a private room because it may make the patient feel isolated (Tollinche et al., 2018).

REDUCING ANXIETY

The nurse provides the patient preparing for gender reassignment surgery anticipatory guidance as to what to expect during the surgery and postoperatively. The patient's preferred family should be included when possible to help reduce anxiety. Additionally, some surgery centers promote the use of relaxation techniques, such as aromatherapy, nature sounds, and relaxation exercises; the nurse should use these if available (Ertug, Olusoylu, Bal, et al., 2017). People who are transgender are often connected to larger networks, but the nurse can promote local and online support groups. Often, online support groups can become the main support resource after gender reassignment surgery (Cipolletta, Votadoro, & Faccio, 2017) (see Resources section).

Additionally, to help ease the patient's anxiety about postoperative care, the nurse can assist in coordinating services. People who are transgender have higher rates of anxiety and depression than cisgender people. These issues may be exacerbated during a prolonged hospital stay. Thus, the nurse should advocate for the involvement of mental health, social work, and spiritual care as needed to address all of the patient's needs (Tollinche et al., 2018).

RELIEVING PAIN

Evidence shows that patients experiencing postoperative pain should be offered multimodal analgesia, which is the pharmacologic method of combining various groups of medications for pain relief (Manworren, Gordon, & Montgomery, 2018) (see [Chapter 9](#) for further discussion). After surgery, patients are usually prescribed opioid (morphine, hydromorphone) and nonopioid (acetaminophen or NSAIDs) agents. The nurse can administer these agents as prescribed to relieve pain and discomfort. Inadequately controlled postoperative pain can impede functional recovery and reduce quality of life (Manworren et al., 2018), thus nurses need to be vigilant about controlling the patient's pain. Patients undergoing genital reassignment surgery typically need to stay in bed for numerous days; thus, the nurse should help the patient reposition themselves to promote comfort.

PREVENTING AND MONITORING FOR INFECTION

Unless the patient undergoing gender reassignment surgery has risk factors (e.g., older adult, weak immune system, smoker, poor nutrition, overweight), they are not at greater risk for developing a postsurgical infection. The nurse should follow usual procedures to prevent and monitor for infection. Preventing infection after surgery requires proper and frequent hand hygiene, maintenance of the surgical site, and administration

of prescribed prophylactic antibiotics. Early signs of infection should be reported to the surgeon immediately, including increased skin redness, pain, or swelling, cloudy or discolored discharge from the surgical site, and fever.

PROMOTING HOPE

People who are transgender often experience greater levels of depression and decreased quality of life as compared with cisgender people. However, people who undergo gender reassignment surgery often experience improved quality of life (Cai, Hughto, Reisner, et al., 2019; Passos, Teixeira, & Almeida-Santos, 2019). The nurse should promote open communication about the patient's feelings, hopes, and goals after their gender reassignment surgery and show a positive regard and sense of hope for the patient. Additionally, the nurse may want to explore unresolved emotions or anxieties.

MONITORING AND MANAGING POTENTIAL COMPLICATIONS

After surgery, the nurse assesses the patient for complications from the procedure, such as hemorrhage, VTE, and tissue necrosis.

Hemorrhage. Postoperative hemorrhage is a possible complication after gender reassignment surgery, especially following vaginectomy, which is one of the procedures during a phalloplasty (Colebunders, D'Arpa, et al., 2016). Signs and symptoms of possible hemorrhage include increased pain, frank red blood from the surgical site or rectum, increase in bloody output from any drain that might be in place (e.g., for mastectomy), and typical clinical manifestations (e.g., tachycardia, hypotension, lightheadedness, syncope).

Venous Thromboembolism. People who undergo gender reassignment surgery, especially those undergoing genital surgery and those who are transgender women, are at risk of VTE, including both pulmonary embolism (PE) and deep vein thrombosis (DVT) (Shatzel, Connelly, & DeLoughery, 2017). People who undergo genital reassignment surgery often need to stay in bed for up to 7 days, putting them especially at risk. Additionally, the estrogen hormone treatment among transgender women increases the risk. The patient is typically prescribed mechanical compression (e.g., intermittent pneumatic compression devices) and prophylactic anticoagulation with subcutaneous LMWH agents (e.g., enoxaparin) during hospitalization. Even with these prophylactic measures, some patients still develop DVT and PE, and thus the nurse should monitor for clinical signs (Colebunders, Verhaeghe, et al., 2016; Shatzel et al., 2017) (see [Chapter 26](#) for further discussion on VTE).

Tissue Necrosis. Tissue necrosis from vascular compromise is a complication with certain gender reassignment surgeries, including subcutaneous mastectomy and phalloplasty. After the subcutaneous mastectomy, vascular compromise may occur around the reconstructed

nipple and areola (Colebunders, Verhaeghe, et al., 2016). After the phalloplasty, vascular compromise may occur in the reconstructed shaft, penis glans, or scrotum (Colebunders, D'Arpa, et al., 2016). Signs of tissue necrosis from vascular compromise include skin/tissue discoloration (blue or black), feeling cool to the touch, increased pain or decreased sensation, and poor wound healing. Tissue necrosis is a medical emergency that needs to be addressed immediately.

PROMOTING HOME, COMMUNITY-BASED, AND TRANSITIONAL CARE

Educating Patients About Self-Care. People who undergo gender reassignment surgery are typically discharged to home from the hospital within seven days after surgery. General postoperative discharge education includes promptly notifying the surgeon for a temperature greater than 38°C (100.4°F) or for the presence of unusual or bloody drainage from the wound(s). The patient is encouraged to advance the diet as tolerated at home to promote wound healing and to abstain from all tobacco products at least until the surgical wound(s) has healed. Additional education provided is dependent upon the nature of the surgery. For instance, the patient who has had a vaginoplasty or phalloplasty will receive very specific education ([Charts 54-4 and 54-5](#)). If the patient has had a mastectomy and has a drain in place, then the patient needs to be educated on managing the drain at home (see [Chapter 52](#), [Chart 52-7: Home Care Checklist: Patient with a Drainage Device Following Breast Surgery](#)).

The patient is discharged with specific instructions about follow-up appointments, including visits with their surgical, medical, and psychosocial providers to address their complex needs. Nurses should advocate that these follow-up appointments be made prior to hospital discharge. Additionally, the discharge process should assist the patient in coordinating any type of necessary equipment pickup, transportation to follow-up appointments, and filling medication prescriptions, as needed.

Continuing and Transitional Care. Gender reassignment surgery is very complex, involves numerous different procedures, and can be different from surgeon to surgeon. For these reasons, it is impossible to describe every postsurgical self-care activity. The nurse needs to carefully review the discharge instructions provided by the surgical team. Genital reassignment surgery often has very specific self-care requirements of the patient. The nurse's role is to ensure the patient fully understands the self-care instructions and knows how to monitor for complications.

Chart 54-4



PATIENT EDUCATION

Postoperative Education for Patients Who Have Had a Vaginoplasty

The nurse instructs the patient about activity, bathing, swelling, hygiene, and vaginal intercourse as described below.

Activity

- Avoid strenuous activity for 6 weeks
- Avoid swimming or bike riding for 3 months
- May be uncomfortable to sit for the first month; may use donut ring to relieve pressure

Bathing

- Resume showering following first postoperative visit
- Do not submerge groin area in water for 8 weeks

Swelling

- Labial swelling is normal and will resolve in 6 to 8 weeks
- Apply ice to perineum for 20 minutes every hour while awake for 1 week postoperatively
- Increased swelling with pain should be reported to surgeon

Hygiene

- Wash hands before and after contact with genital area
- Wipe genital area from front to back to avoid contamination by bacteria from anal region

Vaginal Intercourse

- May engage in vaginal intercourse 3 months after surgery

Adapted from Meltzer, T. (2016). Vaginoplasty procedures, complications and aftercare. Retrieved on 7/10/2020 at: transcare.ucsf.edu/guidelines/vaginoplasty; University of Utah.

The patient will usually continue to see their surgeon for follow-up appointments for many months. Some procedures, such as a phalloplasty, may require follow-up appointments for up to a year after surgery. The patient will typically need lifelong hormonal treatment and should continue to follow-up with their endocrinology health care provider. Additionally, many people who undergo gender reassignment surgery continue to visit a mental health care provider for counseling.

Evaluation

Expected patient outcomes may include the following:

1. Enhanced human dignity

- Verbalizes feelings of satisfaction related to the level of respect given to
- a. them
2. Minimal anxiety
 - a. Has facial expressions, gestures, and activity levels that reflect decreased distress
 - b. Demonstrates ability to reassure self
 3. Relief of pain
 - a. Reports relief of pain
 - b. Engages in early mobilization activities as prescribed

Chart 54-5



PATIENT EDUCATION

Postoperative Education for Patients Who Have Had a Phalloplasty

The nurse instructs the patient about activity, bathing, swelling, hygiene, and sexual activity as described below.

Activity

- Avoid strenuous activity for 6 weeks
- Do not flex at waist more than 90 degrees
- Do not lift anything heavier than 5 lb with arm with skin graft donor site

Bathing

- Lightly sponge bathe for 1 week postoperatively and then begin gently washing penis with warm soapy water
- Keep skin graft donor site dry; may use plastic bag to protect from water

Swelling

- Minor swelling is expected; however, report increased swelling in groin or change in girth of penis to surgeon

Hygiene

- Wash hands before and after contact with genital area

Sexual Activity

- Do not use penis for any sexual activities until approved by surgeon (including oral, vaginal, or anal insertion)

Adapted from Phalloplasty guide: How to prepare & what to expect during your recovery.
Retrieved on 7/10/2020 at: healthcare.utah.edu/transgender-health/gender-affirmation-surgery/phalloplasty-recovery.php

4. Maintenance of asepsis
 - a. No evidence of infection (e.g., no fever, no leukocytosis, no increased redness or swelling of surgical sites)
5. Enhanced hope
 - a. Verbalizes feelings about their quality of life after having had gender reassignment surgery
 - b. Identifies future-oriented goals and hopes
 - c. Has no complications (no hemorrhage, VTE, or tissue necrosis)

CRITICAL THINKING EXERCISES

1 A 38-year-old patient is admitted to your hospital unit for a sickle cell crisis. During report from the emergency room nurse, you learn that this patient identifies as transgender. As you prepare to go and greet the patient and conduct the initial history and assessment, you recognize how important it is to provide an inclusive and welcoming environment for this patient. Describe how you should initially greet the patient. Prepare a list of questions to collect information about their preferred name, gender identity, and gender pronouns.

2  ebp An adult patient confides in you that they have been struggling with their gender identity since adolescence. They were assigned male sex at birth but have a strong desire to be a woman. The patient has been seeing a therapist who diagnosed them with gender dysphoria, but they have not yet started medical treatment. The patient plans to see a health care provider to start hormone treatment but says to you, “I would really like some information about hormones before I see my provider.” Describe the types of feminizing hormones and the physical effects. Identify evidence-based information you can provide to the patient to inform them about hormone treatment.

3  ipc You are a nurse working in an emergency department when a 60-year-old person who identifies as a transgender woman is admitted. You overhear a resident physician and nurse talk about the patient using derogatory terms. Describe how you can educate the resident physician and nurse to be more culturally sensitive to this patient. Discuss ways to advocate for the unit to be more welcoming, inclusive, and safe for people who identify as LGBTQ. Identify resources that can be shared with fellow staff members.

4  pq A 55-year-old patient who identifies as a transgender woman is admitted to the medical-surgical unit for fever and shortness of breath two weeks after having a vaginoplasty. The patient is taking daily oral estrogen. The patient’s BP is 128/95 mm Hg, HR 110 bpm, RR 28 breaths/min, T 38.40 °C (101.1 °F) and SpO₂ of 90%. Describe your priority nursing assessments for this patient. What nursing interventions would you implement first? Discuss the potential causes of this patient’s abnormal vital signs.

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Resources

Centers for Disease Control and Prevention (CDC) Lesbian, Gay, Bisexual, and Transgender Health, www.cdc.gov/lgbthealth/index.htm
Family Equality Council, www.familyequality.org
Gay and Lesbian Medical Association, www.gdma.org
Human Rights Campaign Healthcare Equality Index, www.hrc.org/hei
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Nurses Advancing LGBTQ Health Equality, glmnanursing.org/
The Fenway Health Institute, www.fenwayhealth.org
The Williams Institute on Sexual Orientation and Gender Identity Law and Public Policy, williamsinstitute.law.ucla.edu/
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