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Open Resources for Nursing (Open RN); Ernstmeyer K, Christman E, editors. Nursing: Mental Health and Community Concepts [Internet]. 2nd edition. Eau Claire (WI): Chippewa Valley Technical College; 2025 Nov 1.

## CHAPTER 18 ENVIRONMENTAL HEALTH AND EMERGENCY PREPAREDNESS

### 18.1. Introduction

#### Learning Objectives

- Analyze the nursing role in emergency preparedness planning within the community
- Explain the nurse role as a collaborative advocate for the health needs of the community
- Describe the nurse's role in promoting environmental health
- Apply principles of triage
- Outline tips for preventing and managing stress for disaster responders

Since the early years of the profession, nursing leaders such as Florence Nightingale and Lillian Wald have recognized the role of nurses in controlling the influence of environmental factors on health. Nurses have long appreciated that a healthy environment impacts the physical and mental health of individuals, families, communities, and populations.<sup>1</sup>

At some point during their career, nearly every nurse finds themselves caring for individuals affected by exposure to an environmental hazard or disaster. Disasters have environmental, physical, and psychological effects on individuals and communities. The increasing impacts of natural, man-made, and infectious disease disasters have changed health care and nursing perspectives around the world. Nurses are on the front lines in supporting individuals and communities affected by disasters. This chapter will review nurses' roles in promoting environmental health and treating individuals exposed to environmental hazards, as well as participating in emergency preparedness and disaster response and recovery.

#### Footnotes

- 1 American Nurses Association. (2007). *ANA's principles of environmental health for nursing practice with implementation strategies*. Nursesbooks.org. <https://www.nursingworld.org/practice-policy/work-environment/health-safety/environmental-health/>

### 18.2. Environmental Health

The environment is the air we breathe, the water we drink, the food we eat, and the places where we live, work, and play. There is a connection between the environment and the health of individuals and communities. An environmental health hazard is a substance or pathogen that has the ability to cause an adverse health event in individuals or communities. Examples of

environmental hazards are air contaminants, toxic waste, radiation, disease-causing microorganisms and plants, pesticides, heavy metals, chemicals in consumer products, and extreme temperatures and weather events.<sup>1</sup>

Environmental health hazards can be divided into five main categories: housing, occupational, atmosphere, foodborne diseases, and waterborne diseases. View examples of environmental hazards by category in [Table 18.2](#).

**Table 18.2**

Environmental Hazards.

Recognizing environmental hazards can help community health nurses provide information to community members and implement prevention strategies that promote positive outcomes. See [Figure 18.1](#)<sup>2</sup> for an example of prevention strategies related to the environmental hazard of lead poisoning.



**Figure 18.1**

Lead Poisoning.

The American Nurses Association (ANA) established an *Environmental Health* standard defined as, “The registered nurse practices in a manner that advances environmental safety and health.”<sup>3</sup> Review the competencies for this standard in the following [box](#).

### ANA’s Environmental Health Competencies <sup>4</sup>

The registered nurse:

- Creates a safe and healthy workplace and professional practice environment
- Fosters a professional environment that does not tolerate abusive, destructive, and oppressive behaviors
- Promotes evidence-based practices to create a psychologically and physically safe environment
- Assesses the environment to identify and address the impact of social determinants of health on risk factors
- Reduces environmental health risks to self, colleagues, health care consumers, and the world
- Integrates environmental health concepts in practice
- Communicates information about environmental health risks and exposure risk strategies

- Advocates for the implementation of environmental health principles in communities in which they work and live
- Incorporates technologies to promote safe practice environments
- Uses products or treatments consistent with evidence-based practice to reduce environmental threats and hazards
- Examines how the health care consumer's biography affects their biology, resultant health issues, and the ecosystem
- Analyzes the impacts of social, political, and economic influences on the human health experience and global environment
- Advances environmental concerns and complaints through advocacy and appropriate reporting mechanisms
- Promotes sustainable global environmental health policies and conditions that focus on prevention of hazards to people and the natural environment

Caring for individuals exposed to environmental hazards will be discussed in the following “Emergency Preparedness, Response, and Recovery” section.

Read more information about promoting environmental health and safety in nursing in the following [box](#).

- ▶ Read a free e-book titled [Environmental Health in Nursing](#) published by the Alliance of Nurses for Healthy Environments (ANHE).
- ▶ Review the “Environmental Safety” section of the “Safety” chapter in *Open RN Nursing Fundamentals, 2e*.

## Footnotes

- 1 Centers for Disease Control and Prevention. (2024). *About environmental public health tracking*. <https://www.cdc.gov/environmental-health-tracking/about/index.html>
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## 18.3. Emergency Preparedness, Response, and Recovery

A **disaster** is defined as a serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability, and capacity that lead to human, material, economic, and environmental losses and impacts.<sup>1</sup> Every

community must prepare to respond to disasters that include natural events (e.g., tornadoes, hurricanes, floods, wildfires, earthquakes, or disease outbreaks), man-made events (e.g., harmful chemical spills, mass shootings, or terrorist attacks), or infectious disease outbreaks. See [Figure 18.2<sup>2</sup>](#) for an image of the effects of the natural disaster Hurricane Katrina.



**Figure 18.2**

Effects of Hurricane Katrina.

**Emergency preparedness** is the planning process focused on avoiding or reducing the risks and hazards resulting from a disaster to optimize population health and safety. **Disaster management** refers to the integration of emergency response plans throughout the life cycle of a disaster event. Because disasters cause physical and psychological effects in a community, emergency preparedness and disaster management emphasize collaboration and cooperative aid among health care institutions and community agencies to ensure a coordinated and effective response.<sup>3</sup>

► Read the American Nurses Association resource regarding [Disaster Preparedness](#).

Emergency preparedness and disaster management are based on four key concepts: preparedness, mitigation, response, and recovery. This process guides decision-making when an emergency or disaster occurs in a community.<sup>4</sup> After the disaster event has concluded, evaluation of the effectiveness of the response occurs as part of planning emergency preparedness. See [Figure 18.3<sup>5</sup>](#) for a diagram that illustrates this theoretical framework for emergency preparedness. Each of these concepts is further discussed in the following subsections.



**Figure 18.3**

Key Concepts in Emergency Preparedness and Response.

## Preparedness

**Preparedness** includes planning, training personnel, and providing educational activities regarding potential disastrous events. Planning includes evaluating environmental risks and social vulnerabilities of a community. Environmental risk refers to the probability and consequences of an unwanted accident in the environment in which community members live, work, or play. Risk assessment also includes assessing social vulnerabilities that affect community resilience.<sup>6</sup>

**Social vulnerability** refers to the characteristics of a person or a community that affect their capacity to anticipate, confront, repair, and recover from the effects of a disaster.<sup>7</sup> Populations living in a disaster-stricken area are not affected equally. Many factors can weaken community members' ability to respond to disasters, including poverty, lack of access to transportation, and crowded housing. Evidence indicates that those living in poverty are more vulnerable at all stages of a catastrophic event, as are racial and ethnic minorities, children, elderly, and disabled people.<sup>8</sup> Socially vulnerable communities are more likely to experience higher rates of mortality,

morbidity, and property destruction and are less likely to fully recover in the wake of a disaster compared to communities that are less socially vulnerable. Community health nurses must plan emergency responses to disasters that address these social vulnerabilities to decrease human suffering and financial loss.

The Centers for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR) created a Social Vulnerability Index database and mapping tool designed to assist state, local, and tribal disaster management officials in identifying the locations of their most socially vulnerable populations. Geographic patterns of social vulnerabilities can be used in all phases of emergency preparedness and disaster management.

- ▶ View an example of social vulnerability mapping: [Overall U.S. Vulnerability at County Level as Identified in the Social Vulnerability Index<sup>9</sup>](#)
- ▶ View the [CDC/ATSDR Social Vulnerability Index Interactive Map](#).

## Mitigation

**Mitigation** refers to actions taken to prevent or reduce the cause, impact, and consequences of disasters. Health care institutions and community health agencies plan using the three Cs to mitigate the effects of a disaster:

- **Communication:** An emergency communication plan identifies tools, resources, teams, and strategies to ensure effective actions during emergencies.
- **Coordination:** Coordination plays a crucial role in efficiency and effectiveness of disaster management by providing a big picture of an emergency and reducing uncertainty levels among responders.
- **Collaboration:** Collaboration allows responders to act together smoothly and helps reduce impact of the disaster.

## Response

The **response** phase occurs in the immediate aftermath of a disaster. When a disaster occurs, actions are taken to save lives, treat injuries, and minimize the effect of the disaster. Immediate needs are addressed, such as medical treatment, shelter, food, and water, as well as psychological support of survivors. Personal safety and well-being in an emergency and the duration of the response phase depend on the level of a community's preparedness. Examples of response activities include implementing disaster response plans; conducting search and rescue missions; and taking actions to protect oneself, family members, pets, and other community members.<sup>10</sup>

While the immediate actions of responding to a disaster are treating physical injuries, psychological effects must be addressed as well. To minimize psychological effects, nurses and first responders can provide support to victims of the disaster by following these tips from the Substance Abuse and Mental Health Services Administration (SAMHSA)<sup>11</sup>:

- **Promote safety:** Ensure basic needs are met and provide simple instructions about how to receive these basic needs.

- **Promote calm:** Listen to people express their feelings and provide empathy and compassion even if they are angry, upset, or acting out. Offer objective information about the situation and efforts being made to help those affected by the disaster.
- **Promote connectedness:** Help people connect with friends, family members, and other loved ones. Keep families and family units together as best as possible, especially by keeping children with those whom they feel safe.
- **Promote self-efficacy:** Give suggestions about how people can help themselves and guide them toward the resources available. Encourage families and individuals to help meet their own needs.
- **Promote help and hope:** Know what services are available and direct people to those services and continue to update people about what is being done. When people are worried or scared, remind them that help is on the way.

### Disaster Response Protocols

When thinking about responding to a disaster, first responders and emergency personnel come to mind such as law enforcement, fire departments, and emergency medical technicians (EMTs). However, nurses are also called upon to assist in emergencies or disasters and must be competent in responding. Nurses may be involved in triaging individuals for treatment.

To respond effectively when a disaster occurs, emergency responders perform **triage** by prioritizing treatment for individuals affected by the disaster or emergency. **Field triage** sorts victims affected by the event and ranks victims based on the severity of their symptoms. **Disaster triage** determines the severity of injuries suffered by victims and then systematically distributes them to local health care facilities based on their severity.

**Simple Triage and Rapid Treatment (START)** is an example of a triage system established by the U.S. Department of Health and Human Services that prioritizes treatment of victims by using standard colors indicating the severity of symptoms and prognosis. See Figure 18.4<sup>12</sup> for the START algorithm. The following colors indicate severity of injury and prognosis:

- **RED:** Emergent needs
  - Life-threatening needs, such as alterations in airway, breathing, and circulation; impairment in neurological systems; or severe, life-threatening injuries.
  - They may have less than 60 minutes to survive.
  - These patients will be seen first or immediately.
- **YELLOW:** Urgent, but delayed needs
  - Life-threatening needs; status is not anticipated to change quickly or significantly in the next hours, so transport can be delayed.
- **GREEN:** Nonurgent needs, often referred to as the “walking wounded”
  - Minor injuries; status is not likely to deteriorate over the next several days.
  - Many individuals can assist with obtaining their own care.
- **BLACK:** The person has died or is expected to die soon

- This person is unlikely to survive given the severity of their injuries, level of available care, or both.
- Palliative care and pain relief should be provided.

**Figure 18.4**

START Adult Triage.

### Providing Care for Those Exposed to Environmental Hazards

Nurses may be involved in caring for clients who have been exposed to chemicals or other environmental hazards. See Table 18.3 for assessment findings and interventions for a variety of exposures. **Chelation therapy** is a treatment indicated for heavy metal poisoning such as mercury, arsenic, and lead. Chelators are medications that bind to the metals in the bloodstream to increase urinary excretion of the substance.

The image is a small thumbnail of Table 18.3, which is titled 'Assessment Findings and Interventions for Exposure to Various Environmental Hazards'. The table has three columns: 'Exposure', 'Assessment Findings', and 'Interventions'. The text in the table is too small to read accurately.

**Table 18.3**

Assessment Findings and Interventions for Exposure to Various Environmental Hazards.

Some chemical exposures require decontamination to treat the individual, as well as to protect others around them, including first responders, nurses, and other clients. **Decontamination** is any process that removes or neutralizes a chemical hazard on or in the client to prevent or mitigate adverse health effects to the client; protect emergency first responders, health care facility first receivers, and other clients from secondary contamination; and reduce the potential for secondary contamination of response and health care infrastructure. For example, if a farmer enters a rural hospital's emergency department after chemical exposure to an insecticide spray, decontamination may be required. See Figure 18.5<sup>13</sup> for an image of decontamination.

**Figure 18.5**

Decontamination.

The decision to decontaminate an individual should take into account a combination of these key indicators<sup>14</sup>:

- Signs and symptoms of exposure displayed by the client
- Visible evidence of contamination on the client's skin or clothing
- Proximity of the client to the location of the chemical release
- Contamination detected on the client using appropriate detection technology
- The chemical and its properties
- Request by the client for decontamination, even if contamination is unlikely



- ▶ Access up-to-date, evidence-based information for suspected poisoning at the [Poison Control Center](#) or call 1-800-222-1222.
- ▶ Read more the U.S. Department of Homeland Security and the U.S. Department of Health and Human Service's [Patient Decontamination in a Mass Chemical Exposure Incident PDF](#).


## Recovery

During the recovery period, restoration efforts occur concurrently with regular operations and activities. The recovery period from a disaster can be prolonged. Examples of recovery activities include the following<sup>26</sup>:

- Preventing or reducing stress-related illnesses and excessive financial burdens
- Rebuilding damaged structures
- Reducing vulnerability to future disasters

When people are affected by a disaster, they may respond in a variety of different ways. It is natural and expected to respond to a disaster with emotions such as fear, worry, sadness, anxiety, depression, and despair. Many people exhibit **resiliency**, the ability to cope with adversity and recover emotionally from a traumatic event.<sup>27</sup> However, the mental health of the population must be considered and monitored during recovery from any disastrous event. For example, some people may relive previous traumatic experiences or revert to using substances to cope. Behavioral health responses such as post-traumatic stress disorder (PTSD), substance use disorder, and increased risk for suicide should always be considered when assessing individuals' responses to a disaster.

Effects from trauma extend beyond the physical damages from any disaster. It may take time for individuals to recover physically and emotionally. Survivors of a community disaster should be encouraged to take steps to support each other to promote adaptive coping. Use the [box](#) below to read additional information in the "Tips for Survivors of a Traumatic Event" handout by the Substance Abuse and Mental Health Services Administration (SAMHSA).

 View a supplementary YouTube video<sup>28</sup> on disaster management and triage: [Disasters and Triage: Community Health – Fundamentals of Nursing | @LevelUpRN](#).

- ▶ Read the SAMHSA handout on "[Tips for Survivors of a Traumatic Event](#)" PDF.
- ▶ Review concepts related to loss and the stages of grief in the "[Grief and Loss](#)" chapter of *Open RN Nursing Fundamentals, 2e*.



## Agencies Providing Emergency Assistance

Many federal, state, and local agencies provide support to communities during disasters. The Federal Emergency Management Agency (FEMA) is the agency that promotes disaster mitigation and readiness and coordinates response and recovery following the declaration of a major disaster. FEMA defines a disaster as an event that results in large numbers of deaths and injuries; causes extensive damage or destruction of facilities that provide and sustain human needs; produces an overwhelming demand on state and local response resources and mechanisms; causes a severe long-term effect on general economic activity; and severely affects state, local, and private sector capabilities to begin and sustain response activities.<sup>29</sup> FEMA employees represent every U.S. state, local, tribal, and territorial area and are committed to serving our country before, during, and after disasters.

Disasters are declared using established guidelines and procedures. Because all disasters are local, they are initially declared at the local level. This declaration is typically made by the local mayor. When the mayor determines that capabilities of local resources have been or are expected to be exceeded, state assistance is requested. If the state chooses to respond to a disaster, the governor of the state will direct implementation of the state's emergency plan. If the governor determines that the resource capabilities of the state are exceeded, the governor can request that the president declare a major disaster in order to make federal resources and assistance available to qualified state and local governments. This ordered sequence is important to ensure appropriate financial assistance.<sup>30</sup>

A **state of emergency** is declared when public health or the economic stability of a community is threatened, and extraordinary measures of control may be needed. For example, an infectious disease outbreak like COVID-19 can cause the declaration of a state of emergency. A county or municipal agency is designated as the local emergency management agency, and local law specifies the chain of command in emergencies. Use the following [box](#) to access more information about federal and local agencies that provide emergency assistance.

### Examples of Organizations That Provide Emergency Assistance

#### Federal

- ▶ [Federal Emergency Management Agency \(FEMA\)](#)
- ▶ [Strategic National Stockpile](#)
- ▶ [Cybersecurity and Infrastructure Security Agency \(CISA\)](#)

#### Local

- ▶ [Local FEMA agencies \(each state\)](#)
- ▶ [American Red Cross](#)
- ▶ [Local county emergency management divisions](#)

## Footnotes

- 1 National Academies of Sciences, Engineering, and Medicine. (2021). *The future of nursing 2020-2030: Charting a path to achieve health equity*. National Academies Press. 10.17226/25982 [PubMed: 34524769] [CrossRef]
- 2 “LA\_1603\_9thDistDam121.jpg” by Booher, Andrea, Photographer is in the Public Domain.
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- 4 Emergency Management Institute. (2013). *ISS-III.A: Livestock in disasters*. Federal Emergency Management Agency. <https://training.fema.gov/is/courseoverview.aspx?code=is-111.a&lang=en>
- 5 “Environmental Health and Emergency Preparedness” by Dawn Barone for Open RN is licensed under CC BY 4.0
- 6 Flanagan, B. E., Hallisey, E. J., Adams, E., & Lavery, A. (2018). Measuring community vulnerability to natural and anthropogenic hazards: The Centers for Disease Control and Prevention’s social vulnerability index. *Journal of Environmental Health*, 80(10), 34–36. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7179070/> [PMC free article: PMC7179070] [PubMed: 32327766]
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- 9 This image is derivative of Flanagan, B. E., Hallisey, E. J., Adams, E., & Lavery, A. (2018). Measuring community vulnerability to natural and anthropogenic hazards: The Centers for Disease Control and Prevention’s social vulnerability index. *Journal of Environmental Health*, 80(10), 34–36. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7179070/> [PMC free article: PMC7179070] [PubMed: 32327766]
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- 12 “StartAdultTriageAlgorithm.png” by unknown author at CHEMM is in the Public Domain.
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- 16 World Health Organization. (2021). *Lead poisoning*. <https://www.who.int/news-room/fact-sheets/detail/lead-poisoning-and-health>
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- 28 Level Up RN. (2023, June 21). *Disasters and triage: community health – Fundamentals of nursing | @LevelUpRN* [Video]. YouTube. All rights reserved. [https://www.youtube.com/watch?v=VA\\_W6OHLx5M](https://www.youtube.com/watch?v=VA_W6OHLx5M)
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## 18.4. Nurse Roles in Emergency Response

Together with emergency personnel, community organizations, health care providers, and other members of the health care team, nurses play a key role in carrying out emergency response plans. Before, during, and after disasters, nurses provide education and health promotion interventions to protect the community and keep people safe from environmental hazards. During the emergency response, nurses assist in first aid, triage clients' needs, direct victims to resources and community support, and continuously assess and monitor clients' physical and psychological needs. Nurses also assist with community organization through logistical organization of response and prevention needs, such as coordination of blood drives, clothing drives, management of shelters, and other social needs that exist in the community. When disaster strikes, nurses are challenged to use their skills and scope of practice to the fullest to provide the best care for their community.<sup>1</sup>

- See an example [Disaster Nursing Timeline](#) on page 250 of *The Future of Nursing 2020-2030 : Charting a Path to Achieve Health Equity* ebook.

The ability to care for and protect vulnerable citizens depends substantially on the preparedness of the nursing workforce. The nursing workforce available to participate in U.S. disaster and public health emergency response includes all licensed nurses (licensed practical/vocational nurses [LPNs/LVNs] and registered nurses [RNs]), civilian and uniformed services nurses at the federal and state levels, nurses who have recently retired, and nurses who volunteer in organizations (e.g., National Disaster Medical System, Medical Reserve Corps, National Voluntary Organizations Active in Disasters, and the American Red Cross). Each of these entities plays a critical role in the nation's ability to respond to and recover from disasters and large-scale public health emergencies such as the COVID-19 pandemic.<sup>2</sup> The increasing frequency of natural and environmental disasters, along with public health emergencies such as the COVID-19 pandemic, highlights the critical importance of having a national nursing workforce prepared with the knowledge, skills, and abilities to respond.<sup>3</sup>

### **Nurse Roles in Pandemics and Other Infectious Disease Outbreaks**

When infectious disease outbreaks occur, nurses are called to the front lines to care for clients very quickly. In the past few decades, infectious disease outbreaks have been occurring more frequently and with more intensity, and nurses, along with health care agencies, must be prepared to respond to such emergencies. Some of the ways nurses respond are by doing the following<sup>4</sup>:

- Tracking disease prevalence and epidemiology of diseases
- Assisting with screening and testing, along with vaccine distribution
- Providing direct care to affected individuals in hospitals and outpatient clinics
- Educating the public and community about disease prevention and treatment
- Providing psychological support to those fearful of the emergency

New infectious diseases require nurses to receive continuing education regarding infection prevention, diagnosis, treatment, and health promotion. This may include gaining new knowledge about medications, transmission precautions, personal protective equipment (PPE), and evidence-based nursing interventions and medical treatments. Nurses must use critical thinking and apply new evidence-based practices to provide quality care to individuals in their community affected by disease.

### **The Impact of the COVID-19 Pandemic on Nurses**

In December 2019 the novel coronavirus, known as COVID-19, was first detected in China. By March 2020 the World Health Organization declared a worldwide pandemic for what has been called the worst public health emergency in the past 100 years. By March 2022 almost 80 million cases were identified in the United States, with over 977,000 deaths. Worldwide, over 488 million cases were diagnosed, with over 6 million deaths.<sup>5,6</sup>

- [View the CDC's Covid Data Tracker](#) or [Our World in Data's Data Tracker](#) for up-to-date COVID information.

The COVID-19 pandemic created a health care environment never before seen in modern times. Nurses were called upon to care for clients, often lacking proper personal protective equipment (PPE) and medical equipment, to properly support client health. They cared for clients above and beyond the acuity that they normally managed in their area of expertise and provided frequent end-of-life care. They communicated regularly by phone with loved ones of clients who were dying due to quarantine guidelines and visitor limitations. Staffing shortages became critical as illness spread to nurses and their family members.<sup>7</sup>

As a result, thousands of nurses were still stressed, frustrated, and overwhelmed two years into the pandemic. In October 2021 the American Nurses Association found the following in a mental health and wellness survey of nurses<sup>8</sup>:

- Over 34% rated their emotional health as not, or not at all, emotionally healthy.
- 42% reported having an extremely stressful, disturbing, or traumatic experience due to COVID-19.
- Among nurses who said they intend to leave their position in the next six months, 48% cited the top reason as work negatively affecting their health and well-being, followed closely by insufficient staffing (41%).

The American Nurses Foundation Executive Director, Kate Judge stated, “The COVID-19 pandemic is not over yet, and its impact will persist for a long time. Its challenges have left the nursing profession in a particularly vulnerable state, exacerbating nurse staffing shortages, and negatively impacting nurses’ quality of life. Nurses are playing a pivotal role in efforts to end this pandemic, so we must ensure nurses are physically and psychologically safe and healthy to function optimally in caring first for themselves, their families, clients, and communities. A robust nursing workforce is essential to our nation’s health and, therefore, nurses’ well-being and mental health must be a top priority. The data collected from this survey overwhelmingly demonstrate the need to provide consistent and comprehensive support for our nation’s nurses.”<sup>9</sup>

- The American Psychiatric Nurses Association provides COVID Resources to support nurses as they address concerns and promote mental health as a result of the COVID-19 pandemic.

## Preventing and Managing Stress in Disaster Responders

Engaging in disaster and emergency response work can cause emotional distress for nurses and first responders. Depending on the nature of the event, sources of stress may include exposure to scenes of human suffering, risk for personal harm, life-and-death decision-making, intense workloads, limited resources, and separation from family members who may also be in harm’s way. Use the following [box](#) to view a SAMSHA brochure outlining tips for coping with stress after a disaster or traumatic event.

- ▶ Read the [Disaster Distress Helpline](#) PDF brochure from the SAMHSA on tips for coping with stress after a disaster.
  
- ▶ Read more information about stress in the health care system and self-care in the “[Burnout & Self-Care](#)” chapter of Open RN *Nursing Management and Professional Concepts, 2e*.

## Footnotes

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- 5 Centers for Disease Control and Prevention. (n.d.). *COVID data tracker*. <https://covid.cdc.gov/covid-data-tracker/#datatracker-home>
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- 8 American Nurses Foundation. (2021). *New survey data: Thousands of nurses are still stressed, frustrated, and overwhelmed almost 2 years into the pandemic*. [News release]. <https://www.nursingworld.org/news/news-releases/2021/american-nurses-foundation-releases-comprehensive-survey-about-nurses/>
- 9 American Nurses Foundation. (2021). *New survey data: Thousands of nurses are still stressed, frustrated, and overwhelmed almost 2 years into the pandemic*. [News release]. <https://www.nursingworld.org/news/news-releases/2021/american-nurses-foundation-releases-comprehensive-survey-about-nurses/>

## 18.5. Spotlight Application

Sam, a nurse who works at the local hospital, hears about a flooding disaster in a nearby community. Major roads are flooded, and grocery stores have been destroyed. Power lines were knocked down during the storm, and cell phone service is not working. Sam starts to wonder,

“What if a disaster happens here and I’m not home with my family – how will I know if they are safe? How will I stay safe? What obligations will I have at work?”

As a compassionate nurse, Sam feels a need to respond to others in a crisis but also has a concern about ensuring the well-being of his family members. A Google search reveals the American Nurses Association document “[Who Will Be There?](#)” PDF. He realizes the discomfort he is feeling about responding to a potential future disaster event is due to the conflict of ethical principles regarding the nurse’s obligation to care for others, as well as the obligation to care for oneself.<sup>1</sup> He decides to respond to this ethical dilemma by preparing his personal response should a disaster occur.

Sam reads additional information called “[Make a Plan](#)” provided by the U.S. Department of Homeland Security’s website [Ready.gov](#).<sup>2</sup> Several questions come to mind as Sam reflects on his anticipated response to a disaster:

1. How will I receive alerts and warnings about a disaster in my community?
2. Are there any laws in my state that require my participation as a nurse in disaster response?
3. What is my employer’s emergency response plan? What is my expected role as an employed nurse?
4. What state and local disaster preparedness plans currently exist in my community?
5. How will I get to work safely if a disaster occurs?
6. How will I communicate with my family members and ensure their safety if a disaster occurs?

Sam reads additional information provided by the Federal Emergency Management Agency (FEMA) and starts to create his personal and family disaster plan PDF.<sup>3</sup>

### Reflective Questions:

1. Consider the questions Sam posed as he considered his potential disaster response. What additional questions do you have about your role in a disaster response? What are the answers to these questions in your community and at your place of employment?
2. Create your own personal and family disaster plan.

### Footnotes

- 1 American Nurses Association. (2017). *Who will be there? Ethics, the law, and a nurse’s duty to respond in a disaster*. [https://www.nursingworld.org/globalassets/docs/ana/ethics/who-will-be-there\\_disaster-preparedness\\_2017.pdf](https://www.nursingworld.org/globalassets/docs/ana/ethics/who-will-be-there_disaster-preparedness_2017.pdf)
- 2 U.S. Department of Homeland Security. (2022). *Make a plan*. <https://www.ready.gov/plan>
- 3 FEMA. (2018). *Create your family emergency communication plan* [PDF]. <https://www.ready.gov/sites/default/files/2021-04/family-emergency-communication-plan.pdf>

## 18.6. Learning Activities

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*An interactive H5P element has been excluded from this version of the text. You can view it online here:* <https://wtcs.pressbooks.pub/nursingmhcc/?p=1074#h5p-59>

1



*An interactive H5P element has been excluded from this version of the text. You can view it online here:* <https://wtcs.pressbooks.pub/nursingmhcc/?p=1074#h5p-60>

2

- ▶ Test your clinical judgment with a NCLEX Next Generation-style question: [Chapter 18,](#)

[Assignment 1.](#)<sup>3</sup>



- ▶ Test your clinical judgment with a NCLEX Next Generation-style case study: [Chapter](#)

[18, Case Study 1.](#)<sup>4</sup>



## Footnotes

- 1 “Environmental Health and Emergency Preparedness Crossword” by [OpenRN](#) is licensed under [CC BY-NC 4.0](#)
- 2 “Environmental Health and Emergency Preparedness Drag and Drop” by [OpenRN](#) is licensed under [CC BY-NC 4.0](#)
- 3 “Environmental Health and Emergency Preparedness Next Gen Question 1” by [OpenRN](#) is licensed under [CC BY-NC 4.0](#)
- 4 “Environmental Health and Emergency Preparedness Next Gen Case Study 1” by Kellea Ewen is licensed under [CC BY-NC 4.0](#)

## XVIII. Glossary

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### Chelation therapy

Treatment for heavy metal poisoning such as mercury, arsenic, and lead. Chelators are medications that bind to the metals in the bloodstream to increase urinary excretion of the

substance.

## Decontamination

Any process that removes or neutralizes a chemical hazard on or in the client in order to prevent or mitigate adverse health effects to the client; protect emergency first responders, health care facility first receivers, and other clients from secondary contamination; and reduce the potential for secondary contamination of response and health care infrastructure.

## Disaster

A serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability, and capacity that lead to human, material, economic, and environmental losses and impacts.

## Disaster management

Response to a disaster with integration of emergency response plans throughout the life cycle of a disaster event.

## Emergency preparedness

The planning process focused on avoiding or ameliorating the risks and hazards resulting from a disaster to optimize population health and safety. The process includes four key concepts: preparedness, mitigation, response, and recovery. Evaluation occurs after a disaster event as the planning process continues.

## Environmental health hazard

A substance or pathogen that has the ability to cause an adverse health event in individuals or communities.

## Mitigation

Actions taken to prevent or reduce the cause, impact, and consequences of disasters.

## Preparedness

Planning, training personnel, and providing educational activities regarding potential disastrous events. Planning includes evaluating environmental risks and social vulnerabilities of a community.

## Recovery

Restoration efforts occur concurrently with regular operations and activities, such as preventing or reducing stress-related illnesses and excessive financial burdens.

## Resiliency

The ability to cope with adversity and recover emotionally from a traumatic event.

## Response

Actions taken in the immediate aftermath of a disaster, such as saving lives, treating injuries, and minimizing the effects of the disaster. Immediate needs are addressed, such as medical treatment, shelter, food, and water, as well as psychological support of survivors.

## Simple Triage and Rapid Treatment (START)

A triage system from the U.S. Department of Health and Human Services that prioritizes victims by color (red, yellow, green, and black) for efficient and effective treatment.

### Social vulnerability

The characteristics of a person or a community that affect their capacity to anticipate, confront, repair, and recover from the effects of a disaster.

### State of emergency

Status that is declared when the public health or the economic stability of a community is threatened, and extraordinary measures of control may be needed.

### Triage

Prioritizing care for individuals affected by a disaster or emergency.

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