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OVERVIEW- DISASTER

Each year, 1/5 of countries worldwide have an emergency resulting in massive health, social and economic consequences. The public health workforce must be well prepared to respond and provide essential services during disasters

Health care educators are continually seeking creative learning resources for application of concepts in ways that will engage students, and that can generate the feeling of being part of a disaster event without actually being part of the event. Students need to feel competent in their ability to act responsibly, collaborate with other health and community professionals and provide holistic care in their role in the event of a disaster. Didactic content may be provided in the curriculums, and helps prepare students with knowledge of disaster management, however, does not allow actual experience in preparation to respond in the event of a disaster.

This simulation is an ideal method of introduction to disaster management for students. It provides an experience to gain skills, and the ability to manage an emergency situation, without risk to the population or the students.

This virtual disaster simulation can be used with any health care students/providers, for education and training purposes.

The goal of this Disaster Management Virtual Simulation is to increase the participant's understanding and confidence in skill acquisition, critical thinking and decision making while providing healthcare during a disaster.

THEORY: Disaster

Disaster

“Essentially a social phenomenon that results when a hazard intersects with a vulnerable community in a way that exceeds or overwhelms the community's ability to cope and may cause serious harm to the safety, health, welfare, property or environment of people; may be triggered by a naturally occurring phenomenon which has its origins within the geophysical or biological environment or by human action or error, whether malicious or unintentional, including technological failures, accidents and terrorist acts.”

(Emergency Management Policy and Outreach Directorate, May, 2017)

Emergency Management

The management of emergencies concerning all-hazards, including all activities and risk management measures related to prevention and mitigation, preparedness, response and recovery.

(Emergency Management Policy and Outreach Directorate, May, 2017)

Disaster Management Process

The **Disaster Management Process** assists governments, communities, and businesses in planning, mitigating, responding and recovering from a disaster. The phases above may not occur in order, and may at times overlap each other depending on the type of disaster, and the length of each phase.

Mitigation: “involves implementing measures for preventing future threat of disaster and/or minimizing their damaging effects of unavoidable threat.”

Preparation: “preparedness efforts include plans or preparations made in advance of an emergency that help individuals and communities get ready to either respond or to recover.”

Response: “Disaster response work includes any actions taken in the midst of or immediately following an emergency, including efforts to save lives and to prevent further property damage.”

Recovery: “Recovery involves restoring, rebuilding, and reshaping the impacted area.”

The Role of Paramedics in Disaster Management

The greatest successes in disaster management and response are achieved through a coordinated effort of multiple types of agencies, including law enforcement, paramedics, military, fire, hospitals, public health, and public utilities. Each with a significant role to play.

Paramedics have a significant role in all phases of disaster management – preparedness, response, and recovery.

Emergency medical services are vital during all phases of disaster response, with key roles including mass-casualty triage, on-scene treatment, communication, evacuation, coordination of patient transport and patient tracking. Paramedics may also take leadership roles during disaster response and be a part of command staff on scene.

Often the first on scene of a Mass Casualty Incident (MCI), you will make an initial assessment and some preliminary decisions. Your assessment should be driven by three basic questions:

What do I have?

All scenes begin with a scene safety assessment and assess for hazards. Warn all other responders about hazardous materials, fuel spills, electrical hazards, or other safety concerns immediately. Safety is paramount. Confirm the incident location, estimate the number of casualties and report to dispatch.

What do I need to do?

Safety includes your life, your partner's life, and other rescuers' lives. Then, consider the safety of the patient and any bystanders. The situation can become far worse if you do not put yourself first. You may have to initially work to isolate or stabilize the incident before providing care to injured persons.

What resources do I need?

Decide what resources are in need. You may require additional paramedics, ambulances, or other forms of transport. Perhaps extrication is required and a fire rescue unit or hazardous materials response is needed.

Once you have performed a thorough scene assessment, command should be established, notification to other responders should go out, and necessary resources should be requested. Command must be established early, preferably by the first-arriving, most experienced public safety official. These officials may include paramedics, fire, police, and local government officials.

Preparedness

Preparedness activities enhance the ability of paramedics to deliver care during an event and help mitigate the impact the event will have on a region. Training and education are critical to preparedness. Education around chemical, biological, radiological, and nuclear (CBRN) events in addition to mass casualty events should be a part of annual training. Maintaining knowledge and competency improves the paramedics' comfort in providing care when responding to disasters.

Response

Paramedics are typically first on scene following a large-scale incident. Paramedics are well positioned to perform initial and ongoing triage of patients who will need acute medical care. The purpose of disaster triage is to identify those patients who are most likely to benefit from acute medical care. Paramedics are often called upon to make the determination of patients who should have priority and where in the health care system these patients should be transferred to for definitive care.

Recovery

Recovery is an important phase during which paramedics and the EMS system return to full operational status. It is key for paramedics to focus on activities such as replacement of patient care supplies and equipment, and facility or transportation vehicle rehabilitation.

It is extremely important to ensure adequate mental health support for paramedics as they recover from the psychological stress of dealing with the recent critical event.

The Role of a Nurse in a Disaster Event

The role of the community health nurse in a disaster is related to each section of the disaster management process. The community health nurse strives to promote community resilience, and helps to prevent the possibility of illness and injury during disaster events.

Prevention and Mitigation

The roles of a community health nurse (CHN) during the prevention and mitigation processes of Disaster Management are as follows:

1) A CHN utilizes her/his knowledge and skills to identify and report potential risks and hazards in keeping the population safe. Understanding the layout of the community and the location of available resources such as police and fire units. As a member of a community planning committee, a CHN can gain valuable information on municipal and organizational disaster plans, and how media will be used to inform the public of potential and real disasters. As a key member of the community, the CHN utilizes knowledge of the community to engage other community organizations to identify vulnerable populations to ensure disaster information and referral services are available in the event of a disaster. (Diem & Moyer, 2015)

Disaster Preparedness

The role of the CHN in disaster preparedness may involve assisting with community planning and training with the community on the development of emergency plans for families and regarding global and local pandemic planning.

1) The CHN participates in planning and preparation of community plans for the disaster event such as organizing mass immunization clinics, or assisting in the preparation of shelter, and may be called upon to work with the Local Emergency Measures Organization to understand reporting hierarchies, and to participate in emergency training. The training will assist in the development of education which will help families to prepare for an emergency. CHN's may also be responsible for preparation during a pandemic disaster, such as providing surge capacity in the form of extra nurses to assist with immunization, and the provision of care during a disaster (Diem & Moyer, 2015)

Disaster Response

Community Health Nurses work inter-professionally with other professions such as police, firefighters, Red Cross and health care personnel, both during and post disaster.

Disaster Rescue

CHN's use the triage process to identify and treat mass casualties, and refer casualties to hospital. The triage process involves the nurse receiving the patient from the paramedic in the triage area. The paramedic will quickly assess the patient for injuries, and provide a color code of white, green, yellow or black. The patient will then be escorted to the treatment area managed by nurses, and doctors, and reassessment of current condition, treatment of injuries, and referral to the psychosocial area, a holding area pending transport to hospital or walking wounded area will occur. Documentation of injuries and referral are provided by the nurse, and accompany the patient to hospital.

Disasters are very stressful situations and CHN's must ensure emotional support is available to survivors and families. Stanhope, Lancaster, Jakubec, and Pike-MacDonald (2017) identify approaches provided by the American Red Cross (2012) in assisting nurses identify those in distress:

- Listen to victims tell and retell their feelings about the disaster and their current situation.
- Encourage victims to share their feelings with one and another, if it seems appropriate to do so.
- Help victims make decisions.
- Delegate tasks (eg. Reading, crafts, playing games with children) to teenagers and others to help combat boredom.

- Provide the basic necessities (food, clothing, rest).
- Try to recover or get needed items (prescription glasses, medications).
- Provide basic compassion and dignity (eg. Privacy when appropriate and if possible).
- Refer a client to a mental health counsellor if the situation warrants.

A psychosocial area may be set up in the recovery area for referral of victims requiring mental health services. This area may consist of psychologists, clinical social workers, and mental health nurses.

Disaster Recovery

This stage is devoted to recovering and rebuilding after the disaster, and may involve repairing psychological, physical and financial damages. The role of the CHN in this stage is partner with other organizations in identifying the resources that will assist the affected population to move forward with recovery at the individual and community levels. Evaluating the public health challenges and providing health education on hygiene, immunization, monitoring hazards to health, and ensuring the appropriate action is initiated.

This is a time of recognizing potential hazards from the disaster, and ensuring the safety of the community. "The Community Health Nurse role is to be involved in the evaluation of process and outcomes, especially to indicate how health care and services could have been more effective for vulnerable groups during the disaster," (Association of Community Health Educators, 2008) and in identifying what was successful and where more work is needed should another disaster arise.

References

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Psychosocial Support

Any impact of disaster can be looked at in two ways: Firstly by ascertaining the characteristics of the event itself, and secondly, how that event is appraised by those affected. Depending on different phases of the impact of the disaster, individuals will respond in different styles. Psychosocial interventions must be tailored to address the needs of the target population, with special attention paid to vulnerable groups such as children, women and the elderly. These should also be modulated according to the phase of recovery following the event occurrence because each phase will highlight different needs. The four phases of intervention, although determined separately, may show an overlap. In the initial phases, the emphasis is on social intervention that can be delivered by community-level workers. In the later phases, the psychological issues that emerge necessitate the services of trained professionals. Initial social care will need to give way to psychological care, and on occasion both will need to be combined for a considerable period. Since psychosocial care is long-term, continuous process, disaster management and preparedness programmes must invest in training for capacity building by training community workers and primary care health professionals.

Int Rev Psychiatry. 2006 Dec; 18(6):501-5

<https://www.ncbi.nlm.nih.gov/pubmed/17162689>

QUIZ

Guess that Triage

1. You find a Middle-aged female. Unconscious.
Red blistered burns on arms, chest, and face, with singed hair on face and head, burnt flesh smell. Shallow, irregular respirations at 4-5/min.
Under the triage system above, this patient would be classified as:

Black

2. Elderly female complaining of severe leg pain and dizziness. Alert and orientated.
RR 24. Pulse strong and mildly rapid at 120. Left leg has obvious deformity, and large, open wound with bone visible. Small amount of bleeding.

Yellow

3. Young pregnant female. Voices shortness of breath.
RR 38, shallow, strained. Skin pale, cool and dry, capillary refill > 2 seconds. Conscious, alert, but very agitated. Responds to questions but demonstrates lack of understanding.

Red

4. 30-year old female. Walking through area, mumbling. Some scratches and abrasions. No breathing difficulties.
Oriented to name, and address, however, speech is bizarre. When asked she states she is worried that her life is in danger and that someone is trying to kill her. She describes having a psychiatric history.

Green

5. Nine-year old boy sitting. Very pale, shaking, and crying. No obvious injuries.
Alert and oriented, and follows commands.

Green

Masters of Disaster

1. Which part of disaster management involves predicting a possible crisis before it occurs?

Preparedness

2. Developing and practicing an emergency plan occurs during which phase of disaster management?

Preparedness

3. In which phase of disaster management would you stabilize the situation and assess the immediate damage?

Response

Morality Plays

1. This focuses on emergency relief, saving lives, restoring damage systems and providing care and basic life requirements.

- a. Response
- b. Preparedness
- c. Recovery
- d. Mitigation

2. Responsibility for securing the scene, preserving life and treating the wounded is the responsibility of

- a. First responders
- b. Mental Health Professionals
- c. Social Workers who specialize in crisis management
- d. All citizens

3. What is the role of the Public Health or Community nurse in disaster management?

- a. Ongoing community surveillance
- b. Rapid needs assessment
- c. Psychosocial support
- d. Disaster response ethics
- e. All of the above

Timely Response

1. Which of the following items should be included in a Response assessment?

Number of people involved
Food & water availability
Any actual or risk of sanitation
Weather

All of the above

2. A(n) _____ disaster can occur when there is a disruption in the internal functioning of the organization causing a threat of maintaining a safe environment and a disruption in services provided.
 - a. External
 - b. Internal
 - c. Huge
 - d. Partial

Evaluation Nation

1. Evaluation needs to be completed during drills and actual disasters?
 - a. True
 - b. False
2. Nurses responding to the needs of populations and communities affected by environmental disasters and/or emergencies require understanding of which of the following:
 - a. The immediate health effects related to the event
 - b. The potential for short-term health effects resulting from the event
 - c. Advocating for foreign policies
 - d. The community agencies designated to respond to the event
3. As a community nurse, you are assigned to the disaster management team. In relation to environmental disasters, what would be your role?
 - a. Advocating for federal funds
 - b. Becoming educated regarding hazards in the community
 - c. Creating an environment that promotes health outside of the community
 - d. Showing little interest in conducting research on the health effects of toxic environmental agents

4. Which of the following do mental health professionals need to be aware of?

1. Their own emotional reactions to the disaster and the impact it would have on their work.
2. Realization that they too have access to support and counseling.
3. Diagnosis of what the victim is experiencing.
4. Personal impression of the victim.
5. Personal impact they can have on other health care workers
 - a. 1 & 2
 - b. 1 & 5
 - c. 2,3, & 4
 - d. All of the above

6. Two key tools of the crisis/disaster worker are:

- a. Talking and responding
- b. Taking information and relaying it
- c. Active listening and problem solving
- d. Triage and directing victims

7. You are a nurse who is called to the scene of a disaster. Specify the order that you would triage the following victims at the disaster site?

- 1) A 60-year old man with a broken wrist and a history of heart disease.
 - 2) A 30-year-old woman with "road burn" lacerations on her forearms and thighs.
 - 3) A 12-year-old boy with third-degree burn marks over 40% of his body
- A) 1, 2 then 3
 - B) 1. 3 then 2
 - C) 2. 3 then 1
 - D) 3, 1 then 2

8. A rapid and ongoing needs assessment is important since lack of information regarding the scope of the disaster and it's initial effects can cause a mismatched resource supply and increased morbidity.

- a. True
- b. False

9. What is the nurse's role in ethics of disaster?

Put disaster plans in place

Review disaster history and how disasters have affected community health care delivery

Care that maximizes the benefits to the greater number

Identify and educate vulnerable populations about disaster/help make disaster plan

Mobilization of first responders during a disaster

10. What is moral distress?

- a. Process through which a person develops and maintains moral integrity.
- b. Knowing the right thing to do, but organizational constraints make it difficult to pursue the right actions.
- c. Being unsure as to which moral principles to apply.
- d. Doing the right thing.
- e. Doing no harm.

11. What are the affects of moral distress? (Select all that apply, then press answer key)

- A. Increased patient care
- B. Difficulty concentrating
- C. Higher Self-esteem
- D. Increased irritability
- E. Decreased job satisfaction
- F. Burnout syndrome

12. Moral distress can be managed and prevented

- a. True
- b. False

Matchy matchy

<u>Code White</u>	<u>Recovery</u>
<u>Code Green</u>	<u>Disaster</u>
<u>Code Yellow</u>	<u>Triage</u>
<u>Code Red</u>	<u>Emergency Management</u>
<u>Code Black</u>	<u>Response</u>
_____	<u>Preparedness</u>
_____	<u>Mitigation</u>

Match 1

A hazard that overwhelms a community's ability to cope, and may cause harm to people. Disaster

Match 2

Measures taken to prevent future threat of disaster. Preparedness

Match 3

Immediate treatment needed Code Red

Match 4

Preparing to respond or recover Response

Match 5

Minimal care required Code Green

Match 6

Restoring, Rebuilding, Reshaping Recovery

Match 7

No priority. Life will not be saved Code Black

Match 8

Actions taken immediately following a disaster Response

Match 9

Management of emergencies using the disaster management process Emergency Management

Match 10

Urgent, not immediate treatment required Code Yellow

Match 11

Preparing to respond or recover Triage

Match 12

Coding to determine order of treatment Triage