OBJECTIVES:

1. Describe three elements of a disaster.
2. Describe the benefits of having a disaster plan.
3. Evaluate essential factors to be assessed in relation to a disaster.
4. Describe four characteristics of a successful disaster plan.
5. Analyze the elements of an effective disaster plan.
6. Differentiate between primary, secondary, and tertiary prevention related to disaster nursing.
7. Critical think the resource inventory for specific disasters or emergency.

I. Definitions:

A. Disaster - a traumatic event that is so extreme or severe, so powerful, harmful or threatening that it demands extraordinary coping efforts.
   1. Primary Disaster - immediate effects of the disaster.
   2. Secondary Disaster - effects that are indirectly related to the disaster.

B. Emergency - events that are serious but fall within the coping abilities of the individual or community.

II. Types of Disasters: Natural vs Manmade

III. Elements of Disaster

A. Temporal element: stages of disaster response; assess for potential disasters, plan interventions, prepare for implementation, evaluate results and restoration.

B. Spatial Element - area of total impact, the area of partial impact, and outside areas. Identify community risks, resources and create a plan.

C. Role element - effect on human population; victim vs helper. (Direct victims, Indirect victims (family/friends). Consider: Displacement and Refugees.
IV. Disaster Preparedness

A. Benefits of Disaster Planning
   1. Decrease cost.
   2. Decrease confusion.
   3. Increases organization of response.
   4. Increases adaptation of the community.

B. Purpose of Disaster Planning.
   1. Decrease the community’s vulnerability.
   2. Ensure resources are available.

C. Principles of Disaster Preparedness
   1. Disaster and everyday emergencies differ.
   2. Disaster planning should be flexible to the people’s need.
   3. Disaster planning is a continuing process: changing as circumstances change.
   4. Utilize factual data.
   5. Detailed information must be given.
   6. No plan, confusion, panic, and chaos.
   7. Plan should include the entire community.
   8. Plans should be linked with surrounding areas.
   9. Plan for all types of disaster.
   10. Base plan on everyday working methods.
   11. Plans should be specific and with designated responsibilities.

D. Participants in Disaster Planning for Preparedness: Local government, healthcare professionals and residents.

E. Considerations of Disaster Plan.
   1. Authority - lays out responsibility for delegation to specific people and organization.
   2. Communication - establish modes and alternate systems.
   3. Transportation - victims, equipment, routes and alternate routes, evacuation.
   4. Resources - available supplies, and equipment
   5. Records - attendance rosters in school and work settings, (location and identification);
      victims (condition, treatments, location, deaths), use of supplies and equipment,
      deployment of rescue persons.

F. Elements of a disaster.
   1. Notification - chain of communication, alerting the public.
   2. Warning - Procedures for notifying the public, specific people and media resources.
   3. Control - differs; decreases effects of disaster.
4. Logistical Coordination - coordination of procurement, maintenance and transport of needed materials. (Transportation of personnel, supplies and equipment).

5. Evacuation - procedures, contingency plan; where and how.

6. Rescue - assessment, responsible persons, who will carry out. Focus: removing the victim from the hazard.

7. Immediate care
   a. Survival Scan - assessment and correcting life threatening problems.
   b. Triage - sorting out casualties, prioritizing care with a status code system, evacuation and transportation.
   c. Treatment area - medical stabilization,
   d. Care of the Dead - identification, morgue, transportation

8. Supportive care - food, water, shelter, medicine and relief workers.

9. Recovery - helping individuals file insurance claims and post disaster counseling.

10. Evaluation - follow-up after the disaster to determine what worked well and what didn’t.

V. Dimensions of a Disaster

A. Biophysical Dimension - who is at risk and the effect that may be experienced. Ex: exhaustion and increased risk for heart attacks.

B. Psychological Dimension -
   1. Population affected
   2. Length, depth and predictability of involvement.
   3. Familiarity with type of disaster.
   4. Frequency of involvement.

C. Physical Dimension - Geographical location/range, which may help or hinder the plan.

D. Social Dimension
   1. Social factors can contribute to disaster - intergroup tensions, culture conflicts.
   2. Economic status R/T recovery.
   3. Community attitude toward plan.
   4. Occupational factors - radiation, toxic chemicals, fire, explosions,

E. Behavioral Dimensions
   1. Consumption patterns - alcohol, smoking and drugs.
   2. Available sources of food and water.

F. Health System Dimension - availability and abilities of health care systems to respond to disaster an intricate part of the planning.
VI. Levels of Prevention

A. Primary Prevention - prevent or minimize the effects of the disaster.

B. Secondary prevention - involves the response to the disaster.

C. Tertiary Prevention - recovery of the community (Rehabilitation) and preventing recurrence.

VII. Hospital Emergency or Disaster Planning

A. Internal Disasters

1. Fire
   a. R.A.C.E. = Rescue, Activate alarm, Contain fire & evacuate.
   b. Evacuation procedure.
   c. Transfer.
   d. Shut off gas lines.

2. Bomb Threats: Notify authorities. Evacuation - when, how and where to?

3. Power failures
   a. Back-up generators?
   b. Emergency equipment
   c. Life sustaining equipment being used. - ventilators, etc.
   d. Patient call systems - alternate methods

4. Tornado alerts and Warnings, including thunderstorms with high direct line winds.
   b. Who is responsible for taking action?
   c. What measures to implement - moving patients, windows, curtains, safe areas in hospital (Think flying glass and debris), etc.
   d. All clear - who determines?

5. Flooding
   a. Consider effect on patient safety.
   b. Patient care.
   c. Evacuation

6. Earthquake
   a. Damage to hospital structure: collapse & potential danger.
   b. Patient safety
   c. Accounting for all patients and employees: injuries and deaths.
   d. Moving patients and/or evacuation
   e. Water supply
   f. Shut off gas lines: O2, propane, and nitrous oxide) to the hospital.
   g. Communication systems: Phones internally and to outside
7. Winter Storms: Ice and/or Snow
   a. Patient care and staffing.
   b. Support employees: dietary, housekeeping, pharmacy, maintenance, etc.
   c. Food
   d. Staffing schedules

B. External Disasters

1. Accidents: Commercial airline crashes, Factory explosions, etc.
   a. Preparing for influx of patients


3. Flooding of whole communities: Georgia, Missouri, Pennsylvania, Texas, Louisiana, etc.
   a. Food and Water supply
   b. Temporary shelters
   c. Illnesses from contaminated water.

4. Terrorism: Acts of mass destruction:
   a. Bombing - 9/1101 Twin towers of the World Trade Center
   b. Bombing - Oklahoma City Federal Building
   c. Contaminated Community Water Supplies
   d. Germ War Fare

   1. **Anthrax** - cutaneous, GI, & Inhalation; 50% of inhalation cases die from meningitis, septicemia, and shock. **Spread:** Not Person to person; **Treatment:** Cipro with rifampin, vancomycin, chlorphenical. **Universal Precautions**

   2. **Plague** - inhalation, **Spread:** Person to person via droplets. **Incubation:** 1-6 days; Fatal if not treated in 24 hours. **Treatment:** Sunlight, Steptomycin / Gentamycin IM, doxycycline / tetracycline PO, Respiratory Isolation. After improvement, **Standard Precautions**.

   3. **Smallpox** (virus)- no vaccination after 1972, aerosol release; **Spread:** person to person transmission via droplets; **Incubation:** 12-14 days; **Sx:** Rash prominent on face and extremities developing at the same time. NO proven treatment. **Prevention:** Vaccination.

   4. **Botulism** (bacteria) - causes descending cranial nerve paralysis (bilateral); occurs naturally in food, or is man made released by aerosol. No person to person transfer: **Precautions:** Standard Precautions; **Treatment:** Antitoxin, Advanced airways and Ventilator.

   5. **Viral Hemorrhagic Fevers** - Ebola, Lassa, Dengue, etc. **Spread:** person to person, **Precautions:** Negative pressure room, Respiratory Precautions; **Treatment:** supportive (analgesics, amnesics) Avoid ASA, Anti-clotting drugs and invasive procedures (IV, catheter).
6. **Tularemia** (bacteria) - Mortality 30-60% without treatment secondary to respiratory failure; Spread: Aerosol, and contaminated water, food and soil. No person to person spread. **Precautions:** Universal Precautions; **Treatment:** IV streptomycin or Gentamycin. Post exposure: doxycycline or ciprofloxacin.

7. **Avian Flu** (viral) - Mortality 50% regardless of age. **Spread:** Airborne. Spread person to person and from migratory birds. **Precaution:** Respiratory and Quarantine. **Treatment:** No known. Supportive and symptomatic care.

VIII. Critical Resource Inventory - Hospital Disaster/Emergency Response.

A. **Nursing Department:** immediate actions.

1. Hospital Census
2. Potential discharges
3. Dressing supplies
4. Narcotic supply
5. Linen supply
6. Central supply items
7. Accounting for location of all patients
8. Power
9. Patients on life support
11. Patient communication system

B. **Administration:** immediate actions

1. Communication system: Phones (internal and external ability), Patient call system, alternate internal communication systems.
2. Water supply
3. Sewage disposal
4. Gases being piped into the hospital
5. Command center: location
6. Evacuation plan
7. Ventilation system
8. Triage Center
9. Temporary Morgue
10. Patient safety: Accounting for admitted patients and family/visitors
11. Nutrition
12. Transportation
13. Patient identification for incoming patients.