Environmental Health Training in Emergency Response (EHTER) - Awareness Level
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Shelters
Shelters

Learning Objectives

• Provide an overview of shelter types and their operations
• Explain the role of environmental health within shelters
• Describe planning and pre-operational considerations for shelters
• Describe the considerations and process in conducting an environmental health shelter assessment
• Identify key environmental health preparedness, response, and recovery actions for shelters and interim housing
Sheltering Philosophy

- Shelters should be, first and foremost, places of comfort and safety
- Shelters should be readily accessible to those affected
- Shelter workers and managers should be strong advocates for their clients
- Clients must remain proactive participants in recovery
- Shelters should provide a safe and secure environment that accommodates the broadest range of needs in each community

Factors in Sheltering

- Close living quarters
- Stressed population
- Damage to key infrastructure systems
- Limited access to health and mental health care
- Nontraditional demands on facilities
Public Health Triad
Emergency Shelter Example

Key Partners

- Emergency management agencies
- Emergency Support Functions (ESF)
  - ESF 6 Mass Care
  - ESF 8 Health and Medical
  - ESF 11 Agriculture and Natural Resources
- NGOs (American Red Cross)
- NVOAD
- Private sector
- Media
Red Cross Shelters
Environmental Health Training in Emergency Response (EHTER) - Awareness Level

Role of Environmental Health

- Prevention of injury and illness
- Shelter planning activities and exercises
- Shelter environmental health assessment
- Training and education activities
- Technical assistance and consultation
- Assist partner organizations

Shelter Settings

**Congregate Sheltering**
- Schools
- Places of worship
- Cafeterias
- Sports facilities
- Convention Centers

**Transitional Sheltering**
- Trailers
- Hotels
- Tents
- College dormitories
- Seasonal camps
- Cruise ships
- Apartments/rentals
Congregate Settings

- Emergency evacuation shelters
- General population shelters
- Mega-shelters
- Spontaneous/ad-hoc shelters
- Medical shelters
- Special needs shelters
- Responder base camps
  * Pet shelters

Sheltering Decision Process

Shelters
### Environmental Health Training in Emergency Response (EHTER) - Awareness Level

#### Shelter Cycle

![Shelter Cycle Diagram](image)

1. **Planning**
2. **Event**
3. **Preoccupancy**
4. **Shelter opens**
5. **Shelter closes**
6. **Shelter Clients Find Other Housing Options**

#### Events and Duration

<table>
<thead>
<tr>
<th>Warning</th>
<th>No Warning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Example: Hurricane Evacuation</strong></td>
<td><strong>Example: Apartment Fire, HAZMAT Spill</strong></td>
</tr>
<tr>
<td>- More time to open shelter</td>
<td>- Less opportunity for site selection</td>
</tr>
<tr>
<td>- Time to advise residents to bring essential items</td>
<td>- Clients may arrive before Red Cross</td>
</tr>
<tr>
<td>- Residents can prepare emotionally</td>
<td>- Clients have little time to gather essentials</td>
</tr>
<tr>
<td>- Less need for long term services</td>
<td>- Less need for long term services</td>
</tr>
<tr>
<td>- Fewer supply requirements</td>
<td>- Fewer supply requirements</td>
</tr>
</tbody>
</table>

#### Duration

<table>
<thead>
<tr>
<th>Short Duration Shelters</th>
<th>Long Duration Shelters</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Example: Slow -Rising Floods, Hurricane</strong></td>
<td><strong>Example Earthquake, Tornado</strong></td>
</tr>
<tr>
<td>- More time to open and establish logistics</td>
<td>- Clients may arrive before Red Cross</td>
</tr>
<tr>
<td>- Need longer term services</td>
<td>- Short lead time for obtaining supplies</td>
</tr>
<tr>
<td>- Greater supply needs</td>
<td>- Need for long term services</td>
</tr>
<tr>
<td>- Need for longer term staffing</td>
<td>- Greater supply needs</td>
</tr>
<tr>
<td>- Shelters become a focal point for relief services</td>
<td>- Shelters become a focal point for relief services</td>
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</tbody>
</table>
Preparedness

Shelters Core Activities

• Registration/intake
• Dormitory management (sleeping areas)
• Food service
• Health and medical
• Case management
• Family reunification and messaging
• Children’s temporary respite care
• Recreation

Preparedness

Functional and Access Needs

• Guidance on Planning for Integration of Functional Needs Support Services (FNSS) in General Population Shelter
• Reasonable modifications to policies, practices, and procedures
• Assistive technology
• Durable medical equipment (DME)
• Consumable medical supplies (CMS)
• Personal assistance services (PAS)
Preparedness

Shelter Standards and Guidance

• Mass Care Standards and Indicators – ARC and National Voluntary Organizations Active in Disasters (NVOAD)
• Guidance on Planning for Integration of Functional Needs Support Services in General Population Shelters
• American Red Cross Shelter Training
• Mega-Shelter Planning Guide
• CDC Environmental Health Shelter Assessment Tool
• ADA Shelter Checklist
• FAST Teams
• Apply common sense and observation skills

Preparedness

Other Applicable Standards

• Food Code
• Fire Code
• Building Code
• Americans with Disability Act (ADA)
• Local ordinances
• Others…
Preparedness

Space Considerations

<table>
<thead>
<tr>
<th>Shelter Classification</th>
<th>Minimum Sleeping Space Allocation</th>
<th>Operation Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evacuation Shelter</td>
<td>20 ft²</td>
<td>24 hrs before to 72 hrs after event</td>
</tr>
<tr>
<td>Emergency General Population Shelter</td>
<td>40 - 60 ft²</td>
<td>72 hrs after event and beyond</td>
</tr>
<tr>
<td>Medical Shelter and Special Needs Shelter (SpNS)</td>
<td>100 ft²</td>
<td>24 hrs before to 72 hrs after event 24 hrs before to 72 hrs after event and beyond</td>
</tr>
<tr>
<td>Responder Camps/Base</td>
<td>40 ft²</td>
<td>Beginning of event and beyond</td>
</tr>
</tbody>
</table>

Preparedness

Environmental Health Staffing

- Define environmental health role and scope
- Determine how facilities will be assessed
- Determine mechanisms for seeking help
  - County and state mutual aid
  - EMAC: state-to-state assistance compacts
  - ESF 8: federal support
  - Other (NGOs, MRCs, private sector, etc.)
- Deploy staff accordingly
  - Assign permanent staff in large facilities
  - Staff appropriate to size of facilities and population
  - 24 hour on-call staff
- Use environmental health resources wisely
Preparedness

Site Selection Considerations

- Location
  - Out of flood or impact zones
  - Protected areas – inland
  - Accessible to population
  - Consider the type of disaster
  - Type of shelter
  - Available square footage
  - Code and regulatory compliance
  - Available infrastructure (water, wastewater, electrical)
  - Types of facilities used
  - Accessibility
  - Hazard and Vulnerability Assessments

Develop a collaborative process with partners

- American Red Cross Facility Survey (ARC 6564)
- Standards for Hurricane Evacuation Shelter Selection
- FEMA Functional Needs Support Services Guidance
  - ADA Checklist for Emergency Shelters
- CDC Environmental Health Shelter Assessment Tool
- Local risk-specific guidelines
Activity

• You are an environmental health specialist whose city is providing shelter for a displaced population of 5,000 people. A large convention center is being used as the shelter and is co-located with a pet shelter. The Health Department Director has asked you to conduct a comprehensive environmental health assessment of the shelter.

• Each team will be assigned one of the following areas to assess: Food; Sanitation and Hygiene; Water and Ice; Vector & Pests; Indoor Environment; Outdoor Environment; Solid Waste; Children’s area and Health and Medical
  – Develop a list of items to assess within the assigned area
  – How frequently should this area be assessed
  – What expertise is needed

Response

Initial Action and Considerations

• Determine available shelter facilities in geographic area
• Conduct pre-operational assessment with partners
  – Assess undamaged/limited damage facilities
• Facility selection process may vary depending on disaster event/type
• Conduct pre-operational assessment with partners
Response

Pre-Operational Assessments

- Overall layout
- Adequate square footage
- Sanitation - toilets, showers and handwashing
- Location and convenience of sanitation facilities
- General safety
- Solid waste containers
- Food facility sanitation
- Climate control and ventilation
- CDC Shelter Assessment Tool

Response

Environmental Health Assessments

- Initial/rapid vs. comprehensive assessment
  – Multiagency assessment teams
- Length of operation
- Size and type of facilities
- Who’s managing the shelter
- Number and availability of EH staff
- Survey/assessment forms
Response

Environmental Health Assessments

• Time of assessment
• Address identified items on-site when possible
• Identify training needs: staff, volunteers
• Make reports clear and easy to read
  – Prioritize findings on public health impact
  – Look for system fixes
  – Divide report by section if needed (Housekeeping, food service, maintenance, etc.)
  – Photos or diagrams are helpful
• Be aware of shelter staff rotation

Report Assessment Findings

• Focus on priorities - urgent and unmet needs
• Shelter Manager and section leads
• Emergency Operations Center
  • Incident Command (e.g. Safety Officer)
  • Incident Action Plan
  • ESF 6, ESF 8
• Health Department Director
• Copy for personal file
• Others as appropriate
• Review priority items
Response

Public health focus
- Cleaning and housekeeping
- Dormitory management (sleeping areas)
- Food service
- Health and medical (disease surveillance, infection control)
- Laundry services
- Children’s areas
- Health education and messaging
- Pets and service animals
- General safety and occupational health

Response

Cleaning/Housekeeping
- Proper disinfectants and concentrations
- Adequate supplies, properly stored
- Cleaning methods and procedures
- Bodily fluid clean-up: spill kits
- Universal precautions
- Solid waste management
- Frequency of cleaning
- Trained staff
- Staff protection (PPE)
Response

Dormitory Management
• Arrangement and spacing of cots
• Aisles free and clear
• Limit food in the dormitory
• Waste disposal
• Air space and quality
• Linen exchange
• Noise management
• Light management

Response

Food Services
• Food service providers
  – Prepared on site
  – Catered
  – Prepackaged
  – Home-cooked meals (not recommended)
• Handwashing stations
• Food preparation, service, and dining areas
• Ensure food safety
• Education of food handlers
Response

Health and Medical
• Triage and assessment of healthcare needs
• Range of services varies by type of shelter
• Onsite services vs. off-site services
• Separate area for ill persons
  – Separation until symptoms have ceased for 24 hours
  – Hand washing stations at each entrance to isolation/observation area
  – Cleaning schedule increased
• Epidemiology and surveillance
• Infection control
• Special protocols for illness and outbreaks
• Hand sanitizers available (not a substitute for hand washing)
• Consider differences with Pandemic flu, Earthquakes, CBRNE

Response

Children
• Health screening
• Diaper-changing areas with hand washing station and waste disposal
• Bottle washing station
• Choking/safety hazards
• Clean toys and surfaces
• Appropriate toilet facilities
• Safe recreation area
• Temporary respite care

Shelters
Response

Laundry Services
- Provided on or off site
- Mobile laundry services
- Follow recommended standards for laundry
  - Temperature and sanitizing requirements
  - Dispose of soiled or damaged linens
  - Separate sorting and folding areas
  - Separate clean and dirty storage—clearly marked

Pets and sheltering
- PETS Act
- Animal related diseases
- Zoonotic considerations
- Foreign animal diseases
- Partners (SART and CART)
- Animals and human separation
- Evacuated pets and feral animals

Shelters
Response

Pets and sheltering

- Service animals
  - Always permitted in human shelters per ADA
  - May require additional square footage
- Pets
  - Not permitted in human shelters
  - Sheltered in co-located areas adjacent to general population shelters
  - Stand alone pet shelters
  - Animal hospitals, vets, kennels
  - Procedures may differ among states
- Exotic Pets
  - Owners must have evacuation and sheltering plan
- Livestock
  - USDA ESF 11, State agriculture office

Pet Shelter Considerations

- Disease transmission to humans
- Potable water needs
- General cleaning and disinfection
- Allergies, air flow and temperature
- Worker training and protection
- Fecal management
- Biohazards/sharps
- Animal food storage and donations
- Animal control and handling safety
- Vector control and pest management (fleas, ticks)
Response

Health Education and Messaging
- Printed materials and public announcements
- Target audience: occupants, workers, volunteers
- Recorded video
- Languages
- Hearing and visually impaired
- Messages: simple and easy to read, illustrated
- Examples
  - Handwashing
  - Food safety
  - Reporting illness

Response

General safety and occupational health
- Develop a safety plan
- Prevent slip, trips and falls
- Monitor air quality
- Prevent access to hazardous areas
- Monitor health of volunteers, staff
- Provide security
- Assess shelter environment frequently

Shelters
Recovery

Activities
- Re-entry education and messaging
- Re-occupancy education and messaging
- Assessment of interim housing options
- Interim housing – apply good public health principles (water, wastewater, solid waste, etc)

Activity
Review the findings from the Wastewater Module activity on sanitary facilities. Discuss the questions below with your table and be prepared to present your answers to the larger group.
- What process/system would be used to obtain needed portable sanitary facilities?
- Where would you obtain portable sanitary facilities?
- How would these portable sanitary facilities be maintained and who would monitor them?
- What supply issues would you anticipate?
Shelters

Medical Needs Shelter

- General Population Shelters comprise individuals with or without functional or access needs
- Field Hospitals
- Medical Needs Shelters are for individuals needing medical supervision in a non-acute care setting. Individuals require care beyond the capability of a general population shelter.
  - Sometimes called Special Needs Shelters
  - Typically operated/staffed by a Federal, State or Local Medical Response Team
    - Disaster Medical Assistance Teams (DMAT)
    - USPHS Rapid Deployment Force
    - Medical Reserve Corps
    - State Medical Assistance Team
  - Definitions can vary by state
  - Strategic National Stockpile – Field Medical Station Cache
Medical Needs Shelter

• Determine environmental health role
• Coordinate with medical unit and entity involved with medical services for state emergencies
• Preventive medicine unit
• Challenges
  – Immune suppressed population
  – Co-located with general population shelter
  – Special attention to food safety, infection control, sanitation facilities, cleaning

Considerations

• Increase space requirements
• Special diets required
• Increased staffing needs
• Secured and refrigerated medication
• Medical equipment needs
• Medical waste/sharps disposal
• Bodily fluids cleanup
• Adult personal care products
• Bed types
• Infrastructure needs
• Increased handwashing needs

Shelters
Other Recommended Exercises and Activities

- Visit a local homeless shelter and contrast and compare health issues with those found in emergency shelters
- Attend American Red Cross training on shelters
- Conduct joint shelter training sessions with American Red Cross & VOADs
- Conduct a joint shelter exercise with Public Health and American Red Cross & VOADs