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Shelters



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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

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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



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Factors in Sheltering

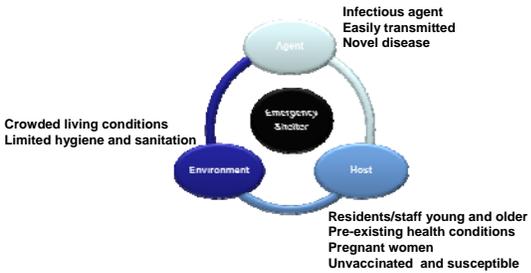
- Close living quarters
- Stressed population
- Damage to key infrastructure systems
- Limited access to health and mental health care
- Nontraditional demands on facilities



Reliant Park – Houston

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Public Health Triad Emergency Shelter Example



Patient
Infectious agent
Easily transmitted
Novel disease

Environment
Crowded living conditions
Limited hygiene and sanitation

Host
Residents/staff young and older
Pre-existing health conditions
Pregnant women
Unvaccinated and susceptible

Emergency Shelter

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Key Partners

- Emergency management agencies
- Emergency Support Functions (ESF)
 - ESF 6 Mass Care
 - ESF 8 Health and Medical
- NGOs (American Red Cross)
- NVOAD
- Private sector
- Media



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



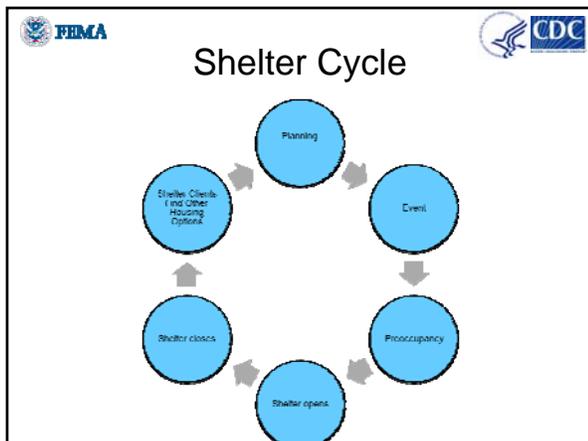
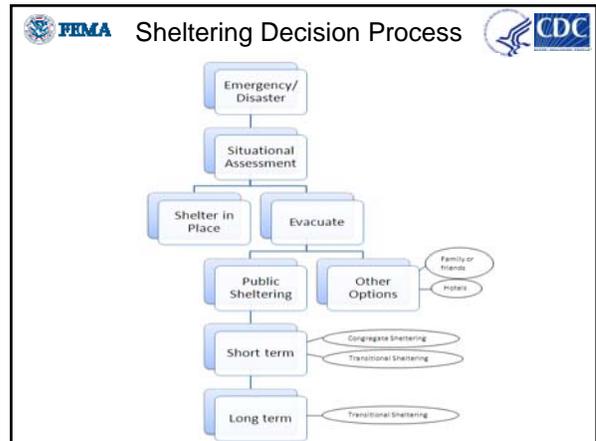
Transitional Sheltering

- 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

Events and Duration

	Warning	No Warning
SHORT DURATION SHELTERING	<p>Example: Hurricane Evacuation</p> <ul style="list-style-type: none"> • More time to open shelter • Time to advise residents to bring essential items • Residents can prepare emotionally • Less need for long term services • Fewer supply requirements 	<p>Example: Apartment Fire, HAZMAT Spill</p> <ul style="list-style-type: none"> • Less opportunity for site selection • Clients may arrive before Red Cross • Clients have little time to gather essentials • Less need for long term services • Fewer supply requirements
LONG DURATION SHELTERING	<p>Example: Slow-Rising Floods, Hurricane</p> <ul style="list-style-type: none"> • More time to open and establish logistics • Need longer term services • Greater supply needs • Need for longer term staffing • Shelters become a focal point for relief services 	<p>Example: Earthquake, Tornado</p> <ul style="list-style-type: none"> • Clients may arrive before Red Cross • Short lead time for obtaining supplies • Need for long term services • Greater supply needs • Shelters become a focal point for relief services

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

Shelter Classification	Minimum Sleeping Space Allocation	Operation Period
Evacuation Shelter	20 ft ²	24 hrs before to 72 hrs after event
Emergency General Population Shelter	40 - 60 ft ²	72 hrs after event and beyond
Medical Shelter and Special Needs Shelter (SpNS)	100 ft ²	24 hrs before to 72 hrs after event 24 hrs before to 72 hrs after event 24 hrs after event and beyond
Responder Camps/Base	40 ft ²	Beginning of event and beyond

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

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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



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Preparedness

Site Selection Considerations

- 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

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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 access within the assigned area
 - How frequently should this area be accessed
 - What expertise is needed

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Response

Initial Action and Considerations

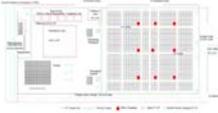
- Determine available shelter facilities in geographic area
- Conduct pre-operational assessment with partners
 - Assess undamaged/limited damage facilities
- Facility selection process may vary depending on disaster event/type
- Conduct pre-operational assessment with partners

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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




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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



Response

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
- Occupational health



Response

Cleaning/Housekeeping

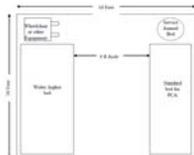
- Proper disinfectants and concentrations
- Adequate supplies, properly stored
- Cleaning methods and procedures
- Bodily fluid clean-up: spill kits
- Universal precautions
- Solid waste management
- Frequency of cleaning
- Trained staff
- Staff protection (PPE)



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



 **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



 **Response** 

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](#)



 **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



 **Response** 

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



 **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)



 **Medical Needs Shelter** 



 **Medical Needs Shelter** 

- General Population Shelters comprise individuals with or without functional or access needs
- Field Hospital?
- 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

 **Medical Needs Shelter** 

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



Activity

Review the findings from the Wastewater Module Exercise in which the number sanitary facilities (showers/toilets/handwashing stations) were calculated. Divide into groups of 6-8 then answer the following questions related to sanitary facilities:

- What process would be use to obtain these needed sanitary facilities?
- Where would these sanitary facilities be obtained in an emergency?
- How would these sanitary facilities be maintained and monitored?
- What supply issues would you anticipate?



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