Department of Health and Human Services
Centers for Disease Control and Prevention

FACT SHEET Posted October 18 2005

Check List for Infection Control Concerns when Reopening Healthcare Facilities Closed due to Extensive Water and Wind Damage

Prior to opening a healthcare facility that has undergone extensive water and wind damage, inspections need to be conducted to determine if the building is salvageable. If the decision is made to proceed with recovery and remediation, building and life safety inspections must be completed before any restoration work is done to the facility. Parts I – IV describe those activities that need to be completed. Parts V – VII provide guidance for infection control review of facilities to be done before the hospital can reopen.

Prior to opening any portion of a facility such as emergency rooms or clinics, adequate support services need to be available to provide quality care in a safe environment. Contracting with outside services could be considered.

Certification for occupancy must be obtained prior to reopening the facility. Regulations regarding healthcare facility certification and licensing differ from state to state. Refer to specific state and local government resources for more information.

I. Safety Evaluation

The following should be evaluated by facilities experts:

- structural integrity and missing structural items
- assessment of hidden moisture
- electrical system damage, including high voltage, insulation, and power integrity
- water distribution system damage
- sewer system damage
- fire emergency systems damage
- air handling system damage
- medical waste and sharps disposal system

II. Water Removal

Water should be removed as soon as possible once the safety of the structure has been verified.

- pump out standing water
- wet vacuum residual wetness from floors, carpets and hard surfaces
- clean wet vacuums after use and allow to dry

III. Water Damage Assessment and Mold Remediation

- open the windows in the damaged areas of the building during remediation
- remove porous items that have been submerged or have visible mold growth or damage
- minimize dispersion of mold spores by covering the removed items and materials with plastic sheeting (dust-tight chutes leading to dumpsters outside the building may be helpful)
- dispose these items as construction waste

- seal off the ventilation ducts to and from the remediation area and isolate the work area from occupied spaces, if the building is partially occupied
- scrub and clean hard surfaces with detergents to remove evident mold growth (If a biocide is used, follow manufacturer's instructions for use and ventilate the area. Do not mix chlorine-containing biocides with detergents or biocides containing ammonia.)

- dry the area and remaining items and surfaces

- evaluate the success of drying and look for residual moisture in structural materials (Moisture detection devices [e.g., moisture meters] or borescopes could be used in this evaluation.)
- remove and replace structural materials if they cannot be dried out within 48 hours

IV. Inspect, Repair, Disinfect where Appropriate, or Replace Facility Infrastructure

- HVAC system (motors, duct work, filters, insulation) inspection, disinfection, repair and replacement
- water system (cold and hot water, sewer drainage, steam delivery, chillers, boilers)
- steam sources (if piped in from other places e.g., utility companies it will impact autoclaves)
- electrical system (wiring, lighting, paging and patient call systems, emergency generators, fire alarms)
- electronic communication systems (telephones, paging and patient call systems, computers)
- medical gas system
- hazardous chemicals/radioactive storage

V. General Inventory of Areas with Water and Wind Damage

- What furniture can be salvaged?
    - discard wet porous furniture that cannot be dried and disinfected (including particle board furniture)
    - disinfect furniture with non-porous surfaces and salvage
    - discard upholstered furniture, drapery, and mattresses if they have been under water or have mold growth or odor
    - discard all items with questionable integrity or mold damage
- What supplies can be salvaged?
    - salvage linens and curtains following adequate laundering
    - salvage prepackaged supplies in paper wraps that are not damaged, exposed to water or extreme moisture, or in a molded environment
    - discard items if there is any question about integrity or mold exposure
    - dry essential paper files and records (professional conservators may be contacted for assistance)

- Electrical medical equipment
    - check motors, wiring and insulation for damage
    - inspect equipment for moisture damage
    - clean and disinfect equipment following manufacturers' instructions
    - do not connect wet electronic equipment to electricity
- Structures
    - inspect, repair, or replace wallboard, ceiling tiles, and flooring
    - repair, replace, and clean damaged structures

VI. Review Issues for Reopening Facilities

- Requirements needed prior to opening a facility
    - potable water
    - adequate sewage disposal
    - adequate waste and medical waste management
- Have all areas to be opened been thoroughly dried out, repaired, and cleaned?

- Does the number of air exchanges in areas of the facility meet recommended standards?
- Are negative-pressure rooms functioning properly?

VII. Site Specific Check List for Selected Areas of the Facility (see attachment A)

Use the check list to assist in determining if the facility is ready to be opened.

VIII. Post Reoccupation Surveillance

Focused microbial sampling may be indicated to determine if:

- the water in the facility's water distribution system meets the microbial quality of the Safe Drinking Water Act (see: http://www.epa.gov/safewater/sdwa/index.html);
- mold remediation efforts were effective in reducing microbial contamination in the affected areas of the hospital (see: http://www.epa.gov/mold/mold_remediation.html);

or if patients who are receiving care in the reopened facility acquire infections that are potentially healthcare-associated and that may be attributed to *Aspergillus* spp. or other fungi, non-tubercular mycobacteria, *Legionella*, or other waterborne microorganisms above expected levels.

VII. Site Specific Check List for Selected Areas of the Facility

Attachment A

Area	Question	Yes	No	Comments
Laboratory Services	Can essential laboratory testing be provided? • blood-gases and co-oximetry • electrolytes • hepatic and basic metabolic profiles • hemograms and coagulation studies			
	Can microbiological, toxicological, and serologic testing be performed or sent to a referral laboratory?			
	Is emergency power available to operate equipment and safety systems and/or provide necessary ambient conditions?			
	Has essential equipment been inspected for damage and heat/humidity exposure and manufacturers contacted for guidance on repair, cleaning, and disinfection?			
	Have damaged or contaminated reagents and supplies been replaced?			
	Have biologic safety cabinets been cleaned, disinfected and recertified?			
Central sterile processing area	Have all autoclaves been inspected for damage and manufacturers contacted for guidance on repair, cleaning, and disinfection?			
	Does the steam system meet AAMI standards?			
	Have mechanical and biological indicator tests been performed on sterilization equipment?			
	Were stored sterile supplies compromised? Have they been reprocessed or replaced?			

Area	Question	Yes	No	Comments
	Have the washers, instrument disinfection, and ultrasonic equipment been tested for performance?			
Operating Suite	Has there been any damage to the sealed flooring and ceilings?			
	Do sterile supplies need reprocessing?			
	Have the autoclaves been inspected and undergone mechanical and biological indicator testing?			
	Has an evaluation for electrical hazards been conducted?			
	Are the scrub sinks functioning properly?			
	Are there enough air exchanges per hour?			
	Have all air filters been changed?			
Pharmacy	Have damaged or contaminated medications and solutions been replaced?			
	Are refrigerators for medication storage at the proper temperature?			
	Has the medication compounding area been thoroughly disinfected?			
	Has the admixture hood been recertified and filters changed?			
Respiratory Therapy, Bronchoscopy, Pulmonary Function	Has the equipment processing equipment been inspected?			
	Was there any damage to equipment? Has it been repaired and certified?			
	Have damaged or contaminated medications and solutions been replaced?			
Radiology, Radiation Oncology	Has all equipment been inspected and disinfected?			
	Have all damaged or contaminated medications and supplies been replaced?			
	Has damaged equipment been recertified?			
	Has radioactive materials been assessed and contained?			
All Patient Care Areas	Has all furniture and equipment been inspected, repaired, and disinfected?			
	Has porous furniture that was wet been discarded?			
	Were mattresses discarded if they have been under water or wet?			
	Have all linens been laundered?			
	Have medications and supplies that were damaged or contaminated been discarded?			
	Are medical gas and suction systems operable?			
	Have ice machines been flushed, cleaned, and disinfected?			
	Are medical gas and suction systems including air lines operable and cleaned?			
Emergency Department	Have stretchers and exam tables been inspected, repaired, and disinfected?			
	Have cardiac monitors been recertified?			
	Has the trauma room flooring been damaged? Has it been repaired or replaced?			
	Have support service areas in the ED (radiology, lab) been inspected in the same manner as the larger department?			
	Is public access to the emergency room safe for entry?			
Intensive Care	Have cardiac monitors been recertified?			

Area	Question	Yes	No	Comments
Units/Burn Units	Have whirlpool and physiotherapy area been repaired and disinfected?			
Laundry Processing Area	Has all laundry equipment been inspected for damage and manufacturers contacted for guidance on repair, cleaning, and disinfection?			
	Have containers for stored laundry chemicals and dispensing equipment been inspected?			
Food Service	Has stored food (dry and canned goods) been inspected for damage or contamination and discarded if it is unsafe to eat?			
	Have ice-machines and refrigerators been cleaned and sanitized?			
	Has all perishable food been discarded?			
	Have all food-contact surfaces been cleaned and sanitized?			
	Have pest control systems been restored?			
	Has local food service certification been obtained?			

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