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Interim Guidance for Cleaning Emergency Medical Service (EMS) Transport Vehicles during an Influenza Pandemic

Following are general guidelines for cleaning or maintaining Emergency Medical Service (EMS) Transport Vehicles after transporting a suspected influenza patient during a pandemic¹. This guidance may be modified or additional procedures may be recommended by the Centers for Disease Control and Prevention (CDC) as part of the evaluation of an ill traveler, when an influenza pandemic becomes widespread in the United States, or as new information about a pandemic strain becomes available.

EMS agencies should define mechanisms of rapidly modifying infection control and decontamination procedures based on the most recent research and scientific information, including federal, state and local pandemic influenza guidelines. State, local, tribal and territorial EMS agencies, in coordination with federal, state and local public health departments, 911 programs, and emergency management and health care officials should ensure that EMS pandemic influenza plans define a process for gathering and developing updated pandemic influenza information, including clinical standards, treatment protocols and just-in-time training and disseminate it to local EMS medical directors and EMS agencies². There should be clearly defined procedures for rapid dissemination of pandemic influenza information. This should include coordination with the CDC's Health Alert Network, Public Health Information Network (PHIN), and/or Public Health Information Rapid Exchange (PHIRE).

EMS agencies should consistently practice basic infection control procedures including vehicle/equipment decontamination, hand hygiene, cough and respiratory hygiene, and proper use of Food and Drug Administration (FDA)-regulated medical personal protective equipment (PPE) regardless of the likelihood of an influenza pandemic³. EMS agencies should adopt day-to-day infection control and decontamination procedures consistent with the most recent CDC and Occupational Safety and Health Administration (OSHA) guidance.

Influenza viruses can persist on nonporous surfaces for 24 hours or more, but quantities of the virus sufficient for human infection are likely to persist for shorter periods. Although the relative importance of virus transfer from inanimate objects to humans in spreading influenza is not known, hand transfer of the virus to the mucous membranes of the eyes, nose, and mouth resulting in infection is likely to occur. Hand hygiene⁴, cough etiquette and respiratory hygiene⁵ are the principal means of interrupting this type of transmission. Routine cleaning and disinfection practices may play a role in minimizing the spread of influenza.

Routine cleaning with soap or detergent and water to remove soil and organic matter, followed by the proper use of disinfectants, are the basic components of effective environmental management of influenza. Reducing the number of influenza virus particles on a surface through these steps can reduce the chances of hand transfer of virus. Influenza viruses are susceptible to inactivation by a number of chemical disinfectants readily available from consumer and commercial sources (for more general information about disinfection of environmental surfaces, see the CDC/ Healthcare Infection Control Practices Advisory Committee (HICPAC) "Guidelines for Environmental Infection Control in Health-Care Facilities," available at: http://www.cdc.gov/ncidod/dhqp/gl_environmentinfection.html). All disinfectants marketed in the United States are required to be registered by the U.S. Environmental Protection Agency (EPA). These products must be used in accordance with their label instructions; following label instructions is necessary to achieve adequate efficacy and to avoid unreasonable adverse effects.

If the patient to be transported can tolerate a facemask (e.g., a surgical mask), its use can help to minimize the spread of infectious droplets in the patient care compartment. After the patient has been removed and prior to cleaning, the air within the vehicle may be exhausted by opening the doors and windows of the vehicle while the ventilation system is running. This should be done outdoors and away from pedestrian traffic.

Some reusable equipment may need to be covered with disposable plastic covers to protect it from contamination if it cannot be decontaminated with disinfectants without the chance of damage to the equipment (per the manufacturers' recommendations). These covers should be changed as appropriate (e.g., after each shift, after every run) or when they are visibly contaminated. Dispose of these covers in a leakproof bag or waste container.

Routine cleaning methods should be employed throughout the vehicle with special attention in certain areas as specified below:

1. Clean and disinfect non-patient-care areas of the vehicle according to the vehicle manufacturer's recommendations.
2. Non-patient-care areas of the vehicle, such as the driver's compartment, may become indirectly contaminated, such as by touching the steering wheel with a contaminated glove. Personnel should be particularly vigilant to avoid contaminating environmental surfaces that are not directly related to patient care (e.g., steering wheels, light switches). If the surfaces in the driver's compartment become contaminated, they should be cleaned and disinfected according to the recommendations in item 4 below.
3. Wear non-sterile, disposable gloves that are recommended by the manufacturer of the detergent/disinfectant while cleaning the patient-care compartment and when handling cleaning and disinfecting solutions. Dispose of gloves if they become damaged or soiled or when cleaning is completed, in a sturdy leakproof (e.g., plastic) bag that is tied shut and not reopened. State and local governments should be consulted for appropriate disposal decisions. Barring specific state solid or medical waste regulations to the contrary, these wastes are considered routine solid wastes that can be sent to municipal solid waste landfills without treatment. Never wash or reuse disposable gloves. Avoid activities that may generate infectious aerosols. Eye protection, such as a faceshield or goggles, may be required if splashing is expected. Cleaning activities should be supervised and inspected periodically to ensure correct procedures are followed.
4. Frequently touched surfaces in patient-care compartments (including stretchers, railings, medical equipment control panels, adjacent flooring, walls, ceilings and work surfaces, door handles, radios, keyboards and cell phones) that become directly contaminated with respiratory secretions and other bodily fluids during patient care, or indirectly by touching the surfaces with gloved hands, should be cleaned first with detergent and water and then disinfected using an EPA-registered hospital disinfectant in accordance with the manufacturer's instructions. Ensure that the surface is kept wet with the disinfectant for the full contact time specified by the manufacturer. Adhere to any safety precautions or other recommendations as directed (e.g., allowing adequate ventilation in confined areas, and proper disposal of unused product or used containers). Federal agencies have learned about and collaborated to address problems associated with inappropriate use of liquids on electronic medical equipment. The problems included equipment fires and other damage, equipment malfunctions, and healthcare worker burns. The root cause of the problems was likely corrosion of electronic circuitry by disinfecting or cleaning solutions that penetrated the equipment housings. Healthcare workers routinely sprayed the housings with disinfectants or wrapped the housings with disinfectant-soaked towels. These practices are generally not consistent with the equipment manufacturers' directions for use, which typically recommend wiping the housing with a soft cloth dampened with a mild detergent and water. To avoid the hazards described above, review your policies on equipment management and assignment of responsibility for key tasks associated with said management. Please see <http://www.fda.gov/cdrh/safety/103107-cleaners.html> for more information.
5. Non-porous surfaces in patient-care compartments that are not frequently touched can be cleaned with detergent and water. Avoid large-surface cleaning methods that produce mists or aerosols or disperse dust in patient-care areas (e.g., use wet dusting techniques, wipe application of cleaning and/or disinfectant solutions).
6. Clean any small spills of bodily fluids (e.g., vomit from an ill patient) by cleaning first with detergent and water followed by disinfection using an EPA-registered hospital disinfectant from EPA List D or E in accordance with the manufacturer's use instructions and safety precautions.
7. Large spills of bodily fluids (e.g., vomit) should first be managed by removing visible organic matter with absorbent material (e.g., disposable paper towels discarded into a leak-proof properly labeled container). The spill should then be cleaned and disinfected as above.
8. Place contaminated reusable patient care devices and equipment in biohazard bags clearly marked for cleaning and disinfection or sterilization as appropriate.
9. Clean and disinfect or sterilize reusable devices and equipment according to the manufacturer's recommendations.
10. After cleaning, remove and dispose of gloves as instructed in a leakproof bag or waste container. State and local governments should be consulted for appropriate disposal decisions. Barring specific state solid or medical waste regulations to the contrary, these wastes are considered routine solid wastes that can be sent to municipal solid waste landfills without treatment.
11. Immediately clean hands with soap and water or an alcohol-based hand gel. Avoid touching the face with gloved or unwashed hands.

Additional Information

For the most current information about pandemic influenza, including up-to-date guidance documents and related materials, visit www.pandemicflu.gov.

For more information about environmental management of pandemic influenza virus, go to <http://pandemicflu.gov/plan/healthcare/influenzaguidance.html>.

Lists of EPA-registered disinfectants can be found at <http://www.epa.gov/oppad001/chemregindex.htm>.

Additional information on Federal emergency medical services programs can be found at <http://www.ems.gov>

¹ This guidance does not apply to helicopters or airplanes used as EMS Transport Vehicles.

² Guideline 1.4 – A Systems Approach, EMS Pandemic Influenza Guidelines for Statewide Adoption, U.S. Department of Transportation, May 3, 2007

³ Guideline 6.2 - Infection Control and Decontamination, EMS Pandemic Influenza Guidelines for Statewide Adoption, U.S. Department of Transportation, May 3, 2007

⁴ When washing hands with soap and water: Wet your hands with clean running water and apply soap. Use warm water if it is available. Rub hands together to make a lather and scrub all surfaces. Continue rubbing hands for 20 seconds. Rinse hands well under running water. Dry your hands using a paper towel or air dryer. If possible, use your paper towel to turn off the faucet. Remember: If soap and water are not available, use an alcohol-based hand gel to clean hands. When using an alcohol-based hand gel: Apply product to the palm of one hand. Rub hands together. Rub the product over all surfaces of hands and fingers until hands are dry.
(<http://www.cdc.gov/cleanhands/>)

⁵ The following measures to contain respiratory secretions are recommended for all individuals with signs and symptoms of a respiratory infection: Cover the nose/mouth when coughing or sneezing; use tissues to contain respiratory secretions and dispose of them in the nearest covered waste receptacle after use; if you don't have a tissue, cough or sneeze into your upper sleeve, not your hands; perform hand hygiene (e.g., hand washing with non-antimicrobial soap and water, alcohol-based hand gel, or antiseptic handwash) after having contact with respiratory secretions and contaminated objects/materials
(<http://www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm> and <http://www.cdc.gov/flu/protect/covercough.htm>)

⁶ Employees should be trained to remove PPE to prevent self-inoculation (e.g., touching a contaminated glove and then touching one's eyes, nose, or mouth).

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