



**Michigan
CBRNE Protocols**

**SPECIAL PATHOGEN RESPONSE NETWORK (SPRN)
TRANSPORT AND DESTINATION GUIDELINES (Optional)**

Initial Date: 04/28/17

Revised Date:

Section 7-8

Transportation and Destination Guidelines

Purpose:

This protocol is to assist inter-facility transport of patients believed to be infected with a “special pathogen” to a hospital that may be outside of the local Medical Control Authority.

Definition:

“Special pathogen” refers to highly-infectious diseases, including hemorrhagic viral diseases (HVDs) such as Ebola and similar infections.

Transport Destination Decision

1. The patient will be transported to the closest appropriate hospital capable of providing the services needed. *The closest appropriate hospital may be outside of an agency’s primary service area.*
2. Inter-facility transport of patients is permitted by pre-identified transport teams to hospitals that may originate and end outside of the transporting agency’s Medical Control Authority when no local pre-identified specialty transport team is available.

MCA Name:

MCA Board Approval Date:

MCA Implementation Date:

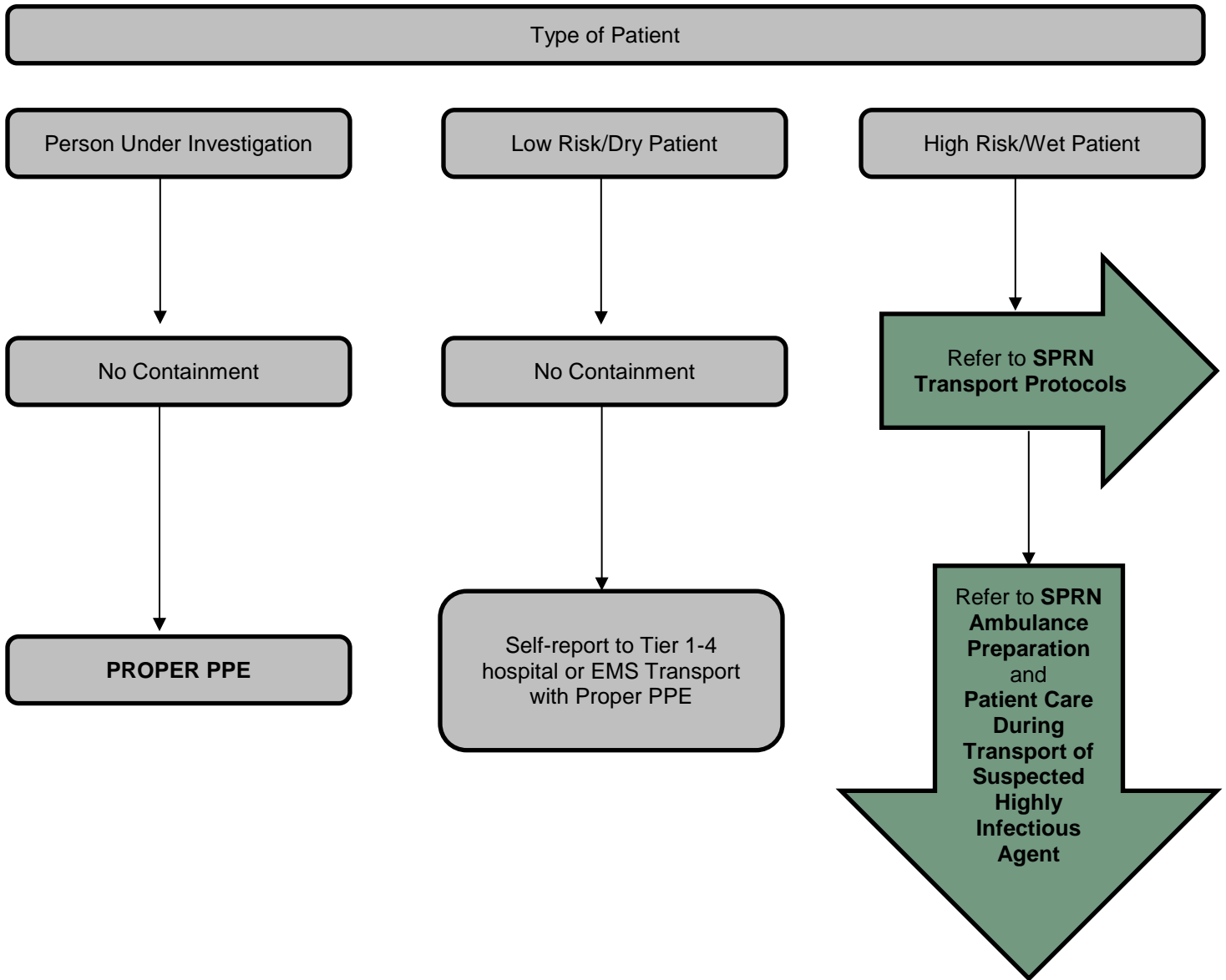
Protocol Source/References:

**Michigan
CBRNE Protocols**
SPECIAL PATHOGEN RESPONSE NETWORK (SPRN)
PATIENT CONTAINMENT ALGORITHM (Optional)

Initial Date: 04/28/17

Revised Date:

Section 7-9



Initial Date: 04/28/17

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Section 7-10

Transport Supplies

Suggested Supplies to be Immediately Available:

- Manual Suction
- BP cuff (manual, disposable)
- Pulse Ox (disposable)
- Emesis containers (sealable)
- Absorbent paper towels
- Sharps Container (small)
- Nitrile gloves box (Small, Medium, Large, Extra-large)
- Small trash bags
- Disinfectant wipes for surfaces
- Disinfectant wipes for skin
- Portable O2 tank (15 LPM capable)
- Nasal Cannula/NRB
- Cooler/ice packs
- Blankets (Space)
- Pillow
- Trauma Shears
- 2 Buckets (for bodily fluids, hold trash bags, use for cleaning)
- Time Keeping Device
- Sedation and/or pain control guidelines as applicable
- Medications, needleless delivery system

Suggested Supplies to be in accompanying vehicle or with driver:

- IV Kit/Fluid/Saline Lock
- 4X4 and/or Abdominal Pads
- Tape
- Rolled Gauze
- Body bag
- Cleaning / decontamination equipment
- Solidifier for liquids
- Donning/doffing protocols and checklists

Cleaning and Decontamination supplies (in accompanying vehicle or with driver):

- Towels & Cleaning Rags (disposable)
- Solidifier
- Bucket for cleaning
- EPA registered cleaning product with instructions for use
- Biohazard bags (~20)
- Box for Biocell / Visquine disposal
- Zip ties for trash

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SPECIAL PATHOGEN RESPONSE NETWORK (SPRN)
TRANSPORT SUPPLIES (Optional)

Initial Date: 04/28/17

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Section 7-10

- Bleach wipes for outside of Biohazard bags
- Procedure for cleaning/disinfection
- Procedure for waste handling

Suggested PPE per team members:

(PPE should cover all skin, mucous membranes and protect against inhalation of aerosolized particles)

- | | |
|--|-------|
| <input type="checkbox"/> Fluid-resistant or impermeable coveralls (appropriate sized suits) | 2 |
| <input type="checkbox"/> Fluid-resistant or impermeable boot covers | 2 |
| <input type="checkbox"/> Powered air-purifying respirator (PAPR) | 1 |
| <input type="checkbox"/> PAPR batteries | 2 |
| <input type="checkbox"/> PAPR filters | 1 set |
| <input type="checkbox"/> PAPR hoods | 1 |
| <input type="checkbox"/> PAPR hose and clamp | 1 |
| OR | |
| <input type="checkbox"/> Full-face respirators with appropriate cartridges for protection | 2 |
| | |
| <input type="checkbox"/> Surgical Cap/Hair Cover (2) | 2 |
| <input type="checkbox"/> N-95 Respirator | 1 |
| <input type="checkbox"/> Biohazard bags (Large) | 30 |
| <input type="checkbox"/> Biohazard Receptacles (1 small for sharps) | |
| <input type="checkbox"/> Nitrile gloves box (1 each of Small, Medium, Large, Extra-large) | 1EA |
| <input type="checkbox"/> Hand sanitizer (1 bottle) | 10 |
| <input type="checkbox"/> Absorbent rags (package) | |
| <input type="checkbox"/> Caution tape (yellow 200' roll) | |
| <input type="checkbox"/> Duct tape (roll) | |
| <input type="checkbox"/> Buckets (2) | 2 |
| <input type="checkbox"/> Healthcare bleach (wipes) or other EPA-registered hospital disinfectant wipes | |
| <input type="checkbox"/> Trauma Shears (for Biocell/Visquine removal) | 2 |
| <input type="checkbox"/> Doffing Pad (Large Fluid Absorbent Fabric) (2) | 2 |

References

January 28, 2016 Guidance for developing a plan for interfacility transport of persons under investigation or confirmed patients with Ebola virus disease in the United States

Nebraska Biocontainment Unit and Healthcare and Emergency Responder Organization Education through Simulation (HEROES)

Transport Procedure

Purpose: The purpose of this procedure is to provide guidance for transport of a patient with a known or suspected highly infectious disease including pathogens referred to as “Category A” agents.

1. Patient belongings

- A. All patient belongings shall be kept in transport vehicle and only be removed at the final destination.
- B. Belongings shall be placed in a biohazard bag if possible and sealed in a manner that will prevent any further contamination to its surroundings.
- C. Belongings will be labeled with the patient name and identification.

2. Documentation

- A. Pt documentation may be performed in a normal manner as outlined by the transporting agencies guidelines. A note pad may be used to document vital signs and times during transport.
- B. All documentation should be performed after the transport is complete as to avoid contamination of equipment and materials. Any materials used for documentation in the patient environment (such as Toughbook, tablets, clipboards etc.) shall be cleaned, disinfected, and decommissioned for the same duration as the transport vehicle and equipment involved in transport.

3. Travel plans

- A. The MDHHS will be the central coordinating agency for the patient transport. Local and state authorities will assist in planning the path of travel so as to assist in the event of an emergency.
- B. A predetermined route will be planned in conjunction with the sending facility, transport agency, receiving facility or airport, and any facilities in between sending facility and receiving facility that are willing to participate and accommodate transport crews for crew changes or emergency procedures.
 - a. Path of travel should be planned out in a way that will keep transport crews on as many major roads as possible to ease the ability of possible responding ems agencies to locate them in the event of an emergency or accident.
 - b. Consider communication to potential Medical Control Authority along the path of travel in the event that assistance is required.
 - c. Transport team shall attempt to solve any in transport emergencies without involving any outside responding agencies whenever possible.
 - d. During transport, hospitals located along an extended route (over 2 hours) may act as Patient Transfer Points (PTP). PTP will be identified and notified prior to patient transport. Although the patient will not leave the transport vehicle, PTP may be used to allow EMS personnel to change staff.

4. Destination arrival

- A. The patient will be accepted by healthcare workers at the hospital or airport directly from the EMS transport rig. EMS team should not leave the designated “hot zone” or “dirty area” until PPE is doffed per protocol. If there is not an appropriate area for complete decontamination at the receiving facility (such as an airport), decontamination should occur at the closest appropriate doffing area. This will prevent the transmission of the pathogen via accidental contamination to the environment.
- B. After proper doffing of PPE, the safety officer, receiving facility or other team members will evaluate and care for crew members involved in transport.
 - a. Post vital signs should be recorded.
 - b. Evaluation for any exposure to the pathogen.
 - c. Food, fluids and lodging may be provided until the receiving facility feels the personnel are fit and able to make the return trip home.
- C. To minimize further contamination of “clean personnel”, only those involved in actual patient transport may operate the transport vehicle during the return trip. It is anticipated that the person will drive the return trip.
- D. Follow cleaning and disinfection of the Ambulance procedure prior to leaving receiving hospital. After airport transfer, the ambulance will go to the designated PTP to doff PPE, and follow cleaning and disinfection procedures prior to resuming the return trip to the agency.
- E. The receiving facility or PTP shall accept and properly dispose of any PPE and other material(s) used in the transport vehicle.
- F. Upon arrival back to the home agency, the vehicle and equipment may be sequestered for a predetermined amount of time to allow for full decontamination.
- G. This time will be dependent on the pathogen and current guidelines.
- H. No vehicles or equipment shall be placed back into general service prior to completion of the vehicle quarantine.
- I. If the vehicle is needed prior to completion of quarantine for transport of like case, guidance will be sought from the MDHHS and CDC.

References:

Guidance for Developing A Plan for Interfacility Transport of Persons Under investigation or Confirmed Patients with Ebola Virus Disease in the United States:

<http://www.cdc.gov/vhf/ebola>

Bratt, J., Robinson, A., and Alcorta, R. (n.d.). [Strategies and Considerations for the Deployment of EMS Personal Protective Equipment in Response to an Ebola Outbreak.](#)

(Accessed 8/1/2016.) Maryland Institute for Emergency Medical Service Systems.

Lowe et al: *Considerations for Safe EMS Transport of Patients Infected with Ebola Virus. Prehospital Emergency Care* October

Patient Care During Transport of Suspected Highly Infectious Agent

Purpose: The purpose of this procedure is to provide guidance for transport of a patient with a known or suspected highly infectious disease including pathogens referred to as “Category A” agents from a health care facility to another, more specialized health care facility.

The EMS Agency Will

- A. Prior to transport, the transporting agency will communicate with the sending (departing) and receiving (arriving) hospital facility to coordinate existing and anticipated patient care needs.
 - a. Determine the medical authority for the patient while in transit. Refer to the state protocol.
 - b. Determine the number and mix of staff needed to provide care during transport.
 - c. Assure that equipment, devices, and crew can fit into the load-carrying dimensions of all planned transport vehicles.
 - d. Determine if the patient has proper identification for transport.
 - e. Determine method for patient tracking.
 - f. Determine method to document patient care while preventing contamination.
- B. Assess and develop plans for:
 - a. Physical needs of the patient: baseline vital signs via non-invasive method. Use blue tooth technology, disposable O2 saturation monitor.
 - b. Assess ability to provide for physical comfort of patient:
 - i. Heat
 - ii. Air flow
 - c. Plans for failure of equipment.
 - d. Identified pre-existing conditions that will require medication or other means of support (such as diabetes, oxygen therapy, etc.). Identify method to support these conditions if necessary.
 - e. Avoid use of sharps (needles, lancets) unless necessary. Dispose in sharps container.
 - f. Identify current life support status and identify procedures that will or will not be performed during transport.
 - g. Identify medications necessary for patient comfort during transport: sedation, pain, nausea.
 - h. Identify method to handle fluid loss (vomiting, diarrhea, urine) during transport.
 - i. Patient wipes absorbent pads, solidifier, trash bags, duct tape.
 - ii. Wipes for cleaning and disinfection of spills. Minimize the use of bleach wipes during transit to prevent overpowering fumes.
- C. Provide for crew safety during transport
 - a. Assess how communication will occur among all crew.



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SPECIAL PATHOGEN RESPONSE NETWORK (SPRN)

PATIENT CARE DURING TRANSPORT OF SUSPECTED HIGHLY INFECTIOUS AGENT (Optional)

Initial Date: 04/28/17

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- b. If PPE is breached, crew should wipe affected area with bleach and communicate breach immediately to supervisor.
- c. Plans should include area for emergency doffing of PPE for crew safety.
- d. Identify nearest Patient Transfer Point (PTP) to provide relief of staff.

MCA Name:

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Protocol Source/References:

Ambulance Cleaning and Disinfection

Purpose:

Proper cleaning and disinfection of an ambulance and equipment are necessary to reduce the bioburden of disease and prevent secondary transmission of a known or unknown highly contagious disease. The process describes the measures needed to clean and disinfect an ambulance prior to its return to service following the transport of a patient with a known or suspected Category A disease.

Note: All disinfection should use a U.S. Environmental Protection Agency (EPA)-registered [hospital disinfectant](#) with a label claim for a non-enveloped virus (norovirus, rotavirus, adenovirus, poliovirus) to disinfect environmental surfaces at appropriate concentration and contact time.

1. This process is to be done after the Biocell or visquine (see procedure) has been removed.
2. Site Set Up
 - A. Select an appropriate site for ambulance decontamination that protects the vehicle and the decontamination team from weather elements, preferably a well-ventilated large enclosed structure.
 - B. Establish a secure perimeter for safety of the public and decontamination personnel.
 - C. Include considerations for waste management, security plan, public perception, and media visibility when selecting decontamination site.
 - D. Depending on the location, the ability for climate control is beneficial.
 - E. Define and mark hot, warm, and cold zones of contamination¹ around the ambulance that require PPE to enter.
3. Prior to cleaning
 - A. The patient care provider (while wearing “dirty PPE”) will remove all equipment, supplies, linen, waste PRIOR to leaving the vehicle and before Biocell/Visquine liners are removed from inside the ambulance. Equipment will be placed in the warm zone.

¹ The hot zone is considered an area that is known or suspected to be contaminated and has a high risk of exposure. It should only be entered with full PPE. In ambulance decontamination, this would be the vehicle and an area about a meter beyond the ambulance.

The warm zone can be considered a transitional area between the hot and cold zones that has no known contamination but has a moderate risk of exposure. It should only be entered when wearing full PPE. This is also the area where one begins the initial portion of the doffing process (following a full suit wipe down within the hot zone) when leaving the hot zone. For ambulance decontamination, the warm zone can also be the place where waste barrels are pre-positioned so that the waste bags can be placed directly into the containers without entering the hot zone.

The cold zone is considered an area that has no contamination and no potential risk for exposure. The individuals in this area are not required to wear PPE, although the cold zone will often also serve as the PPE donning area.

- B. All waste, including PPE, drapes, and wipes, should be considered Category “A” infectious substance, and should be packaged appropriately for disposal.
 - C. The driver or other personnel will be responsible for cleaning and disinfection of the transport unit. One to two people will clean and disinfect; a third in PPE will observe and be available to assist as necessary
 - D. The cleaning teams will don CLEAN PPE per protocol.
 - E. Any areas that are visibly contaminated with the patient’s body fluids should be decontaminated first with an approved EPA-registered disinfectant for the appropriate contact time before soaking up the fluid with absorbent materials.
 - F. Place biohazard bag in container close to exit for used cleaning cloths.
4. Cleaning and decontamination
- A. Cleaning will be done beginning at an entrance to the ambulance, and moving towards the dirty area. This way, the clean personnel will remain clean as they enter the vehicle and stay in a “clean” area until they exit at the opposite end of the ambulance.
 - B. Mix EPA registered cleaning disinfectant per manufacturers’ guidelines. All products will have instructions for cleaning and disinfection. Note the manufacturers’ “dwell time” or the amount of time a surface must stay wet AFTER cleaning to achieve disinfection.
 - C. Using disposable cloths begin cleaning all surfaces as the vehicle is entered.
 - D. Remove visible soiling of all surfaces.
 - E. Allow surface to stay wet during dwell time. Reapply cleaner if necessary.
 - F. Change cloths frequently during cleaning process. Place cloths in biohazard bag.
 - G. Manually wipe down the ambulance’s exterior patient loading doors and handles, and any areas that may have been contaminated, with disinfectant. The exterior of the ambulance does not require a full disinfectant wipe down.
 - H. After ambulance is cleaned, clean re-usable medical equipment.
 - a. Using the above process, clean then disinfect the outside of any prepositioned but unused medical equipment (still inside the protective bags they were placed in).
 - b. If the equipment was removed from a protective bag in transit, assess the equipment to determine if it can be properly cleaned and disinfected, or disposed of.
 - I. Once cleaning and disinfection has been completed, collect and package all waste as Category “A” waste. Dispose of all waste according to organization protocols as well as local and federal regulations for Category “A” infectious substances.

- J. Remove PPE per checklist. A third person who has been in the cold zone should supervise doffing, which should be performed according to organization doffing protocols.
- 5. Further options for decontamination
 - A. Additional cleaning methods can also be used. While not required, this may provide additional assurance to personnel and public prior returning the vehicle to service.
 - B. Ultraviolet germicidal irradiation, chlorine dioxide vapor, or hydrogen peroxide vapor can be used for an additional decontamination step. However, these should not replace the manual cleaning and disinfection, as their efficacy against organisms in body fluids has not been fully established and these methods may require specialized equipment and PPE.
 - C. The ambulance can then be returned to service.

Materials and equipment needed to decontaminate an ambulance (items listed are per person decontaminating)

Fluid-resistant or impermeable coveralls (appropriate sized suits)	2
Fluid-resistant or impermeable boot covers	2
Powered air-purifying respirator (PAPR)	1
PAPR batteries	2
PAPR filters	1 set
PAPR hoods	1
PAPR hose and clamp	1

OR

Full-face respirators with appropriate cartridges for protection	2
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Surgical Cap/Hair Cover	2
N-95 Respirator	1
Biohazard bags (Large)	30
Biohazard Receptacles (1 small for sharps)	
Nitrile gloves box (Small, Medium, Large, Extra-large)	1 EA
Hand sanitizer (1 bottle)	10
Absorbent rags (package)	
Caution tape (yellow 200' roll)	
Duct tape (roll)	
Buckets	2
Healthcare bleach (wipes) or other EPA-registered hospital disinfectant wipes	
Trauma Shears (for Biocell/Visquine removal)	2
Doffing Pad (Large Fluid Absorbent Fabric)	2

References:

1. Isakov, A., Jamison, A., Miles, W., & Ribner, B. Safe management of patients with serious communicable diseases: recent experience with Ebola virus. *Annals of internal medicine.* 161(11): 829-830.
2. Isakov A, Miles W, Gibbs S, Lowe J, Jamison A, Swansinger R. Transport and management of patients with confirmed or suspected Ebola virus disease. *Ann of Emerg Med.* 2015; 66(3):297-305.
3. Jelden, K.C., Gibbs, S.G., Smith, P.W., Schwedhelm, M., Iwen, P.C., +Beam, E., Hayes, A.K., Marion, N., Kratochvil, C.J., Boulter, K.C., Hewlett, A., Lowe, J.J. Nebraska Biocontainment Unit Patient Discharge and Environmental Decontamination following Ebola Care. *American Journal of Infection Control.* 2015; 43(3):203-205.
4. Lowe, J.J., Gibbs, S.G., Schwedhelm, S., Nguyen, J., Smith, P.W. Nebraska Biocontainment Unit Perspective on Disposal of Ebola Medical Waste. *American Journal of Infection Control.* 2014; 42:1256-1257.
5. Lowe, J.J., Jelden, K.C., Schenarts, P.J., Rupp, L.E., Hawes, K.J., Tysor, B.M., Swansinger, R.G., Schwedhelm, S.S., Smith, P.W., Gibbs, S.G. Considerations for Safe EMS Transport of Patients Infected with Ebola Virus. *Prehospital Emergency Care.* 2015; 19(2):179-183.
7. Lowe, J.J., Olinger, P.L., Gibbs, S.G., Rengarajan, K, Beam, E.L., Boulter, K.C., Schwedhelm, M.M., Hayes, K.A., Krotchvil, C.J., Vanairsdale, S., Frislie, B; Lewis J., Hewlett, A., Smith, P.W., Gartland, B., Ribner, B.S. Environmental infection control considerations for Ebola. *American Journal of Infection Control.* 2015; 43(7):747-9.
9. Swansinger, R.G., Walters, W.A., Isakov, A.P., Gibbs, S.G., Lowe, J.J. 2014. BioContainment Ground Transport Standard Operating Procedures. Office of Medical Services Operational Medicine. United States Department of State.