



International Association of Fire Chiefs

4795 Meadow Wood Lane, Suite 100 • Chantilly, VA 20151
Tel: 703.273.0911 • Fax: 703.273.9363 • IAFC.org

Ebola Response Advisories and Recommendations

As the fire and emergency service is continuing to battle the SARS-CoV-2 virus, new concerns are arising regarding a recent outbreak of the Ebola Virus in Africa. In 2014, the IAFC Ebola Task Force created the advisories and recommendations below to assist fire departments in preparing for their response to a potential Ebola patient. The information below provides a broad overview of the topics and links back to additional material from the U.S. federal government and other national fire, emergency medical services (EMS), and public safety communications organizations. In addition to reviewing the material below, agencies should review their respective state and local regulations regarding patient care, decontamination, and hazardous waste transportation. While there are some similarities in preparing for COVID-19 and Ebola, it is important to remember that Ebola is a distinct virus and may require different and unique preparations.

All fire departments should engage their personnel in physical, in-person manipulative skills drills. Many of these skills, especially the donning and doffing of personal protective equipment are best learned and perfected through practice. Fire departments should develop a checklist and sign-off sheet to ensure that all their personnel have had the opportunity to practice these skills.

All fire chiefs are urged to have proactive conversations with their medical director and public health agencies regarding the threat of Ebola. These resources are meant to inform, not replace, conversations between fire chiefs and their medical experts.



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Screening Emergency Calls

One of the most critical strategies for correctly handling a potential Ebola patient is assessing the potential for an Ebola infection at the 9-1-1 dispatch center. If this is done correctly, the agency will provide advance notice for first responders to don the appropriate PPE. Additionally, this strategy will likely avoid an over-response which will unnecessarily consume operational resources and specialized PPE's.

Therefore, the IAFC strongly recommends that all 9-1-1 Centers utilize surveillance questions that determine the presence of fever and/or travel history to an affected area in patients with flu-like symptoms and other conditions recommended by the local medical director. The CDC has made available recommended [caller screening questions and protocols](#) for use in 9-1-1 public safety answering points.

Additionally, the International Academies of Emergency Dispatch (IAED) is providing [access to an emerging disease surveillance tool](#). 9-1-1 Centers using Medical Priority Dispatch software should, at minimum, use the Emerging Infectious Disease Surveillance Tool for all callers reporting flu-like illness and consider activation of Card 36 when recommended by their local medical director or public health officials. Fire and EMS agencies should work with the medical director and/or public health officials to pre-plan their response if a caller answers positively to the screening questions.



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Selection of Personal Protective Equipment

The choice of PPE should cover all exposed skin but may vary depending upon a patient’s likelihood of having Ebola, symptoms, and extent of patient contact. Patients with a low likelihood of having Ebola, and/or are asymptomatic generally present less risk than a patient with recent travel to an area with Ebola, contact with an Ebola patient (or their remains), and/or presence symptoms

| PPE Item | High Risk | Low Risk |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Garment | <p>Full-body garment constructed of durable viral penetration resistant material and seams with sealable cover flap over closure:</p> <ul style="list-style-type: none"> - Coverall with integrated hood when worn with full facepiece respirator; or Coverall without hood when worn with hood-based or helmet-based powered air purifying respirator (PAPR) where hood provides sufficient overlap with garment, or where separate hood covers all portions of wearer’s head, face, and neck while providing sufficient overlap with garment and where hood material meets garment material viral-penetration resistance requirements - Preferred features include splash flaps on sleeves for covering the end of outer gloves and on legs for covering the top of footwear combined with a sock-like bootie extension of the coverall legs <p>Viral penetration resistant materials that are also “breathable” are preferred over non-breathable materials</p> <p>Acceptable alternative garments include chemical splash suits and ensembles for chemical, biological, radiological, and nuclear (CBRN) protection</p> | <p>Full body garment constructed of disposable or more durable viral penetration resistant material and seams with sealable cover flap over closure:</p> <ul style="list-style-type: none"> - Coverall with integrated hood; or - Coverall with separate hood also constructed of viral penetration resistant material and seams <p>Viral penetration resistant materials that are also “breathable” are preferred over non-breathable material</p> |
| Gloves | <p>Inner – Single use nitrile rubber inner examination glove (worn underneath coverall sleeve)</p> <p>Outer – Extended cuff 11 mil or thicker unsupported nitrile, neoprene, or other rubber glove without interior fabric or flocking (worn over coverall sleeve and taped in place if not integrated with suit sleeve)</p> | <p>Inner – Single use nitrile rubber inner examination glove (worn underneath coverall sleeve)</p> <p>Outer – Extended cuff single use nitrile rubber examination glove (worn over coverall sleeve and taped in place if not integrated with suit sleeve)</p> |



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| <p>Eye/Face Respiratory</p> | <p>Full facepiece (elastomeric) air-purifying respirator (APR) with P100 filters; or powered air purifying respirator (PAPR) with P100 filters with full face shield, helmet, or hood</p> <p>Acceptable alternative respirators include open-circuit SCBA and any CBRN respirator</p> <p>Tape may be used to seal around the respirator if no gasket or other interface is provided by coverall, suit or ensemble in order to integrate liquid-penetration resistant respirator with garment hood</p> | <p>Fluid-resistant N95 or greater filtering facepiece worn in conjunction with splash-rated, non-vented or indirect-vented goggles and splash-rated full face shield</p> <p>Tape may be used to seal hood around goggles or face shield if no gasket or other interface is provided by coverall, suit or ensemble to permit liquid-penetration resistant integration of these items with garment hood; the respirator should not be taped to the hood since this practice could affect the seal of the respirator against the wearer's face and degrade the respiratory protection</p> |
| <p>Footwear</p> | <p>Rubber boots that extend to at least lower calf; or footwear that incorporates viral-penetration barrier layer; or standard footwear that is covered by a footwear cover that extends beyond height of footwear constructed of viral penetration resistant footwear and that includes a durable wear surface</p> <p>If garment does not have sock-like bootie extension, then end of coverall legs opening must be taped over boots or over footwear covers worn on top of standard footwear; taping must be performed in a manner that permits full movement of wearer without causing strain on garment material</p> | <p>Footwear that incorporates viral-penetration barrier layer; or standard footwear that is covered by a footwear cover that extends beyond height of footwear constructed of viral penetration resistant footwear and that includes a durable wear surface</p> <p>If garment does not have sock-like bootie extension, then end of coverall leg openings must be taped over boots or over footwear covers worn on top of standard footwear; taping must be performed in a manner that permits full movement of wearer without causing strain on garment material</p> |



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Decontamination of Surfaces, PPE, and Waste

Surface Decontamination Measures:

- Responders cleaning surfaces that may be contaminated with the Ebola virus must be protected from exposure. Personnel must be protected from Ebola and the harmful effects of chemicals used for cleaning and disinfection.
- For contaminated surfaces, isolate the area until decontamination can be completed.
- Immediately clean and disinfect any visible surface contamination from blood, urine, feces, vomit, or body fluids by using a [disinfectant approved for use against the Ebola virus](#).
- If commercial disinfectants are not available, common household bleach may be used in 1:10 solution of bleach (sodium hypochlorite) and water (e.g., 1 cup bleach in 9 cups of water). Do not use full strength bleach.
 - **NEVER MIX CHEMICALS TOGETHER**
 - Spray or wipe bleach mixture onto the surface. The bleach solution must stay in contact with any body fluid for greater than 10 minutes before rinsing.
- For bulk spills of body fluids, cover the spill with an absorbent material (e.g., paper towel), then pour the bleach and water solution onto the saturated area. Let stand for greater than 30 minutes before removing the material.
 - Ensure adequate ventilation in areas where disinfection or decontamination is taking place.
 - Do not use pressurized air or water sprays that will aerosolize and spread infectious droplets or particles.

PPE Decontamination Measures:

- The decontamination process should start with first taking measures to avoid contact with body fluids or contaminants.
- Use common household bleach in 1:10 solution of bleach (sodium hypochlorite) and water (e.g., 1 cup bleach in 9 cups of water). A 1:100 bleach and water solution may be used on items susceptible to damage by bleach.
 - Do not use full strength bleach.
 - **NEVER MIX CHEMICALS TOGETHER**
 - **CAUTION: BLEACH MAY HARM SOME FABRICS, METAL SURFACES, AND SCBAs.**
 - Spray or wipe bleach mixture onto the PPE. The bleach solution must stay in contact with any body fluid for greater than 10 minutes before rinsing.
 - A 1:100 bleach and water solution must stay in contact with any body fluid for greater than 30 minutes before rinsing.
- Personnel should shower and change into clean clothes upon returning to quarters.
- Accidental skin exposures should be washed thoroughly with soap and water, alcohol-based disinfectants, or bleach wipes and reported immediately.

Decontamination Waste:

- Contaminated items and materials should be placed in a double bag, the bag sealed with tape, and then placed in a leak-proof container for disposal. Needles and sharps should be placed in a puncture-proof container.
- Waste should be disposed of by following the [CDC guidelines](#) and the [U. S. Department of Transportation's Hazardous Materials Regulations](#).



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Doffing Personal Protective Equipment (PPE)

Response personnel working incidents with patients exhibiting signs and symptoms of Ebola or other potentially infectious diseases should be trained and equipped with the recommended PPE. The training should include donning and doffing procedures that minimize the responder to exposure from any bodily fluids from the patient.

The doffing of contaminated (or potentially contaminated) PPE may occur at the incident scene and again at the hospital facility. To safely doff this PPE, several areas should be planned for:

1. **Decontamination Team:** The personnel contaminated should have assistance from a Decontamination Team whenever possible. This team can be from a second ambulance team, a local HazMat team or other trained and equipped resource.
2. **Decontamination Equipment:** Assemble the necessary equipment to perform effective Decontamination. See CDC guidelines for [PPE](#), [decontamination solutions](#), [decontamination methods](#), and [waste management](#). Contact time for the disinfectant is critical and should not be overlooked.
3. **Doffing PPE:** After the disinfectant and rinsing procedures have been completed (including the rising of gloved hands), remove any tape that may have been applied to ensure seam protection. It may be best to cut the disposable PPE (see [CDC PPE guidance](#)) off the responder rather than attempting to roll it down. This should minimize dispersion of any material and disinfectant remaining on the PPE. Cutting of the PPE from the back will allow the Decon Person to operate on the least contaminated area of the PPE.
4. **Respiratory Protection:** Respiratory protection should be removed after complete removal of the PPE garment cut away.
5. Inner gloves should be the last item of the protective ensemble to be removed by the responder.
6. All hard surface PPE items can be disinfected using the bleach solution with the proper contact time (minimum of 10 minutes).
7. All porous surface and disposable ensemble components must be handled as infectious waste, double bagged, containerized and disposed of properly. Local agencies should pre-plan disposal procedures that can include transporting the waste to the hospital, using contracted waste handling companies or other means.



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Additional Resources and Sources

Communications Resources

[Emerging Infectious Disease Surveillance Tool](#)

[Interim Guidance for EMS Systems and Public Safety Answering Points](#)

[Algorithm for 9-1-1 Public Safety Answering Points](#)

EMS Resources:

[Detailed EMS Checklist for Ebola Preparedness](#)

[Interim Guidance for EMS Systems and Public Safety Answering Points](#)

[Guidance on Air Medical Transport of Patients with Ebola](#)

[Safe Management of Patients with Ebola Virus Disease](#)

Hazardous Materials Management

[Cleaning and Decontamination of Ebola on Surfaces](#)

[Ebola Associated Waste Management](#)

[Transporting Infectious Substances](#)

Personal Protective Equipment Resources

[PPE Recommendations from the National Emerging Special Pathogens Training and Education Center](#)

[Guidance on PPE and Donning/Doffing Procedures](#)