

# EMS Infectious Disease Playbook Risk Based PPE Usage -

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# Current EMS Projects

- ▶ Today's training
- ▶ Partnering with EMS Office for Statewide Purchase PPE Project
- ▶ Partnering with Avera for Online PPE Training Video with free CEU's
- ▶ Partnering with EMS Office to fund SIM-SD
  - ▶ PPE Training
  - ▶ Narcan Training/Powdered Opiates
  - ▶ Stop the Bleed Tourniquet Training

# Risk Based PPE Usage: Objectives

- ▶ Identify PPE needs based on disease transmission risk categories:
  - ▶ Standard Precautions
  - ▶ Contact Precautions
  - ▶ Droplet Precautions
  - ▶ Airborne Precautions
  - ▶ Special Respiratory Precautions
- ▶ Name common contact, droplet and airborne spread diseases
- ▶ Understand difference between a surgical mask and a respirator
- ▶ Describe proper PPE donning and doffing procedures

# A Tiny Bit of Epidemiology

- ▶ Not all infections can be spread from person to person.
- ▶ **Infectious diseases** are caused by pathogenic microorganisms, such as bacteria, viruses, parasites or fungi
- ▶ **Contagious diseases** are infectious diseases that can be spread from person to person.
- ▶ **Mode of transmission** is how a disease is spread. Heavily dependent upon HOW the infectious agent leaves the body in a way that can spread infection.
  - ▶ Legionnaires disease is caused by a respiratory contact with a water-borne bacteria. Typically causes a severe pneumonia, but is not spread from person to person. The mode of transmission is the contaminated water, the bacteria don't leave the body in a way that causes infection to others.
- ▶ Mode of transmission determines PPE needs, i.e. "risk based PPE".

# EMS Infectious Disease Playbook

- ▶ Planning resource produced by HHS - ASPR-Tracie
- ▶ Released in 2017
- ▶ Available in PDF at <https://www.ems.gov/pdf/ASPR-EMS-Infectious-Disease-Playbook-June-2017.pdf>. Just Google “EMS Playbook”.
- ▶ PDF version has hyperlinks to more resources than you will probably ever be able to read.
- ▶ Approach is to present PPE on a continuum from Standard Precautions to EVD-VHF based on disease risk.

# EMS Playbook- Dispatch Considerations

- ▶ Starts with discussing risk assessment at the level of dispatch
- ▶ Gathering information about possible communicable disease:
  - ▶ Fever
  - ▶ Cough
  - ▶ Vomiting/Diarrhea
  - ▶ Travel (14-21 days)
- ▶ During specific outbreaks using more focused questions
  - ▶ Possibly limiting number of responders sent
  - ▶ Doorway Assessment upon arrival

# Standard Precautions

- ▶ Risk - Bloodborne pathogens. Diseases causing infectious drainage. Common sense protection against “germs”.
- ▶ Example Diseases
  - ▶ AIDS - Spread person-person, but infectious agent resides in the blood. Mode of Transmission is infected blood or semen.
  - ▶ Zika - Typically spreads Mosquito-Person. Infectious agent resides in the blood or semen. Mode of transmission is again blood or semen.
  - ▶ Anthrax- Spread from contact with infected animals. Pulmonary infections in people are not contagious, but cutaneous anthrax drainage can be.
  - ▶ Minor wound infections/sores, cellulitis.
- ▶ Gloves, handwashing, facial protection or gowns if manipulating airway or splash risk.

# Standard Precautions Cont.

- ▶ GOAL:
- ▶ Apply common sense base set of PPE against disease transmission based on risk
  - ▶ Typically hand hygiene and gloves
  - ▶ Add eye/facial protection for patients with respiratory symptoms during airway interventions
  - ▶ Gowns for potential splash exposures



# Contact Precautions

- ▶ EXAMPLES - Excessive wound drainage · MRSA · Vancomycin-resistant enterococci (VRE) · C. difficile · norovirus · other suspected infectious diarrhea
- ▶ GOAL - Provide impermeable barriers to infectious agents that are either that can easily be contracted or spread to other environments via fomites and surface contact
- ▶ NEW PPE -
  - ▶ Disposable fluid-resistant gown that protects the provider's legs; consider disposable fluid-resistant coveralls if there is a preference
- ▶ Hand hygiene, gloves included as part of standard precautions

# Contact Precautions

## ▶ TRANSPORT CONSIDERATIONS -

- ▶ Impermeable barrier in the presence of excessive wound drainage, fecal incontinence, or other discharges.

## ▶ AMBULANCE DECONTAMINATION

- ▶ Any visibly soiled surface must first be decontaminated using an EPA-registered hospital disinfectant
- ▶ Medical equipment (stethoscope, BP cuff, etc.) making patient contact should be disposable or cleaned and disinfected before use on another patient
- ▶ Other visibly contaminated equipment should similarly be cleaned and disinfected

# Droplet Precautions

- ▶ EXAMPLES - Meningitis · Streptococcal and many other causes of pneumonia · Pertussis · Rhinovirus · Seasonal Influenza · Strep Throat
- ▶ GOAL • Additional respiratory protection against inhalation of larger infectious droplets during direct patient care activities.
- ▶ NEW PPE - Surgical masks and possibly eye protection
- ▶ PATIENT CARE CONSIDERATIONS -
  - ▶ Provide a surgical mask for all patients with acute infectious respiratory symptoms who can tolerate it
  - ▶ Provide tissues for secretion control and encourage cough etiquette practices
  - ▶ Medical distancing
  - ▶ Nebulizers increase droplets

# Droplet Precautions

## ▶ TRANSPORT CONSIDERATIONS

- ▶ Consider ambulance airflow. Exhaust vent, driver compartment
- ▶ Increase ventilation by having air or heat on non-recirculating cycle and/or opening windows.

## ▶ AMBULANCE DECONTAMINATION (Same as contact precautions)

- ▶ Any visibly soiled surface must first be decontaminated using an EPA-registered hospital disinfectant
- ▶ Medical equipment (stethoscope, BP cuff, etc.) making patient contact should be disposable or cleaned and disinfected before use on another patient
- ▶ Other visibly contaminated equipment should similarly be cleaned and disinfected

# Airborne Precautions

- ▶ EXAMPLES - Measles · TB (suspected or confirmed pulmonary or laryngeal) · Chickenpox
- ▶ GOAL - Provide respiratory protection against inhalation of infectious aerosols (agents that remain infectious over long distances when suspended in the air).
- ▶ NEW PPE - Respirators for EMS (N-95)
- ▶ PATIENT CARE CONSIDERATIONS
  - ▶ Ensure strict adherence with standard precautions
  - ▶ Ask the patient to wear a surgical mask if they are able to tolerate it
  - ▶ Provide tissues for secretion control and encourage cough etiquette practices
  - ▶ Nebulizers, suctioning, intubation increase aerosols - Facial Protection

# Airborne Precautions

## ▶ TRANSPORT CONSIDERATIONS

- ▶ Notify the receiving hospital of the need for negative pressure room
- ▶ Consider ambulance airflow. Exhaust vent, driver compartment
- ▶ Increase ventilation by having air or heat on non-recirculating cycle and/or opening windows
- ▶ N95 if can't isolate cab of the ambulance
- ▶ Intubated should be ventilated with a with a HEPA filter on exhalation port

## ▶ AMBULANCE DECONTAMINATION (Same as contact precautions)

# Special Respiratory Precautions

- ▶ EXAMPLES - SARS · MERS · Novel influenza strains
- ▶ GOAL - Additional respiratory protection against inhalation of larger infectious droplets during direct patient care activities as well as impermeable barrier to reduce spread of highly pathogenic viruses on surfaces (standard + contact + airborne)
- ▶ NEW PPE - Standard + Contact + Airborne
- ▶ PATIENT CARE CONSIDERATIONS
  - ▶ Ensure strict adherence with standard precautions
  - ▶ Ask the patient to wear a surgical mask if they are able to tolerate it
  - ▶ Provide tissues for secretion control and encourage cough etiquette practices
  - ▶ Nebulizers, suctioning, intubation increase aerosols - Extra Caution

# Special Respiratory Precautions

## ▶ TRANSPORT CONSIDERATIONS

- ▶ Notify the receiving hospital of the need for negative pressure room
- ▶ Consider ambulance airflow. Exhaust vent, driver compartment
- ▶ Increase ventilation by having air or heat on non-recirculating cycle and/or opening windows
- ▶ N95 if can't isolate cab of the ambulance
- ▶ Intubated should be ventilated with a with a HEPA filter on exhalation port
- ▶ Have a plan for family members wishing to accompany the patient that prevents crew exposures to highly infectious diseases

## ▶ AMBULANCE DECONTAMINATION (Same as contact precautions)



# EVD/VHF Precautions

- ▶ EXAMPLES - Ebola · Marburg virus · Lassa fever · Crimean-Congo Fever
- ▶ GOAL - Provide maximal impermeable barrier and respiratory protection against highly pathogenic VHF viruses.
- ▶ New PPE - Just in time training
- ▶ State Plan
- ▶ Waste is considered Level A and requires special disposal
- ▶ Ambulance decon requires PPE

# Donning

- ▶ Personal items (e.g., jewelry [including rings], watches, cell phones, pagers, pens) should ideally be removed and stowed. Long hair should be tied back
- ▶ Inspect PPE prior to donning to ensure that it is in serviceable condition
- ▶ Perform hand hygiene with ABHR; allow hands to dry before donning gloves
- ▶ Put on first pair of gloves
- ▶ Put on gown or coverall Ensure cuffs of inner gloves are tucked under the sleeve
- ▶ Put on boot/shoe protectors
- ▶ Put on outer gloves. Ensure the cuffs are pulled over the sleeves
- ▶ Put on respirator. • N95 mold to nose
- ▶ Apply full face shield or goggles
- ▶ After donning, the integrity of the ensemble should be verified.

# Doffing

- ▶ PPE should be doffed in a designated removal area
- ▶ Place all PPE waste in a labeled, leak-proof biohazard bag.
- ▶ Inspect the PPE for visible contamination, cuts, or tears before removal. Disinfect any visible contamination with an EPA-registered hospital disinfectant wipe.
- ▶ Disinfect outer-gloved hands or replace with new gloves
- ▶ Inspect the inner glove outer surfaces for visible contamination, cuts, or tears. perform hand hygiene with ABHR on bare hands, and don a new pair of gloves
- ▶ Gown - Untie or gently break fasteners. Avoid contact with outer surface of gown during removal. Pull gown away from body, rolling inside out and touching only the inside of the gown.
- ▶ Coverall -Tilt head back to reach zipper or fasteners. Unzip or unfasten completely before rolling down while turning inside out. Avoid contact with outer surface of coverall during removal, touching only the inside of the coverall.
- ▶ Remove goggles or face shield sliding fingers under straps and sliding up and off away from face.
- ▶ Disinfect gloves
- ▶ Respirator • N95 respirator: Tip head slightly forward, remove by sliding fingers under the elastic straps and sliding them off the ears/head allowing the mask to fall away from the face being careful not to touch the front of the mask
- ▶ Disinfect gloved hands. Remove and discard gloves
- ▶ Perform hand hygiene

# Resources

- ▶ EMS Playbook
- ▶ CDC. (2007). 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings. This document provides infection control guidelines for healthcare settings across the continuum of care.
- ▶ CDC. (2015). Identify, Isolate, Inform: Emergency Medical Services (EMS) Systems and 9-1-1 Public Safety Answering Points (PSAPs) for Management of Patients Who Present with Possible Ebola Virus Disease (Ebola) in the United States.
- ▶ The National Institute for Occupational Safety and Health. (n.d.). Considerations for Selecting Protective Clothing used in Healthcare for Protection against Microorganisms in Blood and Body Fluids. This webpage provides considerations for the selection of PPE items based on their barrier properties and includes links to current standards and specifications for fluid-resistant and impermeable gowns and coveralls.