

## Infection Prevention Basics

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- **Expect to be routinely exposed to infectious agents.**
  - A commitment to employing basic infection prevention measures on every single incident will provide the simplest and best protection against infectious diseases.
  - All EMS Providers must be aware of well-known (Hepatitis B, influenza, etc.), as well as emerging/new pathogens (Avian Flu, SARS, etc.) that present risks to Providers.
- **Immunizations**
  - Immunizations are an extremely important weapon against infectious disease, and updated immunizations protect the provider and decreases overall disease transmission (“herd immunity”).
  - For healthcare workers, recommended immunizations include: *Hepatitis A & B, Measles, Mumps, & Rubella (MMR), Varicella (chickenpox), Tetanus, Diphtheria, & Pertussis (Tdap), & Influenza.*
- **Hand Washing**
  - Hands should be washed as soon as is feasible after each patient contact, the removal of gloves/PPE, and after cleaning all equipment.
  - Waterless, alcohol-based hand cleaners are an acceptable alternative to soap and water provided there is no gross organic material present.
- **Cleaning and Disinfection of Equipment and Work Areas**
  - First, Remove Gross Contamination.
    - Failure to remove organic material provides a continuing breeding ground for organisms.
  - Then, Disinfect any potentially contaminated surfaces:
    - After applying disinfectant, always permit the equipment to air dry. Wiping dry the wet disinfected surface will negate the effects of the agent and render it useless.

## Personal Protective Equipment (PPE)

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- Gloves:
  - Wear gloves during all patient interactions, and remove gloves after contact with a patient and/or the surrounding environment (including medical equipment).
  - **Never** wear the same pair of gloves for the care of more than one patient.
- Gowns
  - Wear a gown to protect skin and prevent contamination of clothing when contact with significant amounts of blood (e.g. childbirth/trauma) or other body fluids (e.g. diarrhea/vomitus) is anticipated.
- Respiratory/Mucous Membrane (Mouth, Nose & Eye Protection):
  - Respiratory protection should be considered with any patient presenting with an **acute febrile respiratory illness** (fever plus nasal congestion/rhinorrhea, sore throat, and/or cough).
  - Select masks/eye protection to protect mucous membranes during procedures and activities that are likely to generate splashes or sprays of blood, body fluids, secretions and excretions.

Standard Precautions = All Patient Interactions:

- Standard Precautions are intended to be applied to the care of all patients, regardless of the suspected or confirmed presence of an infectious agent.
- This is based on the principle that all blood, body fluids, secretions/excretions, non-intact skin, and mucous membranes may contain transmissible infectious agents
- Always conduct a self-check of your skin (particularly hands and exposed surfaces) prior to any potential patient contact. Identify and cover scrapes, wounds, or other non-intact surfaces with bandages.
- **Personal Protective Equipment (PPE)** is designed to stop the transmission of an infectious agent by preventing contamination of a Provider's skin, mucous membrane, or clothing. While it reduces the risk, PPE does not completely eliminate the possibility of infection, and is only effective if used correctly.
  - The application of various pieces of PPE during patient care is determined by the nature of the provider-patient interaction and the extent of anticipated blood, body fluid, or pathogen exposure.
  - It is often difficult to determine the appropriate level of protection/PPE needed in certain situations. An informed decision can't be made until a patient assessment is completed and/or a history is obtained. By then, it's too late! **When in doubt, always use maximal rather than minimal PPE.**
- Do not reuse gloves, masks, gowns or other pieces of PPE.
- Providers must be familiar with PPE application (*donning*) and removal (*doffing*) procedures.
- Always exercise caution in the removal of PPE to prevent inadvertent self-inoculation if the PPE has been contaminated with infectious materials, and dispose of PPE in an appropriate biohazard waste receptacle.

Contact Precautions = Standard Precautions (Gloves) + Gowns:

- Use in situations where contamination of the provider with blood or other bodily fluids may occur beyond just the providers' gloved hands--large amounts of diarrhea, vomitus, etc., or
- Use with a known infective organism that is transmitted by direct contact with secretions or bodily fluids or from environmental surfaces: I.e. any drug resistant organism, Clostridium difficile, Scabies, etc.

Procedure:

- Everyone involved in direct patient care should wear **clean gloves and gowns**.
- Gloves and gowns should be removed and placed in appropriate biohazard waste receptacle.
- Hands should be washed with soap and water upon completion of patient transfer.
- Consider additional protection (e.g. masks, face protection, goggles) depending on the patients symptoms or procedures done. (e.g. masks and eye protection for suctioning, intubation, or nebulized medication).

Droplet Precautions = Standard Precautions (Gloves) + Mask +/- Eye Protection:

- Droplet precautions should be employed for patients with *febrile* respiratory illness: Meningitis, Pertussis, Influenza, as well as common respiratory viruses (e.g. adenovirus and rhinovirus).

Procedure:

- Utilize pre-arrival information provided by dispatch to a possibly symptomatic patient (when applicable).
- Patient(s):
  - Option 1: Provide **surgical masks** to all patients with symptoms of a respiratory illness who can tolerate its placement.
  - Option 2: For patients who cannot wear a surgical mask (due to symptoms, required medical interventions, or refusal) consider application of oxygen via **non-rebreather face mask** to limit dissemination of airborne particles (in addition to any medical treatment being provided).
- Providers:
  - All providers should wear a **surgical mask** and adhere to Standard Precautions.
  - **Consider additional use of a gown and eye protection** if contact with bodily secretions or a contaminated environment is anticipated,
  - When performing **high risk respiratory procedures** (i.e. intubation, deep tracheal suctioning, nebulized respiratory treatments), use a **fitted N95 respirator** mask.
- Continue droplet precautions until it is determined that the cause of symptoms is not an infectious agent that requires precautions beyond standard precautions.

Airborne Precautions = Standard Precautions (Gloves) + N95 Mask:

- Airborne precautions should be employed when the infectious agent is spread via a vector which forms small particles that may remain airborne for an extended period of time: i.e. tuberculosis, measles, chicken pox, small pox and other pandemic illnesses when the exact mechanism of transmission is unknown.
- **Includes Standard Precautions, Contact Precautions and Droplet Precautions as outlined above.**

Procedure:

- Utilize pre-arrival information provided by dispatch to a possibly symptomatic patient (when applicable).
- Limit the number of EMS personnel who have contact with the patient.
- *Provider(s)*: Use a **fitted N95 mask** for all patient contact (and always perform a "fit check" by molding the mask to the face and checking for air leaks after donning).
- *Patient(s)*: Provide surgical masks or non-rebreather similar to "Droplet Precautions" (*above*) to all patients with symptoms of a respiratory illness who can tolerate its placement.
- Continue to use airborne precautions until it is determined that the cause of symptoms is not an infectious agent that requires precautions beyond standard precautions.

Sharps Hazards:

- The greatest risk for an occupational exposure to blood occurs with the use of needles and other sharp implements.
- The most common occupational blood exposure occurs when needles are **recapped**.
  - Needles that have contact with human tissue should never be recapped, re-sheathed, bent, broken, or separated from disposable syringes.
- Used needles and other sharps shall be disposed of in approved sharps containers as soon as possible.
- Providers should ensure that no sharp is used in a manner inconsistent with its intended purpose or attempt to circumvent the safety features of the device.

## Post Exposure Evaluation Procedure:

- If a Provider is exposed to blood, bodily fluids, or airborne particles, appropriate action must be taken.
- Many of these actions are time-dependent so it's important to initiate the reporting/evaluation process as soon as possible. If a provider has experienced a confirmed or suspected exposure to blood or other infectious material:
  - Withdraw from patient care as soon as it is appropriate--this is usually at the completion of care but may need to occur sooner in some cases.
  - Cleanse the wound (or irrigate the membranes) with the appropriate solution immediately after any exposure to a patient's bodily fluids.
  - Don't attempt to "milk" any needle stick injuries as this does not appear to be useful in removing source patient material.
  - **Report any suspected exposure to communicable diseases to your supervisor or the appropriate designated individual in your agency as quickly as possible.**
- In the case of a blood exposure due to needle stick (or other sharps), bodily fluid spray to mucous membrane, or patient blood contacting non-intact skin, the EMS Provider should travel to the closest appropriate facility for evaluation as soon as possible.