

PERSONAL PROTECTIVE EQUIPMENT RECOMMENDATIONS

Introduction:

It is the intention of this document to provide information and recommendations for the transport of patients with potentially infectious respiratory illnesses. The information contained within has been compiled from various state and federal health and safety agencies. The document stresses the concept of "respiratory etiquette" and the use of Personal Protection Equipment (PPE) recommendations for preventive measures for EMS providers.

The novel H1N1 Influenza virus continues to be identified in persons with respiratory infections in Texas. Since this is a novel virus most Texas residents and providers will not have immunity to this virus.

Human-to-human transmission of the novel flu can occur. This transmission is thought to occur in the same way as seasonal flu occurs in people, which is mainly person-to-person transmission through coughing or sneezing by people infected with the influenza virus and contact with environmental surfaces contaminated with secretions from infected persons.

EMS providers should be aware of the signs and symptoms of infectious respiratory diseases and the procedures necessary for protecting themselves. Not all respiratory infections are transmitted in the same way. Transmission can occur from direct or indirect contact, large droplets, or small droplet nuclei. The mode of transmission will depend on the etiological agent. Certain procedures can also impact transmission of infectious agents by producing aerosols. These are deemed "high risk respiratory procedures" and include intubation, extubation, deep tracheal suctioning, and nebulized respiratory treatments. More often in the field of emergency medicine, the etiologic agents of infections are unknown. Given this, it is paramount that good infection control practices be followed for contact with all patients.

It is important to ensure that PPE is used appropriately for patient conditions that present during the provision of care. Indiscriminate use of PPE could result in the rapid reduction in available inventories and with increased worldwide utilization, could prevent adequate restocking of necessary inventories from vendors. Additionally, there continue to be infectious agents within our response area that require strict adherence to appropriate PPE application (ie. Tuberculosis). Should the inventory of such PPE become significantly depleted, this will reduce its availability when truly needed.

Respiratory Etiquette Strategy

- Provide surgical masks to all patients with symptoms of a respiratory illness who can tolerate its placement. Provide instructions on the proper use and disposal of masks.
- For patients who cannot wear a surgical mask in addition to any medical treatment being provided, provide tissues and instructions on when to use them (i.e., when coughing, sneezing, or controlling nasal secretions), how and where to dispose of them, and the importance of hand hygiene after handling these materials.
- Continue to use droplet precautions to manage patients with respiratory symptoms until it is determined that the cause of symptoms is not an infectious agent that requires precautions beyond standard precautions.

Recommendations:

1. Personal Protection

- Utilize the incident information provided by Communications that alerts providers to a possible “ILI” patient.
- Providers should attempt to limit the number of personnel who have initial contact with the patient by conducting the “View from the Door.” Such a view can provide the necessary impression that will assist to determine the need for extensive medical intervention requiring multiple providers. Should such an impression not be clearly evident, only 1 first responder, in the appropriate PPE, should make patient contact and conduct the initial patient assessment.
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Adhere to Standard Precautions - the use of gown, gloves and eye protection if contact with bodily secretions or a contaminated environment is anticipated. Additionally, EMS providers must be familiar with PPE application (donning) and removal (doffing) procedures.

To better understand the risk for acquiring infection with novel influenza A (H1N1) virus among healthcare personnel (HCP) and the impact of infection

control recommendations, CDC solicited reports of infected HCP from state health departments. Twenty-six of the 48 (54%) HCP case reports included detailed information regarding risk factors. Of the 26 HCP, 13 (50%) were deemed to have acquired infection in a healthcare setting. Six of the 12 HCP (50%) with probable or possible patient-to-HCP acquisition reported working in outpatient settings during the week preceding symptom onset. **Among 11 HCP with probable or possible patient-to-HCP acquisition, none reported complete adherence to CDC's interim infection control recommendations** for care of patients with novel influenza A (H1N1) virus infection.³

All providers should be attentive to minimizing the transfer of any potentially infectious materials acquired during patient contact to medical equipment, stretchers, and other ancillary tools so as to lessen the chances of cross contamination and infection.

Additionally, exercise caution in the removal of your PPE to prevent inadvertent self-inoculation in the event the PPE has been contaminated with potentially infectious materials. Initiate hand hygiene as soon as feasible after doffing your PPE.

- Prior to transporting a patient with an infectious respiratory symptom, the door between the driver and the patient compartment should be closed. If the vehicle does not have a barrier between the cab and the patient compartment, the driver and front seat passenger should, if so directed, wear a surgical mask or higher.
 - The Driver should remove their gloves and utilize a waterless hand sanitizer prior to engaging the responsibilities of vehicle operation. If the Drive was involved in patient contact and utilized an N95 respirator mask, the mask should continue to be utilized during transport to ensure there is no inadvertent transfer of contamination from the mask to the driver or to the surfaces of the driver's compartment as well as assist in preserving the supply of N95 PPE.
 - Practice good hand hygiene. Hands must be properly washed before and after removal of gloves with warm soapy water or disinfected with a waterless hand sanitizer if a sink is not immediately available. Waterless hand sanitizer should be available in the ambulance for use during transport. Do not wait until you return to the ambulance station to practice hand hygiene.
- 2. Medical procedures**, such as nebulized respiratory treatments, that may re-aerosolize infectious material should only be done if medically necessary. It is recommended that mechanical ventilators, including BVM devices and suction equipment, should be fitted with a HEPA filter, if available, to prevent re-aerosolization. EMS agencies should contact

equipment manufacturers for recommendations on a HEPA filter. The highest level of respiratory protection should be worn during these procedures which is a fitted N95 respirator mask.

EMS Provider Health Precautions

Numerous federal and private health agencies and manufacturers strongly recommend the following to EMS agencies and providers:

- Fit testing for an N-95 or higher respirator masks and ensuring that each provider knows the manufacturer and model of the N-95 mask for which they were fit tested. **Each agency should be familiar with the appropriate methods necessary to achieve this recommendation.**
- Education on performing a "fit check" (conforming the mask to the face and checking for air leaks) after donning N95 respirators.
- Frequent and on-going education including, but not limited to infection control measures, PPE as well as proper personal/hand hygiene.

Conclusion:

It is vitally important that the EMS community get in the habit of using Standard Precautions, such as donning Personal Protective Equipment and placing a surgical mask on the patient when appropriate, while treating all patients with a suspected infectious respiratory disease. Changing routine habits to include these measures will allow EMS providers to protect themselves and their patients against known infectious diseases as well other new emerging diseases.

In addition to changing habits, providing on-going education on disease prevention, proper donning and removing of PPE, hand hygiene and hand washing techniques as well as equipment and vehicle cleaning will allow the EMS community to protect patients and itself against all types of infectious diseases.

For Additional Resources:

More information is available at the following web sites;

- www.dshs.state.tx.us
- www.cdc.gov
- www.pandemicflu.gov

References:

1. CDC Interim Guidance: Ground Emergency Medical Transport for Severe Acute Respiratory Syndrome Patients
2. CDC Updated Interim Guidance - Pre-Hospital Emergency Medical Care and Ground Transport of suspected Severe Acute Respiratory Syndrome Patients.
3. MMWR - Novel Influenza A (H1N1) Virus Infections Among Health-Care Personnel --- United States, April--May 2009
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5823a2.htm?s_cid=mm5823a2_e