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To: Ohio EMS providers, EMS agencies, and EMS medical directors
From: Carol A. Cunningham, M.D., FAAEM, FAEMS
State Medical Director

Date: March 23, 2020

RE: Patient Care Alternatives to Avoid Aerosol-Generating Procedures

Despite the COVID-19 pandemic, all of us in the EMS community are intimately aware of the fact that we have a duty to provide care to patients with all illnesses and injuries. The incidence of strokes, STEMIs, traumatic injuries, and other conditions does not automatically diminish during a pandemic.

Patients with reactive airway disease (e.g. asthma, bronchiolitis, COPD, croup) who present with wheezing as one of their associated symptoms will still require treatment for airway support and/or management despite the current need to avoid aerosol-generating procedures. In patients where the primary or concomitant cause of wheezing (e.g. pneumonia), those with fever must be assumed to potentially have acquired COVID-19 until proven otherwise. For afebrile patients, it is impossible in the prehospital setting to rapidly determine if a patient with reactive airway disease has acquired COVID-19 or not due to asymptomatic carrier states.

Nebulized bronchodilators should only be selectively administered in a negative pressure environment which, of course, is not available in the prehospital environment. Bronchodilators, such as albuterol and/or ipratropium, can be administered via a meter-dosed inhaler (MDI), with or without a spacer. The administration of bronchodilators via MDIs are within the Ohio EMS scope of practice and are as effective as the nebulized form. Unfortunately, MDIs are currently in short supply due to recent demand and due to the fact that many of these MDI devices are manufactured in China.

The administration of steroids is not recommended for patients with viral pneumonia and they may inhibit a person's ability to clear the COVID-19 virus. Yet, steroids are indicated for the treatment of asthma and COPD. As such, the administration of steroids should be based upon a patient's individual presentation and the guidelines cited within the protocols provided by the EMS medical director.

Mission Statement

"to save lives, reduce injuries and economic loss, to administer Ohio's motor vehicle laws and to preserve the safety and well being of all citizens with the most cost-effective and service-oriented methods available."

Due to these factors, EMS medical directors may need to explore alternate or additional medications for administration by EMS providers to relieve bronchoconstriction. Some of these medications, which were front-line years ago, have become infrequently used today. However, they remain effective and may be considered by EMS medical directors to temporarily authorize during this pandemic when some medication resources are not viable options. These medications include magnesium sulfate, epinephrine, and terbutaline. Sample dosing regimens for each of these medications are provided below. However, the local EMS medical director retains the authority, within the Ohio EMS scope of practice, to select the medications, dosing regimens, and selective patient population to which medications are administered for the respective protocols provided to the EMS agencies they oversee.

Magnesium sulfate - Adult: 2 grams IV over 20 min

Pediatric: 50 mg/kg IV up to 2 grams IV over 20 min

Epinephrine (1 mg/mL) - Adult: 0.3-0.5 mg IM every 20 min for 3 doses

Pediatric: 0.01 mg/kg IM up to 0.3-0.5 mg every 20 min for 3 doses

Terbutaline (1mg/mL) - Adult: 0.25 mg subcutaneously every 20 min for 3 doses

Pediatric: 0.01 mg/kg subcutaneously every 20 min for 3 doses

Patients with hypoxia should be provided with supplemental oxygen via a nasal cannula, face mask, or non-rebreather face mask. Oxygen administration via non-invasive positive airway pressure (CPAP or BiPAP) should be avoided.

For patients exhibiting signs and symptoms of respiratory failure, a HEPA filter should be attached any time that bag valve ventilation is required. The insertion of dual lumen or extraglottic airway devices are preferred over endotracheal tubes due to reduced aerosolization of airway secretions during the intubation process.

The provision of care for all patients in need will remain challenging during the COVID-19 pandemic. The national drug shortages that we have experienced over the past several years have often create greater hurdles for EMS compared to other sectors of healthcare providers due to the narrow list of alternative options that are suitable for the prehospital setting. It is our hope that the utilization of alternative medications to treat patients presenting with bronchoconstriction will mitigate the need for hospital admission, especially in an intensive care unit, during a time when our emergency department and hospital resources are taxed due to the COVID-19 pandemic.

Your flexibility, time, and commitment to additional training to fill these gaps are greatly appreciated by the Ohio Department of Public Safety, Division of EMS and, most importantly, by the patients under your care.