Trinity Health remains committed to providing safe and effective therapies for patients and colleagues. Patients that are COVID-19 positive or Patients Under Investigation (PUI) for COVID-19 often need inhaled medications. Inhaled medications can be delivered either by Metered Dose Inhalers (MDIs) or by nebulization. When delivered by nebulization, these can be aerosol generating.

Effective, March 25, 2020, we ask all RHMs to make the following changes in the delivery of inhaled medications:

As we transition to MDIs instead of nebulizers for select patients, we need to be good stewards of our resources as the supply of medications in MDI is limited.

For patients being seen in our Emergency Departments or Urgent Care Centers, there is great concern that we will need to use a single MDI per patient per visit and therefore exhaust our supply very quickly. Therefore, we have created the following guidance to be used by all RHMs for patients being seen in the Emergency Departments or Urgent Care Centers – AND – to implement / operationalize immediately.

1. Non-Ventilated Patients that are COVID-19 positive or are PUI may require inhaled medications.
   a. If the symptoms are mild and acute emergent treatment is not deemed to be necessary, avoid the use of any bronchodilators (inhaled or nebulized) unless the response to bronchodilators would change your disposition;
   b. If the patient does require acute emergent treatment of bronchospasm with bronchodilators, the use of MDIs is preferred when / if available.
      i. If the patient has their own inhaled bronchodilator with them, allow them to use that with appropriate instruction. Order should be written in the EHR specifying that the patient may use their own medication, and include the medication, dose, route, frequency. Colleagues need to follow site process to decontaminate / clean any inhalers brought from home prior to use. See cleaning / decontamination process below. EHRs are being modified to allow for easier ordering for the situation described above.
      ii. If the patient does not have their own inhaled bronchodilator, order inhaled bronchodilator for treatment in the ED using the following guidelines;
         1. Initial presentation of bronchospasm:
            a. Albuterol MDI 4 puffs X 1 with a valved holding chamber (VHC)r, if at all possible. Additional supplies of VHC are being acquired.
               i. If good therapeutic response after treatment and appropriate observation, discharge with bronchodilator prescription.
               ii. If patient does NOT achieve good therapeutic response, may repeat every 20 minutes for up to 4 doses.
            b. If inhaled bronchodilators are ineffective or cannot be used, treat as severe disease, and only then move towards nebulized therapy following appropriate protective guidelines in an Airborne Infection Isolation Room (AIIR)/ negative pressure room if available is desired.
c. If MDI is NOT available, nebulization may be used AND should be provided in an AIIR / negative pressure room, if available. Personnel providing this need to wear N95, eye protection or a PAPR, gown and gloves

d. When using nebulization AND an AIIR is NOT available, use of a private room and colleagues administering nebulization will use an N95 mask and eye protection or PAPR. If N95 and / or PAPR are not available, colleagues administering nebulization will use standard mask plus eye protection.

e. Not all patients are capable of using an MDI. This will require a case-by-case assessment involving at least the following factors:
   i. Patients must have the capacity to use a sufficient amount of inspiratory force in order to use MDIs
   ii. Patients must have the mental status and strength / capability to inhale medications from an MDI through a spacer.

2. Ventilated Patients that are COVID-19 positive or are PUI and require inhaled medications: use MDI when / if available - OR - nebulization Aerogen device if available.
   a. Patients receiving medications through the Aerogen device, which is a closed-system (enclosed within the ventilator circuit) high efficiency nebulizer, may continue with nebulized treatments.
   b. Patients NOT using Aerogen devices will need to have the MDI used with the appropriate spacer enclosed within the ventilator circuit.

3. There will be exceptions to the above, but these should be rare (e.g., transplant patients may require nebulizers, etc.).

4. Not all medications can be converted from nebulization to MDI - so again - this will need to be a case-by-case evaluation.

5. Patients who require corticosteroid therapy may need to be transitioned from inhaled to systemic therapy therefore negating the need for nebulization or MDI modalities.

6. Patients on "home maintenance" respiratory medications will also need to be evaluated for continuation based on medications formulary status.

When sending a patient home who will be needing bronchodilators:

1. E-prescribe whenever possible as many pharmacies are doing home delivery, and even if the patient needs to pick up the prescription, they will spend less time sitting in the public space.

2. Prescribe generic medications whenever possible to allow the pharmacist flexibility in filling the prescription.

3. Avoid prescribing multiple refills at this time until the general public supply is better quantified.

4. If the patient will be using a nebulizer at home, instruct them that it must be done in a separate room from the rest of the household, or if at all possible, in an outside location as long as that is away from other people in the household – especially if there are other family members with risk factors for severe COVID-19, e.g. cardiac or respiratory disease or immunocompromised.

   a. If outdoor conditions do not allow nebulizer treatment out of doors, recommend the patient perform this in a separate bedroom and, if available, sit near an open window with a small fan that is directed out through the window and leave fan on during and after the treatment for about 15-20 minutes.

Common Cannister Metered Dose Inhaler:

Until further notice, it is essential that we preserve the available supply of respiratory medications provided by MDI, when possible (and this will vary by medication), begin utilizing the common cannister model in the Emergency Departments and Urgent Care Centers. The common cannister model allows for cannisters of selected medications (i.e.: Albuterol, etc.) to be used on multiple patients with proper cleaning/decontamination after / before each use. Furthermore, the common cannister model requires that each patient use their own dedicated “spacer device”. Common cannister medications can be stored in Pyxis machines.

Cleaning/Decontamination Process for MDI used for Common Cannister:

Before and after EACH USE, clean the MDI with a 70% alcohol pad or pre-saturated, disposable surface disinfectant wipe (e.g. PDI AF3, Super Sani-Cloth). IF using alcohol swab – allow the alcohol to dry. If using a disinfectant wipe, be sure the disinfectant on the spacer remains wet for the appropriate contact time. Store the cleaned MDI in a plastic bag in the Pyxis ADC or other appropriate storage location per your RHMs guidance.

All of the above will require a case-by-case assessment necessitating collaboration and communication between physician, nursing, respiratory and pharmacy colleagues within the RHMs in order to deliver the high-quality care needed for all our patients during this challenging time.

In summary, the above changes are being made in order to reduce the risk of aerosolizing respiratory secretions induced through nebulization, which in turn will reduce the spread of COVID-19 to our colleagues and other patients we serve.