The current Severe Acute Respiratory Syndrome (SARS) situation has prompted us to review the use of aerosol delivery devices throughout the hospital. Nebulized medication administration will be changed to medication administration by metered dose inhaler (MDI) with Aerochamber, Aerotrach, or Aerochamber with mask. The following are guidelines only. The physicians will order dose and frequency of administration, which may be based on these guidelines.

It is recommended that a mask and protective eyewear be worn when providing care to a patient with a cough

PROCEDURE:

AEROSOLIZED BRONCHODILATORS AND CORTICOSTEROIDS.

1. Orders for aerosolized bronchodilators & inhaled corticosteroids will be automatically changed to Metered Dose Inhalers, MDI’s/puffers, by pharmacy 08:00-21:00 or Respiratory Therapy 21:00-08:00. Dosing guidelines -Appendix I.

2. All MDI’s will be administered using an aerochamber, aerotrach or aerochamber with mask. Three types of systems are available for use, listed below. Also refer to Appendix II
   a) Aerochamber with a mouth piece is used for co-operative patients that are able to make a seal with their mouth
   b) Aerochamber with mask is used for patients who are not able to co-operate and/or make a seal with their mouth around the mouthpiece
   c) Aerotrach is used for tracheostomy patients

   NOTE: Aerochambers are single-use items and are not to be reprocessed.

OTHER AEROSOLIZED MEDICATION

1. Some other aerosolized medication are not available in a MDI form. They include, but are not limited to: tobramycin, cyclosporin, riboviran, amphoterician, pentamidine, morphine.

2. If any of these medications are prescribed for patients, pharmacy staff must be notified.

3. Pharmacy in conjunction with the MD will assess whether these medications are required or may be delivered via an alternate route ie. Intravenous.
4. Any aerosolized medication deemed required by pharmacy and MD will be administered using a nebulizer with a filter. Refer to Appendix III. As per infection control, the preference would be for any aerosolized medications to be administered in a single patient room or in a HEPA filter tent.

5. Equipment used for aerosolized medication delivery will be changed Q24 hours.

A mask and protective eyewear is recommended for administration of aerosolized medication via nebulizer with filter.

**NON MDI MEDICATION DELIVERY**

<table>
<thead>
<tr>
<th>DRUG</th>
<th>MODE OF ADMINISTRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobramycin</td>
<td>Nebulizer and filter, Preference- single room or HEPA filter tent.</td>
</tr>
<tr>
<td>Pentamidine</td>
<td></td>
</tr>
<tr>
<td>Amphitherican</td>
<td></td>
</tr>
<tr>
<td>Ribroviran</td>
<td>Administer according to existing protocols</td>
</tr>
</tbody>
</table>

NOTE: Respiratory Therapy Department staff is available and will act as a resource 24 hours per day.

**GUIDELINES:**

1. For Acute Asthma exacerbation or unresponsive bronchospasm, MDI with aerochamber will be used, but more frequent dosing and monitoring is required. Please call the RT for assistance.
   a) First line treatment for asthmatics is salbutamol. Ipratropium bromide may be used in conjunction with salbutamol.
   b) The number of puffs will depend on the patient’s symptoms and response to treatment.
   c) Peak flow monitoring will remain the benchmark to monitor patient’s symptoms and response to treatment.
   d) Many patients will require 4 – 8 puffs Q15 Minutes up to 20 –40 puffs.
   e) In some cases it may be necessary to give 1 puff Q30 – 60 Seconds up to 20 puffs.
   f) Once the patient is stable, continue to give the usual equivalent dosage of puffs with the same frequency that would normally be given with aerosol therapy.
   g) It is vital that metered dose inhalers be given properly to ensure proper dose and distribution of drug. An Aerochamber must be used.
   h) Orders for aerosol therapy will automatically be substituted with metered dose inhaler as outlined in the UHN formulary.
References:
Canadian Medical Association, Canadian asthma consensus guideline, 1999
British thoracic Society: Guidelines on the management of asthma Thorax 1993; 48
MSH Hospital Respiratory Therapy Department
## APPENDIX 1

<table>
<thead>
<tr>
<th>DRUG</th>
<th>AEROSOL DOSE</th>
<th>MDI Non ICU (Aerochamber Dose)</th>
<th>MDI Dose for ICU (mechanically ventilated Patients)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salbutamol sulphate</td>
<td>5 mg (1.0 cc)</td>
<td>4 puffs</td>
<td>8 puffs</td>
</tr>
<tr>
<td>Ipratropium</td>
<td>500 mcg. (2.0 cc)</td>
<td>4 puffs</td>
<td>8 puffs</td>
</tr>
<tr>
<td>Combivent</td>
<td>N/A</td>
<td>4 puffs</td>
<td>8 puffs</td>
</tr>
</tbody>
</table>
APPENDIX II

If patient is able to make a good seal with mouth

For patients with a Tracheostomy

If patient is NOT able to make a good seal with mouth
APPENDIX II Cont…

Instructions for MDI and Aerochamber use

1. Shake MDI
2. Insert MDI into aerochamber
3. Ask patient to exhale fully
   a) Place aerochamber in patient’s mouth and ask patient to close lips tightly to provide a tight seal.
   or
   b) Place mask over patient’s nose and mouth apply slight press to provide a seal.
   or
   c) Attach AeroTrach to the patient’s Tracheostomy tube.
4. Depress MDI cannister
   a) Ask patient to take 1 large breath in from aerochamber and hold their breath for 5-10 seconds
   or
   b) If patient is unable to take one large breath hold the aerochamber in place until the patient has taken 5 breaths
5. Have patient exhale slowly
6. Wait 30 seconds between puffs
7. Repeat

Remember to shake MDI between each puff
APPENDIX III

If aerosolized medication is deemed necessary by Pharmacy and MD then a nebulizer and filter will be used.

**Patient must keep the mouthpiece in their mouth during the entire treatment.**

- Staff should wear a mask and protective eyewear
- Attach small bore oxygen tubing to the flowmeter
- Place mouthpiece in the patient’s mouth
- Set flow meter to 6-10 l/min.
- Patient must keep the mouth piece in their mouth during the entire treatment. If the patient needs to cough or remove the mouth piece, turn the flow meter off to stop the aerosol production
- Dispose of equipment Q 24 hours

As per infection control, the preference would be for any aerosolized medications to be administered in a single patient room or in a HEPA filter tent.