Purpose:

To establish guidelines for the appropriate use of therapeutic oxygen and medical air delivery devices in all Fraser Health facilities.

1. Background

Fraser Health has identified incidents where patient/client/residents ("clients") requiring oxygen have been inadvertently attached to a medical air flow meter delivery devices for treatment, resulting in adverse client outcomes. To respond to this area of potential harm to FH clients, the Quality Council has supported the recommendations to:

- Establish criteria for specific use of medical air when oxygen use is contraindicated
- Remove all medical air flow meters from patient care areas for general use and provide medical air delivery devices only for patients who meet medical criteria for its use
- Establish oxygen as the default gas for medication administration or to provide humidification

2. Definitions

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Air Flow Meter</td>
<td>Medical Air flow meter used for the administration of medical air from a medical air pipeline</td>
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<tr>
<td>MDI</td>
<td>Metered Dose Inhaler used for the administration of respiratory medications</td>
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<tr>
<td>Spacer</td>
<td>Device used in conjunction with an MDI to improve the administration of medications</td>
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<tr>
<td>Medical Air Delivery Device</td>
<td>A low flow device to deliver low flow air from a medical air pipeline. These devices will replace the current medical air flow meters (see Appendixes 1 &amp; 2).</td>
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3. Related Resources

See unit / area / site procedure for correct use of MDI and Spacer.
4. APPLICATION PARAMETERS

Primary application of medical air has been for the administration of medication solutions (e.g. Salbutamol, Ipratropium Bromide (e.g. Ventolin, Atrovent, etc.) via nebulizer to patients. Other uses have been for long term tracheostomized patients requiring humidity but no oxygen.

The protocol is applicable to all sites and sectors in Fraser Health. If there are no contraindications to the use of low oxygen it will be the default for medication administration and long term humidification requirements will be reviewed on a case-by-case basis using the approved clinical criteria.

5. ASSESSMENT & CONDITION/DISORDER DIAGNOSIS

Assessment:
- Client need for humidification
- Client need for medication via nebulizer versus MDI (with spacer)
- Respiratory history and present status including airway source/support (e.g. a tracheostomy), work of breathing (respiratory rate, breath sounds, bronchospasm, etc.)
- Medication history related to respiratory status, including any previous treatment with Bleomycin

Indications for use of medical air delivery device:
1. Use of medical air for the administration of a nebulized medication applies to clients that meet any of the following criteria and where the use of an MDI with spacer is not appropriate:
   - Patients at risk for hypoventilation due to chronically elevated pCO₂, (i.e. severe COPD)
   *Note: Patients with chronic CO₂ retention Oxygen contraindication are extremely rare.
   - Previous treatment with Bleomycin

2. Use of medical air for the administration of continuous humidity for patients with long term tracheostomy where oxygen is not required or might be considered harmful to the client.

If, in the application of the approved criteria the client should not receive their treatment powered by oxygen the physician/nurse/RT can assess the most appropriate air source to be used (i.e. MDI vs. medical air vs. small compressor).
6. INTERVENTIONS

1. Assess client and determine need for medical air
2. Review Medical Air Use Criteria (see above and Appendix 3)
3. Administer humidification with oxygen if no contraindications
4. Administer medication via MDI and spacer if appropriate
5. If client meets Medical Air criteria, obtain device from designated area at your site, and administer medication at 6 – 10 L/min.
7. If medical air use required, ensure device is returned to designated area when no longer required.

See Appendix 1: Oxygen and “Old” Medical Air Flow Meters Photos
Appendix 2: “New” Medical Air Delivery Device Photo
Appendix 3: Determining Oxygen vs Medical Air Delivery Device Use

7. CLIENT/STAFF EDUCATION/DISCHARGE INFORMATION

- Staff may require comprehensive information / rationale for use of oxygen vs. medical air delivery device use.
- Client / family and health care professionals/providers may require education/orientation on the use of MDI with spacer.

8. DOCUMENTATION

- Client assessment
- Rationale for medical air valve use
- Date & time air meter obtained and initiated
- Client response
- Date and time air delivery device removed

9. CLINICAL OUTCOMES

- The negation of adverse events/harm to clients through the inadvertent use of medical air
- Client receives necessary humidification to prevent discomfort and skin breakdown
- Client receives medications via the appropriate delivery system
10. REFERENCES

Calgary Health Region. Air-Oxygen Misconnections (AOMs) in the CHR, Briefing Document. Author: June 2008. Used with permission.


11. APPENDICES

Appendix 1: Oxygen and “Old” Medical Air Flow Meter

NOTE: the medical air flow meter device below will be removed

Appendix 2: New Medical Air Delivery Device

NOTE: If client needs meet Medical Air Use criteria, the following air flow delivery device MUST be obtained from, and returned to, the designated area at your site.
Appendix 4: Determining Oxygen vs Medical Air Use

Assess Client and determine need for Medical Air

For Nebulized Medication

Assess Ability to use MDI with Spacer

NO

Deliver Medication via MDI with Spacer

YES

Use Oxygen to Deliver Medication or Long-Term Humidity

Review Criteria for Medical Air Use

Criteria for use of Medical Air Flow Device:

1. Use of medical air for the administration of a nebulized medication applies to clients that meet any of the following criteria and where the use of an MDI with spacer is not appropriate:
   a. Patients at risk for hypoventilation due to chronically elevated pCO₂ (i.e. severe COPD)
   *Note: Patients with chronic CO₂ retention Oxygen contraindication are extremely rare.
   b. Previous treatment with Bleomycin

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