RESPIRATORY THERAPY CONSULT SERVICE

A survey conducted at The Cleveland Clinic Foundation in 1987 demonstrated that approximately 25% of Respiratory Therapy treatments were ordered inappropriately, that is, either there were no indications for therapy or the wrong therapy was selected. In an attempt to remedy this situation and improve patient care, the Respiratory Therapy Consult Service has been created to assist the physician with evaluating patients’ respiratory care needs, determining the indications for respiratory therapy, and selecting the appropriate modalities.

This booklet is designed to inform you about the procedure for ordering a Respiratory Therapy Consult, the process (algorithms) used to determine specific therapies, the evaluation form used in the charts, and the re-evaluation process. If you have any questions regarding this service please feel free to ask any of the therapists or call Respiratory Therapy at 45797 and talk with a Supervisor or the Education Coordinator.
RESPIRATORY THERAPY CONSULT SERVICE
NEW EVALUATIONS

A. A physician may write an order for a Respiratory Therapy Consult by,
   1. Writing on a Physician Order Form
   2. Using the Computer Physician Order Entry (CPOE) system

B. Respiratory Therapy Consults are provided for all patients for whom respiratory therapy
   orders are written with the exceptions of:
   1. Post-Cardiac surgery patients
   2. Patients admitted to the short stay unit, unless they are admitted to the hospital.

C. When a physician writes an order for a Respiratory Therapy Consult:
   1. An evaluation will be performed according to the Respiratory Therapy Consult
      Service (RTCS) standardized evaluation guidelines and a care plan written.
   2. Discussion between the physician and a Respiratory Therapist concerning the
      rationale for therapy is encouraged.
   3. The RTCS care plan (which will include physician orders for specific medications)
      will be followed until the indications for therapy are resolved.
   4. During the course of therapy, the physician will be called if the patient’s clinical
      status worsens, or if an adverse event occurs.
   5. Physician written medication orders will be followed for 24 hours and the patient
      reassessed. If therapy is not indicated at this time, the physician will be contacted
      and asked to discontinue treatment.
   6. Short-term orders (orders < 24 hour duration) for a single modality (e.g., oxygen,
      aerosol) will be followed without generating a Respiratory Therapy Consult Service
      (RTCS) evaluation.

For questions:

Please PAGE #23406 or call ext. 45797

RE-EVALUATIONS

A. Daily assessment will be made by the Therapist treating the patient and if changes are
   indicated, they will be presented during Consult Rounds with a Supervisor or a Clinical
   Specialist. If the changes are in accordance with the Consult Service guidelines/algorithms,
   they will be instituted at this time.

B. Changes will be recorded in our management information system (MediServe) and will be
   available for review in the hospital EPIC system.
CARE PLAN PROCESS

STEP 1
Perform patient evaluation using evaluation guidelines. Determine appropriate Triage number.

STEP II
Determine indications and related therapy using indication guideline sheet.

STEP III
Follow appropriate therapy flow sheet (algorithm):
   a. aerosol therapy
   b. hyperinflation therapy
   c. bronchopulmonary hygiene
   d. oxygen therapy

STEP IV
Write care plan to include:
   a. therapy
   b. frequency
   c. indications
   d. objectives
**THE CLEVELAND CLINIC FOUNDATION**
**DEPARTMENT OF PULMONARY DISEASE**

**RESPIRATORY THERAPY EVALUATION**

Date: ______ / ______ / ______  
Age: ____________  
Time: ____________  
Ht.: ____________  
Diagnosis: ____________________________________________  
Respiratory Therapist: ________________________________

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### CHART ASSESSMENT

<table>
<thead>
<tr>
<th>Clinical Findings</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulmonary Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(-) History Smoking history</td>
<td></td>
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<tr>
<td>(&lt; 1 pk a day)</td>
<td></td>
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<tr>
<td>Smoking history</td>
<td></td>
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<tr>
<td>(&lt; 1 pk a day)</td>
<td></td>
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<tr>
<td>Smoking history</td>
<td></td>
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<tr>
<td>≥ 1 pk a day</td>
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<tr>
<td>Pulmonary impairment (acute or chronic)</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Severe or chronic with exacerbation</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

| Surgical Status            |   |   |   |   |   |        |
| No surgery                 |   |   |   |   |   |        |
| General surgery            |   |   |   |   |   |        |
| Lower abdominal             |   |   |   |   |   |        |
| Thoracic or upper abdominal |   |   |   |   |   |        |
| Thoracic with pulmonary disease |   |   |   |   |   |        |

| Chest X-ray                |   |   |   |   |   |        |
| Clear or not indicated     |   |   |   |   |   |        |
| Chronic changes or x-ray pending |   |   |   |   |   |        |
| Infiltrates, atelectasis or pleural effusions |   |   |   |   |   |        |
| Infiltrations in more than one lobe |   |   |   |   |   |        |
| Infiltrate + atelectasis ± pleural effusion |   |   |   |   |   |        |

**LAB TEST:**  
Date: ______ / ______ / ______  
WBC _____ Hb _____ Ptts _____  
Date: ______ / ______ / ______  
pH _____ PaCO2 _____ PaO2 _____ HCO3 _____ Sat / FiO2 _____

**PULMONARY FUNCTION TEST:**  
SpO2 / FiO2 _____  
Vital Signs:  
HR _____ BP _____ RR _____

**Minimal Pred. VC _____**  
VC _____ PEAK FLOW _____  
**TEMPERATURE (24 hr max)_____**

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### PATIENT ASSESSMENT

<table>
<thead>
<tr>
<th>Clinical Findings</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respiratory Pattern</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Regular pattern RR 12-20</td>
<td></td>
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<tr>
<td>Increased RR 21-25</td>
<td></td>
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<tr>
<td>Dyspnea on exertion, irregular pattern RR 26-30</td>
<td></td>
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<td></td>
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<tr>
<td>Decreased vital capacity* RR 31-35</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Severe SOB, use of accessory muscles RR &gt; 35</td>
<td></td>
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<td></td>
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<tr>
<td>Mental Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alert, oriented, cooperative</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lethargic, follows commands</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confused, does not follow commands</td>
<td></td>
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<tr>
<td>Obtunded</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Comatose</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Breath Sounds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clear to auscultation</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Decreased unilaterally</td>
<td></td>
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</tr>
<tr>
<td>Decreased bilaterally</td>
<td></td>
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</tr>
<tr>
<td>Cracksles in the bases</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Wheezing and/or rhonchi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cough Effectiveness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong, spontaneous, non-productive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strong, productive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weak, non-productive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weak, productive or weak with rhonchi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No spontaneous cough or may require suctioning</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of Activity</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambulatory</td>
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<td></td>
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<tr>
<td>Ambulatory with assistance</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Temporarily Non-ambulatory</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Bed rest, able to position self</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bed rest, unable to position self</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Oxygen required for SpO2≥92%</td>
<td>No Oxygen</td>
<td>1-3 Liters</td>
<td>4-6 Liters</td>
<td>&gt; 50% &lt;100%</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

**Total Points**

---

*VC ≤ to minimal predicted:  
Predicted Ideal Body Weight  
(males: 50 + 2.4 x inches > 60)  
(females 45 + (2.4 x inches > 60)  
Multiply above ideal body wt. x 15cc for min. pred. VC

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<table>
<thead>
<tr>
<th>TRIAGE 1</th>
<th>TRIAGE 2</th>
<th>TRIAGE 3</th>
<th>TRIAGE 4</th>
<th>TRIAGE 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;20</td>
<td>(16-20)</td>
<td>(11-15)</td>
<td>(6-10)</td>
<td>(0-5)</td>
</tr>
</tbody>
</table>

---

PWO 7197 Rev. 7/06
MINIMUM PREDICTED VOLUMES

### Women

<table>
<thead>
<tr>
<th>hgt</th>
<th>ibw</th>
<th>pred</th>
</tr>
</thead>
<tbody>
<tr>
<td>4'9&quot;</td>
<td>38</td>
<td>.570</td>
</tr>
<tr>
<td>4'10&quot;</td>
<td>40.4</td>
<td>.606</td>
</tr>
<tr>
<td>4'11&quot;</td>
<td>42.6</td>
<td>.639</td>
</tr>
<tr>
<td>5'0&quot;</td>
<td>45</td>
<td>.675</td>
</tr>
<tr>
<td>5'1&quot;</td>
<td>47.4</td>
<td>.711</td>
</tr>
<tr>
<td>5'2&quot;</td>
<td>49.8</td>
<td>.747</td>
</tr>
<tr>
<td>5'3&quot;</td>
<td>52.2</td>
<td>.783</td>
</tr>
<tr>
<td>5'4&quot;</td>
<td>54.6</td>
<td>.819</td>
</tr>
<tr>
<td>5'5&quot;</td>
<td>57</td>
<td>.855</td>
</tr>
<tr>
<td>5'6&quot;</td>
<td>59.4</td>
<td>.891</td>
</tr>
<tr>
<td>5'7&quot;</td>
<td>61.8</td>
<td>.927</td>
</tr>
<tr>
<td>5'8&quot;</td>
<td>64.2</td>
<td>.963</td>
</tr>
<tr>
<td>5'9&quot;</td>
<td>66.6</td>
<td>.999</td>
</tr>
<tr>
<td>5'10&quot;</td>
<td>70</td>
<td>1.05</td>
</tr>
<tr>
<td>5'11&quot;</td>
<td>72.4</td>
<td>1.08</td>
</tr>
<tr>
<td>6'0&quot;</td>
<td>74.8</td>
<td>1.12</td>
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</table>

### Men

<table>
<thead>
<tr>
<th>hgt</th>
<th>ibw</th>
<th>pred</th>
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<tbody>
<tr>
<td>5'5&quot;</td>
<td>62</td>
<td>.930</td>
</tr>
<tr>
<td>5'6&quot;</td>
<td>64.4</td>
<td>.968</td>
</tr>
<tr>
<td>5'7&quot;</td>
<td>66.8</td>
<td>1.00</td>
</tr>
<tr>
<td>5'8&quot;</td>
<td>69.2</td>
<td>1.03</td>
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<td>5'9&quot;</td>
<td>71.6</td>
<td>1.07</td>
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<tr>
<td>5'10&quot;</td>
<td>74</td>
<td>1.11</td>
</tr>
<tr>
<td>5'11&quot;</td>
<td>76.4</td>
<td>1.14</td>
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<td>6'0&quot;</td>
<td>78.8</td>
<td>1.18</td>
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<td>6'1&quot;</td>
<td>81.2</td>
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<td>6'2&quot;</td>
<td>83.6</td>
<td>1.25</td>
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<tr>
<td>6'3&quot;</td>
<td>86</td>
<td>1.29</td>
</tr>
<tr>
<td>6'4&quot;</td>
<td>88.4</td>
<td>1.32</td>
</tr>
<tr>
<td>6'5&quot;</td>
<td>90.8</td>
<td>1.36</td>
</tr>
<tr>
<td>6'6&quot;</td>
<td>93.2</td>
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<td>6'7&quot;</td>
<td>95.6</td>
<td>1.43</td>
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<tr>
<td>6'8&quot;</td>
<td>98</td>
<td>1.47</td>
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</table>
INDICATION GUIDELINES

Indications

A. Aerosol Therapy
   1. bronchospasm (bronchodilator)
   2. history of bronchospasm (beta agonist, anti-cholinergic, steroid)
   3. home regimen
   4. physician order
   5. proteinaceous secretions (mucolytic)
   6. inflammation, mucosal edema (steroid, vasoconstrictor)

B. Bronchopulmonary Hygiene
   1. productive cough
   2. history of mucus producing disease
   3. rhonchi on auscultation
   4. patient is unable to deep breathe and cough spontaneously

C. Hyperinflation Therapy
   1. atelectasis
   2. upper abdominal or thoracic surgery, or COPD & surgery
   3. restrictive disease associated with quadriplegia and, or dysfunctional diaphragm

D. Oxygen Therapy
   1. $\text{PaO}_2 < 65$ torr on room air
   2. $\text{SpO}_2 < 92\%$ on room air
   3. clinical signs of hypoxemia*
   4. chest pain with cardiac history
   5. home $\text{O}_2$
   6. post-op care

NOTE: For acute symptoms of hypoxemia or bronchospasm associated with tachycardia, tachypnea, or decreased oxygen saturation, treat the patient with the appropriate oxygen device or a bronchodilator via a SVN first, before completing the entire evaluation process. Bronchodilators may be given q2-q4, ATC and PRN x 24 hours until symptoms subside. In such an acute situation, any immediate physician orders will be followed until a complete RTCS evaluation has been made.

*Increased respiratory rate, increased pulse rate, diaphoresis, confusion, cyanosis
## FREQUENCIES (Guidelines)

### A. Aerosols

<table>
<thead>
<tr>
<th>Indications</th>
<th>Triage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe SOB, wheezing, unable to sleep</td>
<td>1 &amp; 2</td>
</tr>
<tr>
<td>Moderate SOB, wheezing</td>
<td></td>
</tr>
<tr>
<td>Q2 to Q4, ATC, PRN*</td>
<td></td>
</tr>
<tr>
<td>QID &amp; PRN at night</td>
<td></td>
</tr>
<tr>
<td>(Q 12 hr. for Serevent)</td>
<td></td>
</tr>
<tr>
<td>Hx of asthma, mild wheezing, or facilitate</td>
<td>3</td>
</tr>
<tr>
<td>Secretion removal</td>
<td></td>
</tr>
<tr>
<td>PRN Q 6</td>
<td>4</td>
</tr>
<tr>
<td>Intermittent wheezing</td>
<td></td>
</tr>
</tbody>
</table>

### B. Bronchopulmonary Hygiene

<table>
<thead>
<tr>
<th>Indications</th>
<th>Triage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copious secretions, SOB, unable to sleep, suspect mucus plug</td>
<td>1</td>
</tr>
<tr>
<td>Q4 ATC</td>
<td></td>
</tr>
<tr>
<td>QID &amp; PRN at night</td>
<td></td>
</tr>
<tr>
<td>Moderate amounts of secretions</td>
<td>2</td>
</tr>
<tr>
<td>TID</td>
<td></td>
</tr>
<tr>
<td>Small amounts of secretions + poor cough, history of secretions</td>
<td>3</td>
</tr>
<tr>
<td>Q shift WA</td>
<td></td>
</tr>
<tr>
<td>Patient unable to deep breathe &amp; cough spontaneously</td>
<td>4</td>
</tr>
</tbody>
</table>

### C. Hyperinflation Techniques**

<table>
<thead>
<tr>
<th>Indications</th>
<th>Triage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients with severe atelectasis, + low PaO2</td>
<td>1</td>
</tr>
<tr>
<td>Q4 WA &amp; PRN</td>
<td></td>
</tr>
<tr>
<td>Patients at high risk for, or with persistent atelectasis</td>
<td>2</td>
</tr>
<tr>
<td>QID</td>
<td></td>
</tr>
<tr>
<td>Patients at risk for developing atelectasis</td>
<td>3</td>
</tr>
<tr>
<td>TID</td>
<td></td>
</tr>
<tr>
<td>Prevention of atelectasis</td>
<td>4</td>
</tr>
<tr>
<td>Q shift, WA</td>
<td></td>
</tr>
<tr>
<td>Patients able to perform well on their own</td>
<td>5</td>
</tr>
<tr>
<td>Instruct, D/C, video follow-up</td>
<td></td>
</tr>
</tbody>
</table>

### D. Pulse Oximetry ***

<table>
<thead>
<tr>
<th>Indications</th>
<th>Triage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unstable patients</td>
<td>1</td>
</tr>
<tr>
<td>Continuous until stable, then Q4 + PRN in between</td>
<td></td>
</tr>
<tr>
<td>Low PaO2 with variances</td>
<td>2</td>
</tr>
<tr>
<td>PRN</td>
<td></td>
</tr>
<tr>
<td>To titrate FiO2</td>
<td>3, 4, or 5</td>
</tr>
<tr>
<td>D/C pulse oximetry</td>
<td></td>
</tr>
<tr>
<td>Daily x 2 days</td>
<td></td>
</tr>
<tr>
<td>If, after titration, SpO2 remains at least 92%, D/C pulse oximetry</td>
<td>4 or 5</td>
</tr>
</tbody>
</table>

**Note:**
- *If patient requires more frequent aerosols, please contact supervisor or work leader.*
- **IS and PEP must be performed by patient on their own Q 1 hr WA.**
- ***Patients not on O₂, with SpO₂ ≥ 92% should have pulse oximetry DC’d and restarted only when clinical signs indicate a need for O₂.*

PRN orders (except for oximetry or suctioning) must always accompany a frequency - e.g. Aerosol Q4 WA and PRN.
THE CLEVELAND CLINIC FOUNDATION
DEPARTMENT OF PULMONARY DISEASE

RESPIRATORY THERAPY
CONSULT/EVALUATION

Your patient has been evaluated by the Respiratory Therapy Consult Service. Based on the patient's clinical indicators, the Care Plan designated below will be implemented.

Date of Evaluation: ____________________  Allergies: ____________________

Time of Evaluation: ____________________  Diagnosis(es): ____________________

### CLINICAL INDICATIONS

<table>
<thead>
<tr>
<th>Post Thoracic Surgery Protocol</th>
<th>Aerosol Therapy</th>
<th>Broncho/Pulmonary Hygiene</th>
<th>Hyperinflation</th>
<th>Oxygen Therapy</th>
<th>Respiratory Monitoring</th>
<th>Suctioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>q bronchospasm</td>
<td>q DPI</td>
<td>q productive cough</td>
<td>q atelectasis</td>
<td>q SpO2 &lt; 92% or PaO2 &lt; 65 torr on room air</td>
<td>q O2 titration (pulse ox.)</td>
<td>q presence of secretions</td>
</tr>
<tr>
<td>q history of bronchospasm</td>
<td>q Neb</td>
<td>q rhonchi on auscultation</td>
<td>q upper abdominal or thoracic surgery, or COPD &amp; surgery</td>
<td>q clinical signs of hypoxemia</td>
<td>q unstable resp. status</td>
<td>q unable to cough effectively</td>
</tr>
<tr>
<td>q home regimen</td>
<td>q MDI</td>
<td>q history of mucous prod. disease</td>
<td>q restrictive disease associated with quadriplegia and, or dysfunctional diaphragm</td>
<td>q chest pain with cardiac history</td>
<td>q ABGs (SpO2 &lt;92% on room air or 4 L/min O2)</td>
<td>q artificial airway</td>
</tr>
<tr>
<td>q physician order</td>
<td>q DPI</td>
<td>q patient unable to deep breath and cough spontaneously</td>
<td>q home O2</td>
<td>q post-op care</td>
<td>SpO2/FIO2</td>
<td>Vital Capacity</td>
</tr>
</tbody>
</table>

### CARE PLAN

<table>
<thead>
<tr>
<th>Aerosol Therapy</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>q DPI</td>
<td>q Neb</td>
</tr>
<tr>
<td>q DPI</td>
<td>q Neb</td>
</tr>
<tr>
<td>q DPI</td>
<td>q Neb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Broncho/Pulmonary Hygiene</th>
<th>q pos. drainage</th>
<th>q percussion/vibration</th>
<th>q coughing techniques</th>
</tr>
</thead>
<tbody>
<tr>
<td>q incentive spirometry</td>
<td>q CPAP, PEP</td>
<td>q IPPB</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hyperinflation</th>
<th>q FIO2 %</th>
<th>q liters/minute</th>
<th>q Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>q pulse oximetry</td>
<td>q ABGs</td>
<td>q resp. mechanics</td>
<td></td>
</tr>
</tbody>
</table>

Suctioning

| q nasal tracheal | q tracheal |

Comments

PRINT NAME: ____________________  SIGNATURE: ____________________  BEEPER NO: ____________________

Care plan modifications, made in response to changes in the patients' condition, are available for your review through the computerized order entry system.

158974 Rev 7/04
AEROSOL THERAPY*

**Indications:**
Current, or history of bronchospasm
Inflammation, mucosal edema
Proteinaceous secretions

**Type of Medication:**
Bronchodilator
Steroid, vasoconstrictor
Mucolytic

1. **Patient alert?**
   - Yes
   - No
     - No
     - Yes

2. **Shallow breathing?**
   - Yes
   - No
     - Small volume nebulizer with mask
     - PAP device** with mask

3. **Can patient take a deep breath?**
   - Yes
   - No
     - VC > minimal predicted?

4. **PAP device ** with mouthpiece

5. **MDI criteria met?**
   - Yes
   - No
     - Small volume nebulizer with mouthpiece
     - MDI with a spacer

* Bronchodilators – If the patient lacks any prior history of lung disease, is not using bronchodilators at home, and has no wheezing when receiving the bronchodilator less often than q 4 hours, the bronchodilator can be discontinued.

Acetylcysteine – If secretions have lessened to the point that the patient is able to clear them with a cough, the mucolytic may be discontinued.

Anti-inflammator pom Medications – If the patient lacks any prior history of lung disease, is not using an inhaled anti-inflammatory medication at home, and lacks wheezing by examination or by history for at least 24 hours, the anti-inflammatory medication can be discontinued.

(Discontinuation requires a physician order.)

**Appropriate PAP devices:**
- PEP (i.e. Thera-PEP)
- Measured PEP (i.e. EZ-PAP)
- Oscillatory device (i.e. Acapella)
- Intermittent CPAP
Bland Aerosol
(Thick secretions)

No

Patient Alert?

Yes

Shallow breathing?

Continuous by mask, PRN suction

PAP device*, PRN suction

VC > minimal predicted

No

Yes

PAP device* before BPH

20 minutes by mask before BPH

*Appropriate PAP devices:

- PEP (i.e. Thera-PEP)
- Measured PEP (i.e. EZ-PAP)
- Oscillatory device (i.e. Acapella)
- Intermittent CPAP
ASTHMA MEDICATION

Is the patient admitted for asthma exacerbation?

Yes

Albuterol *
4 puffs
QID - Q4

No

Is patient on therapy at home?

Yes

Follow home regimen

No

Is patient symptomatic? **

Yes

Albuterol PRN QID

No

Does patient demonstrate proper MDI technique?

Yes

Continue MDI therapy

No

Reinstruct or change to SVN

Continue inhaled steroid
If patient uses it at home

Does patient require treatments > QID?

Yes

Add: steroid (if not already ordered by physician)

No

Continue therapy x 24 hrs. then reassess ***

Is patient still symptomatic ??

Yes

Notify physician

No

Continue therapy

---

* Albuterol may be given up to every 1-2 hours if needed. If the patient is unable to use an MDI effectively, use a small volume nebulizer.

** Symptomatic = wheezing, SOB, cough, exercise intolerance, RR > 21.

*** If wheezing subsides and respiratory rate is < 21, decrease albuterol to 2 puffs QID.
ADULT RESPIRATORY THERAPY CONSULT MEDICATION ORDER FORM

THE CLEVELAND CLINIC FOUNDATION

PHYSICIAN’S ORDERS

RECORD ALL ALLERGIES AND INTOLERANCES. (Update MyPractice)

NO KNOWN ALLERGIES OR INTOLERANCES

DATE TIME USE BALLPOINT PEN ONLY ORDER #

RESPIRATORY THERAPY MEDICATION ORDER FORM

<table>
<thead>
<tr>
<th>Bronchodilators</th>
<th>SVN (small volume nebulizer)</th>
<th>MDI (metered dose inhaler)</th>
<th>DPI (dry powdered inhaler)</th>
<th>Inhalations</th>
<th>Frequency</th>
<th>PRN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adrenergic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Albuterol</td>
<td>0.5 mg 8.0 mg 15 mg times 1 hour continuous</td>
<td>90 mcg 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Salmeterol (Serentil®)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Epinephrine (Racemic®)</td>
<td>0.5 ml of 2.25% sol.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anticholinergic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ipratropium bromide (Atrovent®)</td>
<td>0.5 mg 18 mcg 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tiotropium (Spiriva®)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anti-inflammatory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cromolyn sodium (Intal®)</td>
<td>20 mg 800 mcg 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triamcinolone (Aristocort®)</td>
<td>100 mcg 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluticasone (Flovent®)</td>
<td>44 mcg 110 mcg 220 mcg 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beclomethasone (QVAR®)</td>
<td>40 mcg 80 mcg 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Budesonide (Pulmicort®)</td>
<td>0.25 mg 0.5 mg 0.5 mg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combination Meds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluticasone/Salmeterol (Advair®)</td>
<td>100 250 500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Albuterol/Ipratropium (Combivent®)</td>
<td>105 mcg 15 mcg</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Musculolytic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acetylcysteine (Mucomyst®)</td>
<td>10% 20%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PRN indications**
1 PRN / frequency - for intermittent wheezing
2 PRN / frequency - as used for home regimen
3 PRN / frequency - for sthoro
4 PRN / other

Patient Transfer; Medication Reorder
Frequency Change
Stat Treatment

*Frequency - Respiratory Therapy Administration Schedule

<table>
<thead>
<tr>
<th>PRN</th>
<th>Daily</th>
<th>two times a day</th>
<th>three times a day</th>
<th>four times a day</th>
</tr>
</thead>
<tbody>
<tr>
<td>WA2</td>
<td>every shift</td>
<td>every 6 hours</td>
<td>every 4 hours</td>
<td>every 2 hours</td>
</tr>
<tr>
<td>ATO</td>
<td>every shift</td>
<td>every 6 hours</td>
<td>every 4 hours</td>
<td>every 2 hours</td>
</tr>
</tbody>
</table>

As needed, While awake, Around the clock

Is this the patient's home regimen? Yes No

PRINT NAME ____________________________

SIGNATURE ____________________________ BEEPER No. ____________________________

Respiratory Therapist: ________________ Date ________________ Time ________________ Pager # ________________

ALL ORDERS MUST BE SIGNED BY PHYSICIAN

178532 Rev. 8/07
GUIDELINES FOR PRIMING MDIs

<table>
<thead>
<tr>
<th>DRUG NAME</th>
<th># OF SPRAYS TO PRIME</th>
<th>WHEN TO REPRIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proventil HFA (albuterol)</td>
<td>4</td>
<td>after 2 wks of no use</td>
</tr>
<tr>
<td>ProAir HFA (albuterol)</td>
<td>3</td>
<td>after 2 wks of no use</td>
</tr>
<tr>
<td>Ventolin HFA (albuterol)</td>
<td>4</td>
<td>after 2 wks of no use, or if dropped</td>
</tr>
<tr>
<td>Atrovent HFA (ipratropium)</td>
<td>2</td>
<td>after 3 days of no use</td>
</tr>
<tr>
<td>Flovent HFA (fluticasone)</td>
<td>4</td>
<td>after 7 days of no use, or if dropped</td>
</tr>
<tr>
<td>Advair HFA (fluticasone/salmeterol)</td>
<td>4</td>
<td>after 4 wks of no use, if dropped</td>
</tr>
<tr>
<td>Xopenex HFA (levaibuterol)</td>
<td>4</td>
<td>after 3 days of no use</td>
</tr>
<tr>
<td>Symbicort (formoterol/budesonide)</td>
<td>2</td>
<td>after 7 days of no use, or if dropped</td>
</tr>
<tr>
<td>Qvar HFA (beclomethasone)</td>
<td>2</td>
<td>after 7 days of no use</td>
</tr>
<tr>
<td>Combivent (ipratropium/albuterol)</td>
<td>3</td>
<td>after 24 hrs of no use</td>
</tr>
<tr>
<td>Azmacort (triamcinolone)</td>
<td>2</td>
<td>after 3 days of no use</td>
</tr>
<tr>
<td>Maxair (pirbuterol)</td>
<td>2</td>
<td>after 48 hrs of no use</td>
</tr>
<tr>
<td>Alvesco (ciclesonide)</td>
<td>3</td>
<td>after 10 days of no use</td>
</tr>
<tr>
<td>Aerospan HFA (flunisolide)</td>
<td>2</td>
<td>after 2 wks of no use</td>
</tr>
</tbody>
</table>

RECOMMENDED INSTRUCTIONS FOR DRY POWDERED INHALER USE

**Pulmicort Flexhaler** - (budesonide)
Must be primed before 1st use. To prime, twist the brown grip in one direction & fully back in the opposite direction. Repeat once more. When loading a dose, flexhaler must be in the upright position (mouthpiece up).

**Spiriva** - (tiotropium)
Do not press green piercing button more than once. Pierce with mouthpiece pointing up. Breathe in medication with the handihaler in the horizontal position.

**Asmanex** - (mometasone)
No need to prime it. Hold inhaler in the upright (pink on bottom) position, twist cap off in counterclockwise direction. Inhale medication with inhaler in the horizontal position. Cap must be replaced to load the next dose. Cap will not come off if medication is gone.

**Advair (fluticasone/salmeterol), Flovent (fluticasone), Serevent (salmeterol) (Diskus)**-
Place Diskus in horizontal position. Slide lever away until it clicks. Inhale the medication with the Diskus in the horizontal position. Tilting the Diskus will cause the medication to fall out. (the patient will not get any medication)

**Foradil** - (formoterol)
Hold Aerolizer in the upright position. Push both buttons at the same time and only once. With the buttons facing left and right and the aerolizer in the horizontal position, inhale medication.
BRONCHOPULMONARY HYGIENE (bph)

**Productive Cough**

- Copious secretions? (≥ 30 cc per day)
  - No
  - Strong cough?
    - No
      - Percussion, vibration, suction PRN**
    - Yes
      - Deep breathe and cough
  - Yes
    - Strong cough?
      - No
        - Postural drainage, percussion, vibration*, suction PRN **
      - Yes
        - Do rhonchi persist after patient coughs?
          - No
            - Deep breathe and cough
          - Yes
            - Percussion, vibration*, deep breathe and cough

**Non-Productive Cough**

- Rhonchi?
  - No
    - History of mucus producing disease?
      - No
        - Is patient able to deep breathe and cough spontaneously?
          - No
            - No additional therapy needed
              - Percussion, vibration*, and suction ** x 24 hours; then reassess
          - Yes
            - Strong cough?
              - No
                - Deep breathe and cough
              - Yes
                - Percussion, vibration*, deep breathe & cough suction PRN **
        - Yes
          - Effective cough and rhonchi clear with cough?
            - No
              - Percussion, vibration*, suction PRN **
            - Yes
              - Deep breathe and cough

* Oscillatory device

** Do not perform nasotracheal suctioning on a patient with a platelet count < 50,000 or neutropenia.

bph will be discontinued when secretions are no longer present (for 2 consecutive scheduled treatments) or when secretions and/or rhonchi can be cleared with cough.
HYPERINFLATION THERAPY

Indications:
1. Atelectasis
2. Upper abdominal or thoracic surgery, or COPD and surgery
3. Restrictive disease associated with quadriplegia or dysfunctional diaphragm

*Appropriate PAP devices:*
- PEP (i.e. Thera-PEP)
- Measured PEP (i.e. EZ-PAP)
- Oscillatory device (i.e. Acapella)
- Intermittent CPAP

Hyperinflation therapy will be discontinued when atelectasis has been resolved as evidenced by chest x-ray, and/or when the patient’s SpO₂ and respiratory rate return to normal (SpO₂ ≥ 92% on room air) or baseline values for 2 consecutive treatments and breath sounds are clear.
OXYGEN THERAPY

Indications: 1. PaO₂ < 65 on RA
2. SpO₂ < 92% on RA
3. Clinical signs*

---

**ABG available?**

---

Yes

---

PAO₂ < 65 mmHg on room air?

---

Yes

---

Check SpO₂, use appropriate, 0₂ device

---

No

---

Chest pain and cardiac history?

---

Yes

---

Use 0₂ device appropriate for degree of distress

---

No

---

Continue current 0₂

---

Does SpO₂ correlate with ABG sat? ¹

---

Yes

---

Repeat ABG after instituting 0₂ therapy

---

No

---

Check SpO₂ after instituting 0₂ therapy

---

SpO₂ < 92% on room air or 0₂ > 4 Lpm², (no ABG available)?

---

Yes

---

Check ABG, ** then use appropriate 0₂ device

---

No

---

Clinical signs * of hypoxemia?

---

Yes

---

Continue current 0₂

---

No

---

Does SpO₂ correlate with ABG sat? ¹

---

Yes

---

Repeat SpO₂ after instituting 0₂ therapy

---

No

---

Repeat ABG after instituting 0₂ therapy

---

Does SpO₂ correlate with ABG sat? ¹

---

Yes

---

Check SpO₂ after instituting 0₂ therapy

---

No

---

Use 0₂ device appropriate for degree of distress then check ABG

---

**SOB, tachycardia, diaphoresis, confusion, chest pain, cardiac Hx.**

---

**If patient’s platelet count is < 50,000 notify the physician before the ABG draw.**

1. Positive correlation exists if SaO₂ & SpO₂ demonstrate ± 3% agreement within the 90% to 100% range. If either SpO₂ or SaO₂ is less than 90%, titrate therapy using SaO₂. (May use SpO₂ if SaO₂ = SpO₂).

2. Patients on less than 4 Lpm 0₂, increase 0₂ as needed to achieve a SpO₂ ≥ 92% (max. 4 Lpm). If patient requires > 4 Lpm, go to Yes in this portion of algorithm and check an ABG.

3. Or no 0₂ if saturation is adequate on room air.
OXYGEN THERAPY ASSESSMENT

Is Sp0₂ ≥ 92% on ≤ 4 Lpm?

No

Complete evaluation

Yes

Is patient on therapy other than O₂ & IS?

No

Complete evaluation

Yes

Are BS clear and RR < 28 bpm?

No

Complete evaluation

Yes

Check Sp0₂ after 24 hours unless patient has cardiac symptoms *

After 24 hours

Does patient have Sp0₂ ≤ 92% on RA, with or without IS?

No

Complete evaluation

Yes

Has patient been on O₂ therapy > 48 hours?

No

May D/C O₂, encourage to deep breath and cough

Yes

Complete evaluation

* For patients with diagnosed or R/O angina or MI, continue low flow O₂. When O₂ has been on standby longer than 48 hours, reassess.

** If patient required chronic use of supplemental O₂ pre-op, prescribed liter flow in accordance with patient’s previous baseline Sp0₂.
OXYGEN THERAPY TITRATION

1. SOB, tachycardia, diaphoresis, confusion.

2. SpO₂ criteria may be modified with documented evidence of pre-existing chronic hypoxemia.

3. Appropriate time lapse for recheck:
   - 10 minutes for patients without pulmonary history
   - 20 minutes for patients with a pulmonary history

Note: O₂ concentration should not be decreased more than once per shift.
ARterial Blood gas monitoring

Standard ABG Criteria:
Baseline ABG for new admissions (If not done previously)
Hemodynamic instability
Pre and Post extubation

** Last ABG shows:
PH > 7.50, or pH < 7.30, PaCO₂ > 55, PaO₂ < 60 torr and/or Sat. < 90%, HCO₃ < 18 mEq/L
(Unless prior criteria established)
Cyanosis
Unexpected dysrhythmias
Unexpected change in mental status
RR > 35 for >15 minutes (in the absence of pulmonary disease)
RR < 6 bpm, paradoxical breathing
Acute change in breath sounds

---

** Vital signs: RR increase < 10 bpm, pulse increase < 20, SpO₂ > 92%
** Draw ABG at least Q shift.
POST-OP THORACIC SURGERY PROTOCOL
(Exclude thoracic laparoscopic hiatal hernia procedures, mediastinoscopies, and lung biopsies)

First 24 Hours Post ICU

- Aerosol bronchodilator x 24 hours. TID-QID & PRN with SVN
- Bph (perc/vib) TID-QID x 24 hours, then reassess
- Oxygen as required to maintain SpO₂ > 92% x 24 hours
- Pulse ox monitoring at rest and with ambulation**
- Encourage ambulation in P.M. **

Is patient's VC > minimum predicted?

Yes

- Review PAP device*. Encourage use Q1 hr. WA

No

- Follow standard hyperinflation algorithm *

Second 24 Hours Post ICU

- Continue bronchodilator x 24 hours. TID-QID & PRN with SVN
- Does patient have rhonchi or sputum?

Yes

- Continue perc/vib TID-QID x 24 hours or oscillating device

No

- Are RS ↓ or SpO₂ < 92%?

Yes

- D/C perc/vibration

No

Third 24 Hours Post ICU

- Does patient have indications for aerosol tx?

Yes

- Follow standard bph algorithm

No

- Continue SVN according to standard algorithm

D/C SVN or MDI

- Continue hyperinflation as evaluated
- Maintain pre-op baseline SpO₂
- Pulse Ox monitoring according to standard algorithm
- Encourage ambulation TID **

AFTER 72 HOURS, FOLLOW STANDARD CONSULT ALGORITHMS

* Appropriate PAP device (PEP, Measured PEP, oscillatory device)

** Respiratory therapy will assist with ambulation for patients on oxygen and with chest tubes who require respiratory monitoring.
POST-OP LUNG TRANSPLANT PROTOCOL

First 48 hours post-ICU

Aerosol (SVN) Bronchodilator Q4/ATC

Amphotericin B 10mg BID Pretreat with bronchodilator

Bph (perc/vib) QID

Instruct PAP device*

Encourage ambulation as tolerated **

O₂ as needed to maintain SpO₂ ≥ 92%

O₂ as needed during ambulation and/or bph

Monitor SpO₂ PRN

PFT *** measurement BID

After 48 hours post-ICU

Aerosol (SVN) Bronchodilator QID & PRN x 48 hrs. then reassess per RTCS algorithm

Assess for bph. Is pt. not ambulating, or is O₂ ≥ 4 Lpm, or is cough productive?

Yes

Assess for bph per RTCS algorithms

No

Continue bph QID Reassess in 48 hrs.

Assess pt. for O₂ according to RTCS algorithms

Monitor SpO₂ as needed to titrate O₂

Use O₂ if necessary for ambulation

Continue PFT measurement BID**

* Select appropriate PAP device (PEP, measured PEP, oscillatory device)

** Early ambulation is essential. Increase as tolerated.

***Use Bedside Spirometer for FEV₁ measurement.
POST-OP LUNG REDUCTION SURGERY PROTOCOL

First 72 hours Post ICU

- Aerosol (SVN) Bronchodilator Q4 /ATC
- Bph (perc/vib) Q4 hr. W. A.
- Appropriate PAP device* Q4 W. A. x 72 hrs.
- Encourage ambulation as tolerated**
- $O_2$ as needed for $SpO_2 > 90$
- $O_2$ as needed during bph, ambulation
- Pulse Ox. monitoring according to RTCS algorithms

After 72 hours Post ICU

- Assess Pt. for aerosol according to RTCS algorithms
- Assess Pt. for bph according to RTCS algorithms
- Appropriate PAP device* BID
- Is VC > minimum predicted VC?
- $O_2$ as needed for $SpO_2 > 90$
- $O_2$ as needed during ambulation
- Pulse Ox. according to RTCS algorithms

  NO

  Change to Appropriate PAP device*, follow QID & increase ambulation

  YES

  Instruct patient to continue to use Appropriate PAP device*

* Appropriate PAP devices (PEP, measured PEP, oscillatory device)

** Early ambulation is essential. Increase as tolerated.
POST-OP HEART TRANSPLANT PROTOCOL

Post-ICU

Assess patient for aerosol tx. according to RTCS algorithms¹

Assess patient for bph according to RTCS algorithms²

Appropriate PAP device* q 4-6 hours WA x 48 hours

Assess patient for O₂ according to RTCS algorithms³

Yes

Use O₂ if necessary for ambulation

No

Is VC > predicted minimal?

Change to measured PEP device, follow QID & ↑ambulation**

Instruct patient to continue PAP device* and ↑ambulation**

Monitoring

As needed to titrate O₂

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1. Medicated aerosol criteria: bronchospasm, history of bronchospasm
2. bph criteria: secretions, rhonchi that do not clear with cough
3. Maintain SpO₂ ≥ 92%.

* Appropriate PEP device (PEP, measured PEP, oscillatory device)
** Early ambulation is essential. Increase as tolerated.
Ventilator Management Algorithm
12-13-07

1. Considerations for Ventilation
   - tachypnea/bradypnea
   - increasing oxygen requirement
   - increasing PaCO2
   - decreased airway

2. Considerations for NIV
   - COPD with initial respiratory failure
   - heart failure

3. Criteria to Pass Wean Screen
   - reversal of underlying cause(s)
   - presence of spontaneous breath efforts
   - PaO2 > 60 torr or SaO2 > 90% on FiO2 < 0.40
   - pH > 7.30
   - PEEP < 8 cmH2O
   - RR < 35 breaths/min
   - HR > 10 beats/min
   - systolic BP between 90 and 160
   - Levrneph < 5 uL/min
   - temperature < 38.5 degrees C
   Presence of all criteria required to pass

4. Conditions of SBT
   - "PCEP" = 5 cm H2O
   - pressure support = 5 cm H2O
   - trial to last 60 minutes

5. Criteria to Pass SBT
   - PaO2 > 60 torr or SaO2 > 90% on FiO2 < 0.40
   - change in pH < 0.10
   - change in PaCO2 < 10 mmHg
   - RR < 40 tor > 50 minutes
   - drop in systolic PB < 20%
   - systolic BP > 80
   Presence of all criteria required to pass

6. Criteria for Extubation
   - suctioning less frequent than Q2 hours
   - adequate cough
   - follows commands (eg "close eyes")
   Presence of all criteria required to pass

Admit

1. Ventilate
   yes → Intubate
   no → Periodically reassess

2. Intubate
   yes → Select mode*
   no → Noninvasive ventilation

3. Pass Screen
   yes → Perform SBT
   no → Reassess

4. Pass SBT
   yes → Discharge
   no → Extabulate

5. Extabulate
   yes → Discharge
   no → Reassess

* Provide full support unless SBT repeatedly failed
Notify Fellow
# NPPV (BiPAP) Therapy Assessment and Management

## Indications:
- Thoracic cage deformities
- Neuromuscular disease
- Idiopathic hypoventilation
- Respiratory distress
- Hypercapnic COPD
- Obstructive sleep apnea
- Obesity hypoventilation

## Exclusion Criteria:
- Respiratory arrest
- Cardiorespiratory instability
- Uncooperative patient
- Recent facial, esophageal, or gastric surgery
- High aspiration risk
- Inability to protect airway
- Fixed anatomic abnormalities of the nasopharynx
- Copious secretions

## Assessment:
1. Cause of respiratory distress
2. Hemodynamically stable (systolic >90 mmHg)
3. pH ≥ 7.28
4. Assess level of consciousness
5. Protect airway
6. Secretions

## Critical Factors for Success of NPPV:
1. Cooperative patient
2. Hemodynamically stable
3. Ability to protect the airway
4. No excessive secretions

## Advantages of NPPV:
1. Patient comfort
2. Airway defense maintained
3. Ability to eat and speak
4. Endotracheal intubation complications avoided
5. Lower risk of nosocomial pneumonia

## Disadvantages of NPPV:
1. Need cooperative patient
2. Inability to suction airway
3. Facial trauma
4. Gastric distention
NPPV (BiPAP) Management

NPPV indicated

Initial settings:
Mode: Spont / Timed
IPAP: 10-15cm H$_2$O
EPAP: 5-7 cm H$_2$O
FiO$_2$ to achieve SaO$_2$ ≥ 92%

Re-evaluate ABGs in 1-2 hours.

Increase O$_2$ appropriate for degree of distress.

Clinical signs of hypoxia?

Yes

Re-check SaO$_2$ in 4 hours

No

Is PaO$_2$ > 60 or SaO$_2$ > 92%?

Is PaCO$_2$ and pH improving?

No

Wean NPPV as appropriate.

Yes

Is PaCO$_2$ > 7.28?

Consult physician immediately. Consider transfer to ICU ASAP.

Is an uncompensated or partially compensated respiratory acidosis present?

No

Consider other therapy.

Yes

Decrease O$_2$ to maintain SaO$_2$ ≥ 92%

D/C O$_2$

Is SaO$_2$ ≥ 92% on room air?

Yes

Increase settings to deliver more minute ventilation. Increase IPAP or increase mandatory respiratory rate.
HOME O2 QUALIFICATION

I. Qualifying Conditions

A. Chronic Cardio- Pulmonary Diagnosis
   1. example: COPD/ Asthma/ Lung Cancer/IPF/
   2. CHF/ Pulmonary hypertension

B. Hypoxemia as defined by:
   1. ABG results: PaO2 < 56, and/or, SaO2 <89% on room air.
   2. Pulse oximetry results: SpO2 <89% on room air.

II. Medicare/Private Insurance Carrier

A. Home O2 qualification
   1. SpO2, at rest, of <89%
      a. always check more than one site
      b. check a manual pulse
      c. document on desaturation study form
   2. ABG at rest with PaO2 of <56 and/or SaO2 of <89% on room air
      a. SpO2 may be used to determine O2 requirements
   3. Either ABG or Pulse oximetry results may be used for qualification
      a. qualifying studies must be done within 48 hours of discharge home
      b. patients going to another facility after leaving the hospital must be qualified for home oxygen at that facility before discharge home.

B. Determining needed O2 requirement
   1. Determine lowest O2 level that will maintain an SpO2 of ≥ 92% (not to exceed 94%) at rest.
   2. Ambulate patient on resting O2 requirement for six minutes or as tolerated.
      a. SpO2 on exertion should be > 90%
      b. Document the SpO2, the required liter flow and the distance traveled before desaturation.
      c. also document the resting SpO2 on the liter flow required to maintain an SpO2 of > 90% on exertion

C. Exertional Home O2
   1. Patients with a chronic pulmonary diagnosis whose resting SpO2 is >88% but desaturate to < 89% with exertion
   2. A desaturation study is required
      a. ambulate patient at a normal pace for six minutes or as tolerated
   3. Determine lowest O2 level required to maintain an SpO2 of >88% to <93% with exertion
      a. document exertional SpO2 and liter flow required
      b. document a resting liter flow on the exertional liter flow
III. Medicaid (Ohio Department of Welfare) Patients

A. Follow Medicare guidelines

IV. Documentation for all patients

A. Fill out Desaturation study form (see example)
   a. white copy goes in patient’s chart
   b. yellow copy goes to the department
   c. document all patient education on this form

B. Follow Respiratory Therapy Section documentation procedure