19

Respiratory Emergencies
**Figure 19-1** The process of respiration.
Figure 19-1 (continued)  The process of respiration.
Figure 19-1 (continued)  The process of respiration.
Figure 19-1 (continued)  The process of respiration.

RELAXED
Passive expiration begins
### Table 19-1  Adequate and Inadequate Breathing

<table>
<thead>
<tr>
<th></th>
<th><strong>ADEQUATE BREATHING</strong></th>
<th><strong>INADEQUATE BREATHING</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rate</strong></td>
<td>Adult: 12–20/Minute; Child: 15–30/Minute; Infant: 25–50/minute</td>
<td>Above or below normal rates for the patient’s age group</td>
</tr>
<tr>
<td><strong>Rhythm</strong></td>
<td>Regular</td>
<td>May be irregular</td>
</tr>
<tr>
<td>Quality Breath Sounds</td>
<td>Present and equal</td>
<td>Diminished, unequal, or absent</td>
</tr>
<tr>
<td>Chest Expansion</td>
<td>Adequate and equal</td>
<td>Inadequate or unequal</td>
</tr>
<tr>
<td>Effort of Breathing</td>
<td>Unlabored, normal respiratory effort</td>
<td>Labored: increased respiratory effort; use of accessory muscles (may be pronounced in infants and children and involve nasal flaring, seesaw breathing, grunting, and retractions between the ribs and above the clavicles and sternum)</td>
</tr>
<tr>
<td><strong>Depth</strong></td>
<td>Adequate</td>
<td>Too shallow</td>
</tr>
</tbody>
</table>
### Table 19-2  Respiratory Conditions with Appropriate Interventions

<table>
<thead>
<tr>
<th>CONDITION</th>
<th>SIGNS</th>
<th>EMT INTERVENTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADEQUATE BREATHING</strong></td>
<td>• Rate and depth of breathing are adequate.</td>
<td>Oxygen by nonrebreather mask or nasal cannula.</td>
</tr>
<tr>
<td>Patient breathing adequately but</td>
<td>• No abnormal breath sounds.</td>
<td></td>
</tr>
<tr>
<td>needs supplemental oxygen due to</td>
<td>• Air moves freely in and out of the chest.</td>
<td></td>
</tr>
<tr>
<td>a medical or traumatic condition.</td>
<td>• Skin color normal.</td>
<td></td>
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<td></td>
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<tr>
<td><strong>INADEQUATE BREATHING</strong></td>
<td>• Patient has some breathing but not enough to live.</td>
<td>Assisted ventilations (air put into the lungs under pressure) with a pocket face mask, bag-valve mask, or FROPVD. See chapter text about adjusting rates for rapid or slow breathing. <strong>Note:</strong> A nonrebreather mask requires adequate breathing to pull oxygen into the lungs. It DOES NOT provide ventilation if patient is not breathing or is breathing inadequately.</td>
</tr>
<tr>
<td>Patient is moving some air in and</td>
<td>• Rate and/or depth outside of normal limits.</td>
<td></td>
</tr>
<tr>
<td>and out but it is slow or shallow and not enough to live.</td>
<td>• Shallow ventilations.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Diminished or absent breath sounds.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Noises (crowing, stridor, snoring, gurgling, or gasping).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Blue (cyanosis) or gray skin color.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Decreased minute volume.</td>
<td></td>
</tr>
<tr>
<td>CONDITION</td>
<td>SIGNS</td>
<td>EMT INTERVENTION</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
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</tbody>
</table>
| **PATIENT IS NOT BREATHING AT ALL** | - No chest rise.  
- No evidence of air being moved from the mouth or nose.  
- No breath sounds. | Immediately verify a pulse. If pulse present, provide ventilations with a pocket face mask, bag-valve mask, or FROPVD at 12/minute for an adult and 20/minute for an infant or child.  
If pulse absent, immediately begin chest compressions followed by ventilations and apply an AED.  
**Note:** DO NOT use oxygen-powered ventilation devices on infants or children. |
Figure 19-2  Signs and symptoms of breathing difficulty. © Ray Kemp/911 Imaging

- Altered levels of awareness, unconsciousness, dizziness, fainting, restlessness, anxiety, confusion, combativeness
- Cyanosis
- Flaring nostrils
- PURSED LIPS
- Straining neck and facial muscles
- Coughing, crowing, high-pitched barking
- Tightness in chest (stabbing chest pains in some patients)
- Respiratory noises
  - Wheezing
  - Snoring
  - Stridor
- Straining intercostal and abdominal muscles
- Tripod position
- Numbness or tingling in hands and feet
Figure 19-3  Auscultate for breath sounds on the upper and lower chest, the upper and lower back, and at the midaxillary line.
Scan 19-1   CPAP  (1) Assess the patient and ensure that he meets the criteria for CPAP.
Scan 19-1 (continued) CPAP (2) Explain the device to the patient. The mask and snug seal may initially cause the patient to feel smothered and anxious.
Scan 19-1 (continued)  CPAP  (3) Apply the mask to the patient's face. Continue to calm and reassure the patient.
Scan 19-1 (continued)  CPAP  (4) Use settings as defined in your protocols.
Scan 19-1 (continued)  CPAP  (5) Reassess and monitor the patient.
Scan 19-1 (continued)  CPAP  (6) Discontinue CPAP and ventilate the patient if breathing becomes inadequate.
Figure 19-4  A patient with chronic obstructive pulmonary disease (COPD) on home oxygen.
Figure 19-5  Chronic bronchitis and emphysema are chronic obstructive pulmonary diseases.
Figure 19-6  A spacer between the inhaler and patient makes the timing during inhaler use less critical.
Figure 19-7  The Advair inhaler. © GlaxoSmithKline
Scan 19-2 Prescribed Inhaler—Patient Assessment and Management  (1) The patient has the indications for use of an inhaler: signs and symptoms of breathing difficulty and an inhaler prescribed by a physician.
Scan 19-2 (continued)  Prescribed Inhaler—Patient Assessment and Management  
(2, 3) Contact medical direction and obtain an order to assist the patient with the prescribed inhaler. Ensure the five “rights”:
• Right patient
• Right time
• Right medication
• Right dose
• Right route
Scan 19-2 (continued)  Prescribed Inhaler—Patient Assessment and Management  (4) Coach the patient in the use of an inhaler. Tell him he should exhale deeply, press the inhaler to activate the spray, inhale, and hold his breath in so medication can be absorbed.

Check the expiration date, shake the inhaler, make sure the inhaler is room temperature or warmer, and make sure the patient is alert.
Scan 19-2 (continued)  Prescribed Inhaler—Patient Assessment and Management  (5) After use of the inhaler, reassess the patient: take vital signs, perform a focused exam, and determine if breathing is adequate.
Scan 19-3  Prescribed Inhaler
Scan 19-3 (continued)  Prescribed Inhaler
Scan 19-4 Small-Volume Nebulizer (SVN)—Patient Assessment and Management  

1. Identify the patient as a candidate for nebulized medication per protocol (e.g., history of asthma with respiratory distress). Administer oxygen and assess vital signs. Be sure the patient is not allergic to the medication.
Scan 19-4 (continued)  Small-Volume Nebulizer (SVN)—Patient Assessment and Management  

(2) Obtain permission from medical direction to administer or assist with the medication.
(3) Ensure the five rights (right patient, right time, right medication, right dose, right route). Prepare the nebulizer. Put the liquid medication in the chamber. Attach the oxygen tubing and set the oxygen flow for 6 to 8 liters per minute (or according to manufacturer's recommendations).
Scan 19-4 (continued)  Small-Volume Nebulizer (SVN)—Patient Assessment and Management  

(4) Have the patient seal his lips around the mouthpiece and breathe deeply. Instruct the patient to hold his breath for 2 to 3 seconds if possible. Continue until the medication is gone from the chamber.
Scan 19-4 (continued)  Small-Volume Nebulizer (SVN)—Patient Assessment and Management  (5) Use an alternative device—a mask delivers the medication.
Scan 19-4 (continued) Small-Volume Nebulizer (SVN)—Patient Assessment and Management  (6) Reassess the patient's level of distress and vital signs. Additional doses may be authorized by medical direction if the patient continues to be in distress and the patient is not having adverse effects from the medication.