Thank you for joining us today to learn more about the new text:

Respiratory Care: *Patient Assessment and Care Plan Development*
Respiratory Care: Patient Assessment and Care Plan Development

- Published: 12/1/14
- List Price: $99.95
- Pages: 716
- Hardcover
- Trim: 8 1/2 x 10 7/8, full-color
- First Edition
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Instructors Praise This Approach

"This text provides foundational information needed to develop Respiratory Therapists that are able to function as critical thinkers. A new student should be able to read the information provided here and participate in thorough patient information gathering. The text utilizes case studies at varying points throughout the reading to help the student determine if they are understanding and able to pick out key identifiers related to patient assessment. The stepwise approach is pertinent to today’s respiratory therapist workforce."

--Rebecca A. Higdon, MS, RRT, Director of Clinical Education, Elizabethtown Community & Technical College

"[Respiratory Care: Patient Assessment and Care Plan Development] is well organized and the use of research and literature review within the text is a good method of introducing its use while also covering content. The various areas to consider in care planning were detailed very well while also including diagnostics and pathology which are crucial for critical thinking and assessment.

I love the additional materials on research and the case studies. The use of literature review results, tables of information throughout, and case studies were well developed. Very well done."

~ M. Marcia Fuller, MAE, RRT, Professor and Program Director of Respiratory Care, Bowling Green Technical College

"Much more in-depth than any other books I have read on Care Plan development."

--Cynthia McKinley BAAS, RRT, Assistant Professor, Director of Clinical Education, Lamar Institute of Technology
Overview

• A comprehensive guide to the evaluation of the patient, and the development and implementation of an appropriate, evidence-based, respiratory care plan.

• Describes the purpose of patient assessment and then guides the reader through the process of reviewing existing data in the medical record, conducting the patient interview, performing the physical assessment, evaluating the diagnostic studies needed and then developing and implementing a respiratory care plan.

• Bridging the gap between patient assessment and treatment, the reader will learn how to apply assessment skills to the development and implementation of evidence-based respiratory care plans.

• Critical diagnostic thinking is reviewed and then applied to specific patient situations.
Pedagogical Elements

• Chapter Objectives
• Chapter Outlines
• Key Terms
• Hundreds of full-color Illustrations, Photos & Tables
• Boxed Articles and Notes
• Clinical Practice Guidelines
RC Insights

**Inspiratory capacity (IC) in adults can be estimated as follows:**

\[ IC = 50 \text{ mL/kg of ideal body weight (IBW)} \]

where IBW in kg is:

- IBW men = \[1.06 + 6(H - 60)] / 2.2 \]
- IBW women = \[105 + 5(H - 60)] / 2.2

---

**Nasotracheal suctioning**

Nasotracheal suctioning is indicated in cases where the patient's spontaneous ventilation is ineffective. Specifically, it may be required to maintain airway patency in the presence of excess pulmonary secretions. Medications, suctioning, or foreign material in the airway can obstruct airflow. Nasotracheal suctioning may be used to stimulate a cough or to obtain a specimen sample for microbiologic or endoscopic analysis. When not contraindicated with nasal bleeding, epistaxis, or upper respiratory infections, suctioning may be used to remove secretions from the airway, facilitate cough, and prevent the persistence of secretions with high concentrations of anaerobic bacteria.

**Provide Lung Expansion Therapy**

Provide instructions for lung expansion therapy as follows:

- Apply positive end-expiratory pressure (PEEP) at 5 cm H O for patients with a mean airway pressure (MAP) of 12 cm H O. PEEP can be increased to 10 cm H O if the MAP remains below 12 cm H O.

---

**Clinical Focus 2.4**

**Application of Incentive Spirometry**

Incentive spirometry is used in patients undergoing major surgery to increase inspiratory capacity and maintain patent airway patency. This modality is particularly beneficial for patients who are immobile or have limited mobility. To perform incentive spirometry, the patient is instructed to:

- Take a deep breath and hold it for 5 to 10 seconds.
- Slowly exhale into the spirometer, aiming to reach the maximum volume mark.
- Repeat this process every hour, increasing the volume setting as tolerated.

**Urine output monitoring**

Urine output should be monitored closely to ensure adequate renal function.

**Assessment of respiratory status**

Assess the patient's respiratory status by observing chest excursion, breath sounds, and coughing. If necessary, assistive ventilation may be required. Once the patient is stable, progress to more intensive respiratory therapy, including mechanical ventilation or non-invasive positive pressure ventilation (NIPPV).

---

**RC Insights**

**IC Insights**

Inspiratory capacity (IC) in adults can be estimated as follows:

- IC = 50 mL/kg of ideal body weight (IBW)
- IBW men = \[1.06 + 6(H - 60)] / 2.2
- IBW women = \[105 + 5(H - 60)] / 2.2

---

**CLINICAL FOCUS 2.4**

**Application of Incentive Spirometry**

A positive end-expiratory pressure (PEEP) of 5 cm H O is applied to the patient's airway to maintain adequate ventilation and prevent atelectasis. The patient is instructed to perform deep breaths, holding the breath for 5 to 10 seconds, and then exhaling slowly into the spirometer. The patient is encouraged to repeat this process every hour, increasing the volume setting as tolerated. Incentive spirometry is particularly beneficial for patients who are immobile or have limited mobility. To perform incentive spirometry, the patient is instructed to:

- Take a deep breath and hold it for 5 to 10 seconds.
- Slowly exhale into the spirometer, aiming to reach the maximum volume mark.
- Repeat this process every hour, increasing the volume setting as tolerated.

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Clinical Focus

**CLINICAL FOCUS 2-4**

**Application of Incentive Spirometry**

A preoperative 54-year-old coronary artery bypass graft (CABG) patient is seen by the respiratory care clinician for assessment and patient education. The patient is alert, awake, and cooperative, and has no history of pulmonary disease. Vitals signs, breath sounds, and oximetry are normal, and the patient is in no distress. The patient’s spontaneous inspiratory capacity prior to surgery is 3000 mL. The patient is 5’11” and weighs 200 pounds.

In order to prevent postoperative atelectasis and related respiratory problems, a respiratory care plan for this patient should include lung expansion therapy:

- **Goal of therapy is to prevent postoperative atelectasis and respiratory failure.**
- **Device or procedure is incentive spirometry every hour while awake for 10 to 15 breaths followed by directed cough.**
- **Calculated ideal body weight (IBW) for this patient 172 pounds, or 78 kg:**

  \[
  \text{IBW (lbs.)} = 106 + 6(H - 60) = 106 + 6(71 - 70) = 172 \text{ lbs.} \\
  \text{kg} = \text{lbs} / 2.2 = 172 / 2.2 = 78 \text{ kg}
  \]

- **Predicted inspiratory capacity (IC) for this patient is approximately 3900 mL:**

  \[
  \text{Predicted IC} = 50 \text{ mL/IBW (kg)} = 50 \times 78 = 3900 \text{ mL}
  \]

- **Volume goal should be at least one-third predicted IC, or about 1200 mL per breath:**

  \[
  1/3 \times 3900 \text{ mL} = 1300 \text{ mL}
  \]

- **Assessment includes monitoring volumes and compliance with IS and watching patient for development of the signs and symptoms of atelectasis and postoperative respiratory failure:**

  Minimum volume for incentive spirometry = IBW x 50 mL/kg x 1/3

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Chapter Summary and Key Points

Summary
The respiratory care plan is simply a written explanation of the respiratory care that the patient is to receive. The respiratory care plan may take the form of physician’s orders, a detailed progress note in the medical record, an established protocol, completion of a standardized respiratory care plan form, or the use of problem-oriented medical records using SOAP notes. In the clinical setting, respiratory care plan development requires an initial physician’s order, a well-designed protocol or policy, and careful patient assessment. The physician’s order may be specific, or it may simply state “respiratory care per protocol.”

Developing and implementing the respiratory care plan requires a careful patient assessment. Following the patient assessment, the respiratory care clinician selects the appropriate care based on the patient’s condition and the indications for each type of therapy. The respiratory care plan may include the goals of therapy, the device or procedure that will be used, medications given, method or appliance used, gas source and/or flow, volume goals, frequency of therapy, and duration of therapy. The care plan may also include a statement of how the intensity and/or duration of therapy will be adjusted and when the therapy will be discontinued. Assessment of the outcomes of therapy may also be included. These may include evidence of clinical improvement, measurement of bedside pulmonary function data such as PEF or FEV₁, improvement in oxygenation or SpO₂, improved quality of life, patient subjective improvement, and the absence of adverse side effects.

In summary, the respiratory care plan is the written plan of treatment that the patient will receive. The respiratory care plan may include goals, rationale, and significance and a description of how care will be assessed.

Key Points
- The respiratory care plan provides a written description of the care the patient is to receive.
- Respiratory care plans include the goals of therapy, the device or procedure to be used, medications to be given, frequency of administration, and duration of therapy.
- SOAP refers to Subjective, Objective, Assessment, and Plan.
- Acute respiratory failure (ARF) is defined as a sudden decrease in arterial oxygen levels with or without carbon dioxide retention.
- Acute ventilatory failure (AVF) is defined as a sudden rise in PaCO₂ with a corresponding decrease in pH.
- Chronic ventilatory failure is defined as a chronically elevated PaCO₂ with a normal (compensated) or near-normal pH.
Goals

• This book was created to provide students and clinicians concerned with the assessment and care of patients with cardiopulmonary disorders a comprehensive guide to patient assessment with an emphasis on:
  – Patient evaluation
  – Implementation of appropriate, evidence-based respiratory care plans
• The focus is on the assessment, diagnostic evaluation, treatment, and care of patients
• The primary audience is the respiratory therapist with the goal of providing the knowledge and skills needed for advanced practice
• We believe the information contained will be of great value to those who prescribe respiratory care and for all healthcare practitioners interested in optimizing outcomes for patients with heart and lung disease
• Content needed to pass the NBRC exams is included
# Table of Contents

Chapter 1 Introduction to Patient Assessment  
Chapter 2 Development and Implementation of Respiratory Care Plans  
Chapter 3 Review of the Medical Record  
Chapter 4 Patient History  
Chapter 5 Physical Assessment  
Chapter 6 Assessment of Oxygenation  
Chapter 7 Assessment of Ventilation  
Chapter 8 Blood Gas Analysis, Hemoximetry, and Acid-Base Balance  
Chapter 9 Laboratory Studies  
Chapter 10 Cardiac Assessment and the Electrocardiogram  
Chapter 11 Cardiopulmonary Imaging  
Chapter 12 Adult Pulmonary Function  
Chapter 13 Bronchoscopy and Special Procedures  
Chapter 14 Acute and Critical Care Monitoring and Assessment  
Chapter 15 Obstructive Sleep Apnea  
Chapter 16 Neonatal and Pediatric Assessment
Content

• The book has a natural flow:
  – It begins by describing the purpose of patient assessment (Chapter 1) and methods associated with evidence-based practice.
    • Introduction to patient assessment
    • Why it is so important
    • Factors that affect health
    • Drivers of the health care system (cost, access and quality and the triple aim of health care reform)
    • Evidence-based practice
    • Sources and types of evidence
    • Questions for evidence-based practice (how to do it)
    • Recommendations for therapy
  – Critical diagnostic thinking is then reviewed
    • Steps to establish a diagnosis
    • Common (and less common) assessment findings
    • Typical presentations of common respiratory disorders
### Table 1-1
**Factors That Determine Individual Health**

- **Genetic makeup**
- **Natural physical environment** (climate, housing, neighborhood, work, school)
  - Housing factors that may affect health
    - Lead exposures
    - Mold, mites, and other allergens
    - Temperature extremes
    - Indoor air pollution
    - Injuries
    - Residential crowding
  - Neighborhood conditions that may affect health
    - Physical conditions
    - Substandard housing
    - Poor air/water quality, exposure to hazardous substances
    - Crime and safety, safe places to exercise
    - Employment opportunities
    - Access to full-service grocery stores (presence of food deserts)
    - Schools, transportation and other municipal services
    - Social networks and social support
  - Work
    - Exposure to hazardous materials
    - Physical activity
    - Pay, promotions, social support, job satisfaction, stress
    - Access to medical care
  - School
    - Physical activity and nutrition
    - Environment
    - Access to medical care
  - Environmental stress (work, home, other) impacts other health factors, such as
    - Alcohol and drug abuse
    - Mental health
    - Eating habits and obesity
    - Blood pressure and immune response

- **Healthcare services**
  - Quality, access, and cost
  - Acute care
  - Preventative care
  - Rehabilitation
  - Chronic disease management

- **Health-related behaviors**
  - Nutrition
  - Smoking
  - Drugs and alcohol
  - Physical exercise

Adapted with permission from Center on Social Disparities in Health, University of California, San Francisco.
FIGURE 1.2 Conceptual framework for addressing healthcare disparities.
BOX 1-3

Use of Questions in Evidence-Based Practice

1. Patient problem or population
   - What patient or problem is being considered?
     - What is the patient’s chief complaint or primary problem? Respiratory examples may include a patient’s symptoms or primary disease state or condition:
       - Symptoms: Cough, sputum production, shortness of breath, wheezing, chest tightness, chest pain, other?
       - Disease states or conditions: Asthma “attack,” COPD exacerbation, acute respiratory failure, chest trauma, other?
     - What is the larger patient population under consideration?
       - Asthma, COPD, pneumonia, acute lung injury, respiratory failure, ARDS, congestive heart failure (CHF), other?

2. Intervention
   - What diagnostic method, treatment, medication, procedure or other intervention is being considered?
     - The intervention is what you plan to do for the patient. Examples might include:
       - Diagnostic procedures (blood gases, pulmonary function testing, laboratory studies, imaging studies, other)
       - Drugs or medications (antimicrobial agents, bronchodilators, anti-inflammatory agents, cardiac drugs, other)
       - Respiratory care procedures (oxygen therapy, directed cough, lung expansion therapy, bronchial hygiene techniques, other)
       - Mechanical ventilatory support (invasive or noninvasive)
3. Comparison
   - *What alternative treatments or interventions are being considered?*
     - Examples of comparisons for respiratory care might include:
       - Pulmonary rehabilitation versus home care in COPD
       - Peak flow versus symptom monitoring in moderate to severe asthma
       - Volume-control versus pressure-control modes of mechanical ventilation in ARDS
       - Rapid drug-susceptibility tests versus conventional culture-based methods for detection of multidrug-resistant tuberculosis
     - In some cases, there may not be an alternative treatment or therapy under consideration.

4. Outcome
   - *What outcomes are sought?*
     - Diagnosing a condition
     - Relieving or eliminating specific symptoms
     - Stopping or reversing a pathologic process
     - Improving or maintaining function
     - Prevention

5. Searching the literature
   - *The next step is to define the search terms and perform a literature review:*
     - Search terms should include the problem, intervention, and comparison (if there is to be a comparison).
     - Examples might include:
       - Noninvasive ventilation and COPD
       - Drug treatment and ARDS
       - Medications and acute asthma exacerbation
       - Antibiotics and ventilator acquired pneumonia
       - Weaning method(s) and mechanical ventilation in ARDS patients
BOX 1-2

Online Resources for Evidence-Based Practice

- **PubMed.** PubMed is a comprehensive online database of peer-reviewed biomedical research papers, reviews, and journal articles (http://www.ncbi.nlm.nih.gov/pubmed/).
- **Medline.** Similar to PubMed, Medline is a comprehensive online database of peer-reviewed biomedical research papers, reviews, and journal articles. It is available through college and university library services via OVIDSP.
- **CINAHL (Cumulative Index to Nursing and Allied Health Literature).** CINAHL is a comprehensive online database of nursing and allied health journal publications. It may include articles not listed in other databases. CINAHL is available through college and university library services via EBSCO Publishing (http://www.ebscohost.com/cinahl/).
- **Google Scholar.** Google Scholar provides an effective search engine which includes an “Advanced Scholar Search” option. When used properly, recall and precision of Google Scholar is similar to PubMed. (http://scholar.google.com)
- **Cochrane Database of Systematic Reviews.** The Cochrane Collaboration (http://www.cochrane.org) and the Cochrane Library (http://www.thecochranelibrary.com/view/0/index.html) provide systematic reviews of the literature for use in evidence-based practice.
- **MD Consult.** This comprehensive medical information service for evidence-based practice is available through college and university library subscription services (http://www.mdconsult.com).
- **UpToDate.** This comprehensive medical information service for evidence-based practice is available through college and university library subscription services (http://www.uptodate.com/index).
- **Centers for Disease Control and Prevention (CDC).** The CDC offers a wealth of tools and resources on its website (http://cdc.gov).
- **National Institutes of Health (NIH).** The NIH is a valuable source of information on evidence-based medicine (http://www.nih.gov).
FIGURE 1-3  Evaluating the evidence (critical appraisal) → best evidence pyramid.

### Table 1-3  Rating the Evidence for Recommendations of Therapy

A number of rating systems have been developed to assess the strength of the evidence for evidence-based practice. The following system evaluates the strength of the recommendation and the quality of the evidence.

<table>
<thead>
<tr>
<th>Strength of the Recommendation</th>
<th>Level</th>
<th>Strength</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Stronger</td>
<td>Benefits clearly outweigh the risks and burdens (or vice versa) for nearly all patients.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Weak</td>
<td>Risks and benefits are more closely balanced or are more uncertain</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quality of the Evidence</th>
<th>Grade</th>
<th>Quality</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>High</td>
<td>Well-performed randomized controlled trials or overwhelming evidence of some other sort. Further research is very unlikely to change our confidence in the estimate of the effect.</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Moderate</td>
<td>Randomized controlled trials that are less consistent, have flaws, or are indirect in some way to the issue being graded, or very strong evidence of some other sort. Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate.</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Low</td>
<td>Low observational evidence from observational studies, case series, or clinical experiences, or evidence from controlled trials with serious flaws. Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate.</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>Very Low</td>
<td>Any estimate of effect is uncertain</td>
<td></td>
</tr>
</tbody>
</table>

Approach to Hypothesis Formulation and Evaluation

Critical thinking to establish the patient’s diagnosis should include the key elements of the scientific method. These key elements or steps are:

1. Identify the problem.
2. Gather additional information to clarify the problem.
3. Formulate possible explanations (hypothesis formulation).
4. Test possible explanations (hypothesis testing).
5. Formulate and implement solutions.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Common Causes</th>
<th>Less Common Causes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute cough</td>
<td>Viral upper respiratory infection (pharyngitis, rhinitis, tracheobronchitis, acute bronchitis, mycoplasma, pneumonia, ear infection, sinusitis, abscess)</td>
<td>Tumor, neoplasm, Pulmonary emboli, Aspiration (foreign body, liquid), Laryngitis, ACE inhibitor medication, Pleural disease, Diaphragm irritation, Mediastinal disease, Extrathoracic lesions, Fungal lung disease, Ornithosis</td>
</tr>
<tr>
<td></td>
<td>Asthma, Sinusitis, Gastroesophageal reflux, Congestive heart failure, pulmonary edema, Inhalation of irritants (smog, smoke fumes, dusts, cold air), Bronchiolitis (RSV)</td>
<td></td>
</tr>
<tr>
<td>Chronic cough</td>
<td>Postnasal drip (sinusitis, allergic rhinitis), Smoking, Asthma, Chronic bronchitis, Gastroesophageal reflux, Congestive heart failure, ACE inhibitor medication (20%), HIV, Bronchiectasis, Neoplasms, bronchogenic carcinoma, Lung abscess, Recurrent aspiration, Aspiration (foreign body, liquid), Mycoplasma pneumonia, Pulmonary tuberculosis, Pulmonary fibrosis, Cystic fibrosis</td>
<td>Chronic pulmonary edema, Mitral stenosis, Laryngeal inflammation or tumor, Fungal pneumonia, External or middle ear disease, Bronchogenic cyst, Mediastinal mass, Zenker's diverticulum, Aortic aneurysm, Vagal irritation, Pacemaker wires, Pleural disease, Pericardial, mediastinal, or diaphragm irritation, Psychogenic cough</td>
</tr>
</tbody>
</table>
Content

• The book has a natural flow:
  – Critical diagnostic thinking is then applied to the development and implementation of evidence-based respiratory care plans (Chapter 2).
    • Introduction to care plans
    • Respiratory care plan development
    • Specific care plans
      – Maintain adequate tissue oxygenation
      – Treat and/or prevent bronchospasm
        » Respiratory care plans for asthma
        » Respiratory care plans for COPD
      – Mobilize and remove secretions
      – Provide lung expansion therapy
      – Critical care and mechanical ventilation
      – Critical care and mechanical ventilation
    • Respiratory care plan format
### Table 2-1
Types of Care Provided in the Respiratory Care Plan

#### Basic Respiratory Care
- Oxygen therapy
- Secretion management
- Sputum induction
- Management of bronchospasm and mucosal edema
- Lung expansion therapy

#### Critical Respiratory Care
- Invasive mechanical ventilatory support
- Noninvasive mechanical ventilatory support
- Physiologic monitoring
- Cardiac and hemodynamic monitoring
- Suctioning and airway care
- Airway intubation
- Advanced cardiovascular life support
- Metabolic studies
- Extracorporeal membrane oxygenation
- Mechanical circulatory assistance
- Basic care in the intensive care setting

#### Diagnostic Testing
- Oximetry
- Arterial blood gases
- Pulmonary function testing
- Cardiac testing (e.g., ECG, invasive cardiology, cardiac catheterization laboratory)
- Ultrasound (echocardiography, other)
- Sleep studies
- Exercise testing

#### Special Procedures
- Transport
- Patient education
- Smoking cessation
- Disease management
- Pulmonary rehabilitation
- Cardiac rehabilitation
Reviews
- Indications for therapies and diagnostic testing
- Treatment of common problems
  - Respiratory failure
    - Oxygenation problems
    - Ventilatory failure
  - Bronchospasm and mucosal edema
  - Asthma and COPD (includes medications – acute and chronic)
  - Secretion management
  - Lung expansion therapy
  - Critical care and mechanical ventilation
Content

• The book has a natural flow:
  – The book then guides the reader through the
    • Review of existing data in the medical record (Chapter 3)
    • Patient interview (Chapter 4)
    • Physical assessment of the patient (Chapter 5)
    • Ordering and evaluation of the diagnostic studies needed
  – Chapters 6 through 8 focus on the assessment of
    • Oxygenation, ventilation, and arterial blood gas sampling and interpretation (includes oximetry)
  – Chapter 9 reviews laboratory studies
    • Hematology, clinical chemistry, microbiology
    • Assessment of sputum, urinalysis, skin testing
    • Histology and cytology, and molecular diagnostics
Assessment Resources

**BOX 4-4**

**Common Causes and Classification of Cough as Acute, Subacute, or Chronic**

- **Acute cough:** A cough that has been present for < 3 weeks.
  - Acute respiratory tract infection
  - Acute exacerbation of chronic lung disease
  - Pneumonia
  - Pulmonary embolus
- **Subacute cough:** Cough has been present for 3 to 8 weeks.
  - Postnasal drip
  - Postinfectious cough
  - Pertussis (whooping cough)
- **Chronic cough:** Cough present > 8 weeks.
  - Postnasal drip
  - Asthma
  - GERD
  - ACE inhibitor medications
  - Chronic bronchitis
  - Bronchiectasis
  - Lung cancer/neoplasm
  - Foreign body aspiration
  - Interstitial lung disease
  - Lung abscess
  - Nonasthmatic eosinophilic bronchitis
  - Pertussis (whooping cough)
  - Chronic idiopathic cough

**TABLE 4-5**

**Patient Interview Questions Related to Phlegm, Sputum, or Mucus Production**

The patient should be questioned using clear and direct language. A positive patient response should be followed by specific questions to provide more detail regarding onset, nature of the cough, pattern, frequency, associated symptoms, and related items.

1. Do you usually bring up phlegm (sputum, mucus) from your chest first thing in the morning? ☐ Yes ☐ No
2. Do you usually bring up phlegm (sputum, mucus) from your chest at other times during the day or night? ☐ Yes ☐ No
3. Do you bring up phlegm (sputum, mucus) from your chest on most days for as much as 3 months of the year? ☐ Yes ☐ No
4. If yes to #3, for how many years have you raised phlegm (sputum, mucus) from your chest?
   - Clear
   - Cream of off-white
   - White
   - Yellow
   - Green
   - Yellow/green
   - Rust
   - Pink
   - Red
   - Brown
   - Don’t know
   - Other (give details):
5. What is the usual color of the phlegm (sputum, mucus) you bring up from your chest?
   - Clear
   - Cream of off-white
   - White
   - Yellow
   - Green
   - Yellow/green
   - Rust
   - Pink
   - Red
   - Brown
   - Don’t know
   - Other (give details):
6. How much sputum do you raise each day?
   - Less than a teaspoon
   - About a teaspoon full
   - About a tablespoon full
   - More than a tablespoon full
   - Don’t know

**BOX 4-5**

**Common Causes of Hemoptysis**

- Bronchitis (acute and chronic)
- Bronchiectasis
- Lung abscess
- Tuberculosis
- Pneumonia (includes necrotizing pneumonias)
- Neoplasms (bronchogenic carcinoma)
- Pulmonary embolism (pulmonary infarction)
- Cystic fibrosis

**TABLE 4-7**

**Possible Causes of Wheezing**

**Upper Airway Obstruction: Extrathoracic**
- Posterior node
- Croup and laryngotracheobronchitis
- Other laryngeal problems
  - Post extubation edema
  - Laryngeal stenosis
  - Vocal cord dysfunction
- Epiglottitis
- Anaphylaxis
- Retropharyngeal abscess
- Tumor

**Upper Airway Obstruction: Intrathoracic**
- Airway tumors
- Foreign body aspiration
- Tracheal stenosis
- Tracheal malacia

**Lower Airway Obstruction**
- Asthma
- Other chronic obstructive lung disease
  - COPD
  - Bronchiectasis
  - Cystic fibrosis
- Bronchitis
- Aspiration
  - Fluid aspiration, including gastric contents
  - Small foreign body aspiration
- Heart failure (cardiac asthma)
- Noncardiogenic pulmonary edema
- Pulmonary embolus
- Miscellaneous
  - Carcinoid syndrome
  - Lymphangitic carcinomatosis
  - Parasitic infections
Chapters 4 and 5 Tables, Boxes and Figures

- Interview questions for cough
- Description of cough and sputum production
- Common causes of dyspnea
- Dyspnea rating scales (e.g. Borg, SOBQ, MMRC, VAS)
- Items to include in the patient history
- General history and history of chest illness questionnaires
- Medical history for asthma patients
- Smoking and tobacco use interview questions
- Effective smoking cessation techniques (5 As and 5Rs)
- Occupational lung disease
- Checklist for physical assessment for care plan development
- Steps in physical examination
- Vital signs
- Treatment of hypertension
- Fever
- Pain recognition
- BMI, obesity and health risks
- Mental status and neurologic exam (Glasgow, Ramsey sedation scale, Richmond agitation scale, Mini-Mental State Exam)
- Chest inspection summary
- Palpation techniques
- Percussion findings
- Clinical implications of breath sounds
- Chest pain
- Heart sounds
- Skin appearance and edema grades
- Physical findings of common respiratory disease
Images

FIGURE 9-9 Staphylococcus aureus colonies on Trypticase soy agar with 5% sheep RBCs (blood agar plate).
Content

• The book has a natural flow:
  – In Chapter 10, ECG monitoring and interpretation are discussed to include findings with specific cardiac disorders
  – Chapter 11 focuses on imaging techniques to include the chest radiograph, CT scan, MRI, and other imaging studies used in the evaluation of the respiratory care patient and includes the evaluation of imaging findings associated with specific pulmonary diseases
  – Pulmonary function testing is described in Chapter 12 to include the evaluation of patients with obstructive and restrictive disease
  – Chapter 13 details diagnostic bronchoscopy and other diagnostic studies.
  – Acute and critical care monitoring with a focus on the patient receiving mechanical ventilatory support is covered in Chapter 14
  – Chapter 15 addresses the use of sleep studies in the evaluation of the cardiopulmonary patient
  – Last, but not least, Chapter 16 covers maternal and perinatal/neonatal patient assessment
Instructor Resources

• Lecture Outlines in PowerPoint Format
• Test Bank
• Sample Syllabus
• Image Bank
Instructor and Student Resources

Helpful Forms and Checklists available as printable PDFs

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- SOAP Format for Organizing a Respiratory Care Plan
- Detailed Respiratory Care Plan Format
- Mechanical Ventilation Flow Sheet
- Respiratory Care Assessment Medical Record Review Data Collection Form
- Form for General Past Medical History
- Patient Interview Questions Related to the Cough
- Patient Interview Questions Related to Phlegm, Sputum, or Mucus Production
- Patient Interview Questions Related to Hemoptysis
- History of Chest Illness
- Smoking and Tobacco Use Interview Questions
- Checklist for the Physical Assessment for Respiratory Care Plan Development
- Mini-Mental State Examination
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Knowledge Check Questions within eBook

Which of the following describes a physical therapist displaying the strongest positive nonverbal signal to the patient?

- The therapist stands above a patient, who is sitting on the exam table, arms crossed, tapping the pencil on the patient's chart.
- The therapist sits at equal eye level with the patient, leaning back, arms crossed in front of her.
- The therapist sits at equal eye level with the patient, leaning forward, nodding as the patient speaks, while writing in the patient's chart.
- The therapist stands above the patient, who is sitting on the exam table, tapping his foot, with focused, unchanging eye contact and facial expression.

Submit Assessment
Skills that signal involvement in communication and focus on the patient; examples are maintaining eye contact unless culturally inappropriate to do so, sitting directly in front of and at the same level as the person talking, interjecting encouraging words, maintaining an interested facial expression, and building the conversation from the patient's responses.
Grade Book
Recap of Features

- Content needed to pass the National Board for Respiratory Care entry level and advanced respiratory care examinations is included throughout
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