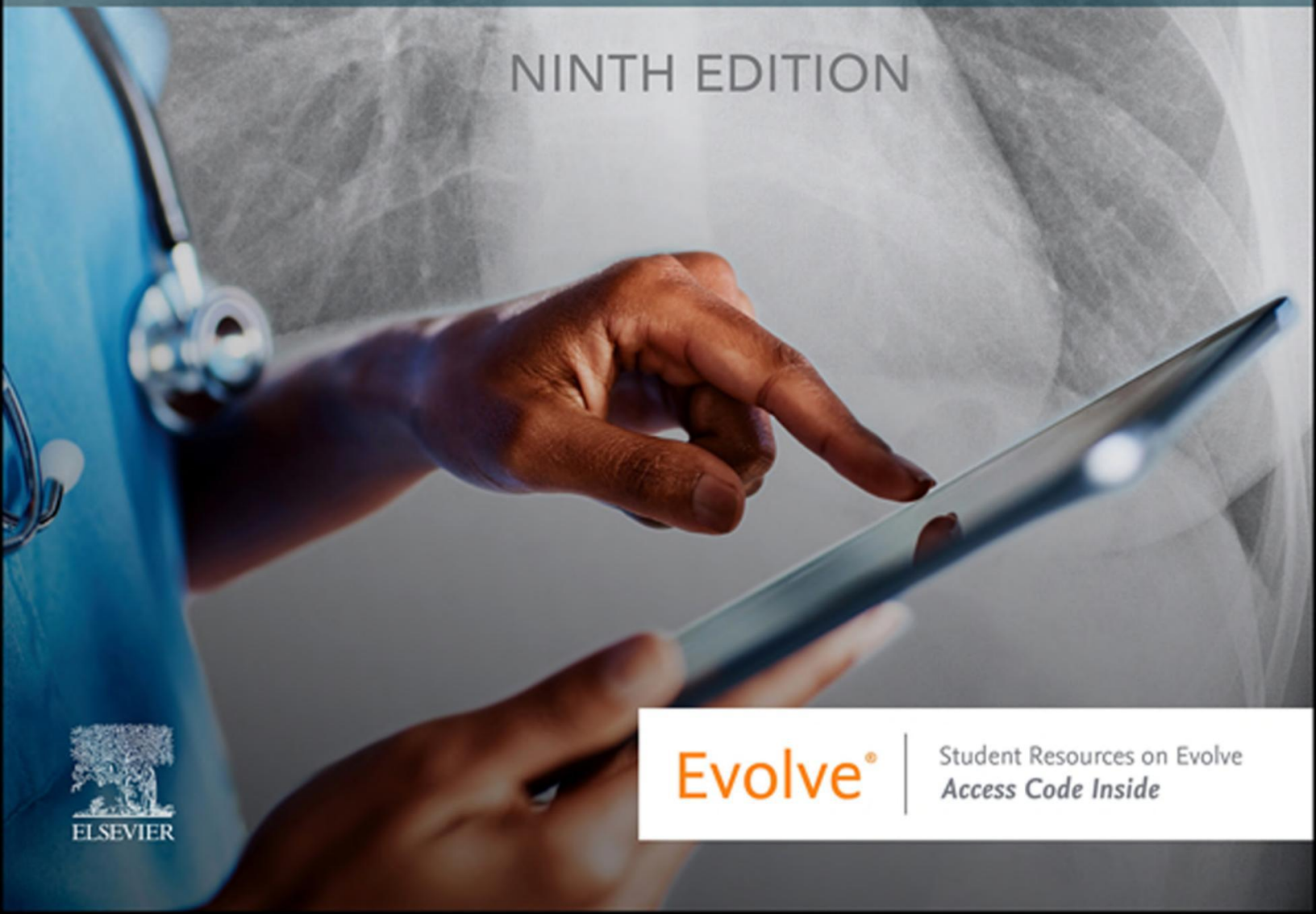
ALBERT J. HEUER

WILKINS' Clinical Assessment in Respiratory Care

NINTH EDITION



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To fate, fortune, and persistence,
which have given me the opportunity to pursue my passion as an educator and clinician;
to my faculty mentors, Drs. Craig Scanlan, Robert Kacmarek, and Robert Wilkins,
who helped me develop the skills to do so; and to my wife, Laurel, my brothers,
Gary and Craig, and my mother, Edith,
who have inspired and supported me on the journey.

AJH

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PREFACE

The primary purpose of the ninth edition is similar to the previous ones: to provide relevant information related to the knowledge and skills needed for respiratory therapists (RTs) to be competent and to trust in their patient assessment skills. The ninth edition is based on the assumption that every patient is an interactive, complex person who is more than a collection of his or her parts. The health status of patients depends on many internal and external environmental interactions. These interactions occur within their physical environments and include what they eat, drink, and breathe; how they sleep; and if and when they exercise. External or social environments also affect their health status and include what kind of activity and work they participate in and where they live. Other factors, such as when, why, and how often patients seek health care, can also affect their overall well-being.

Although the language of this text continues to be aimed primarily at students and the faculty who teach them, experienced therapists or other health care clinicians may benefit from its content as well. We hope that this book helps students and clinicians gain important insight into the value, purpose, and skills associated with patient assessment. The important tools provided in these pages can assist you to inspect and examine the patient's body. However, learning to listen to the patient's explanation of what is wrong and right is often the most valuable practice in meeting a patient's health needs.

Assisting physicians in assessing patients for the treatment needed, the complications that may arise, and when a treatment regimen should be changed or discontinued is a competency expected of almost all health care professionals.

We have seen firsthand the difference in patient care when clinicians are competent at patient assessment. Identifying the early signs of atelectasis through the use of a stethoscope and evaluation of breathing pattern, identifying the potential misplacement of an endotracheal tube through the use of a stethoscope and the chest radiograph, and recognizing serious abnormalities based on the arterial blood gas are all scenarios in which you could find yourself.

Application of such skills can favorably affect the outcomes experienced by patients both in and out of the hospital. On the other hand, those clinicians who lack good assessment skills generally are relegated to following the orders of others, which is not always the best way to serve the patient. Although we believe that high-tech equipment can be smart and sophisticated, it can never replace the well-honed bedside assessment skills of the experienced clinician. We hope that the knowledge in this book will help develop and refine your clinical skills and inspire you to develop a passion for patient assessment.

NEW TO THIS EDITION

The ninth edition retains the strengths of the first eight editions: a clear, concise, and understandable writing style; an attractive and user-friendly format; and the inclusion of relevant clinical case studies and helpful hints for practice. However, this new edition ushers in many significant changes:

- The editor of this textbook, Albert J. Heuer, is a long-time respiratory educator and is Professor at the School of Health Professions, Rutgers University, Newark, New Jersey. Dr. Heuer served as coeditor on the fifth and sixth edition of this textbook, and he is also a coeditor of *Egan*'s Fundamentals of Respiratory Care for the 10th, 11th, and 12th editions. Dr. Heuer also coedits a respiratory care credentialing exam textbook, is codirector of an online credentialing exam review program, and lectures throughout the country on topics related to respiratory care and health care management. In addition, Dr. Heuer is a practicing respiratory therapist who continues to work regularly in acute care at a major medical center in New Jersey. It was because of his expertise as a respiratory educator, scholar, and clinician, coupled with their professional relationship, that Robert Wilkins requested to have Dr. Heuer succeed him as lead editor for this project. Dr. Heuer is continuing Wilkins' legacy in maintaining the high standards of this text set into motion seven editions ago.
- Each chapter has been carefully updated to reflect the latest standards of practice and credentialing examination content.
- All chapters also have been peer reviewed, and the content is reflective of reviewer input and expertise.
- The latest technologic advancements, including those related to the assessment of critical care and non–critical care patients, have been included.
- This edition includes a renewed focus on providing a reading level that is appropriate for any respiratory care student.
- A full-color illustration program has been implemented to enhance student understanding of key concepts.
- Along with the inclusion of color illustrations, this edition has also adopted a color design intended to enhance learning by making content easier to read and elements of the text easier to locate.

FEATURES

We continue to use learning features to help guide the student to mastery of the content. This edition features the following:

- Chapter outlines introduce students to chapter content and progression to enhance note taking.
- Content that is focused on relevant, measurable, and attainable chapter learning objectives that help with mastery of information.
- Key terms are bolded and defined within the text to enhance terminology comprehension.
- Simply Stated boxes are scattered throughout each chapter to succinctly summarize and highlight key points within the text.
- Bulleted Key Points at the end of each chapter emphasize the topics identified in the learning objectives and provide the student with an overview of chapter content for easy review.

- Select chapters include Case Studies that feature realistic clinical scenarios for student practice and/or classroom discussion.
- Questions to Ask boxes are also included in select chapters. They provide lists of questions that practitioners should ask when confronted with certain pathologies.
- Assessment Questions conclude each chapter to easily assess mastery of the content. Answers for the assessment questions are located at the end of each chapter.

LEARNING AIDS

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Evolve is an interactive learning environment designed to work in coordination with this text. Instructors may use Evolve to provide an Internet-based course component that reinforces and expands the concepts presented in class. Evolve may be used to publish the class syllabus, outlines, and lecture notes; set up "virtual office hours" and e-mail communication; share important dates and information through the online class calendar; and encourage student participation through chat rooms and discussion boards. Evolve allows instructors to post examinations and manage their grade books online.

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CONTENTS

1

Preparing for the Patient Encounter

Anne Marie Hilse and Craig L. Scanlan

LEARNING OBJECTIVES

After reading this chapter, you will be able to:

1. Define patient- and family-centered care and identify its key elements.
2. Identify the major factors affecting communication between the patient and clinician.
3. Differentiate among the stages of the clinical encounter and the communication strategies appropriate to each stage.
4. Incorporate patients' needs and preferences into your assessment and care planning.
5. Apply concepts of personal space and territoriality to support patients' privacy needs.
6. Employ basic rules to ensure the confidentiality and security of all patient health information.
7. Identify the key abilities required for culturally competent communication with patients.
8. Specify ways to involve patients and their families in the provision of health care.
9. Identify the steps in assessing a patient's learning needs, including how to overcome any documented barriers to learning.
10. Explain the use of patient action plans in facilitating goal setting and patient self-care.
11. Specify steps the patient and family can take to enhance safety and reduce medical errors.
12. Identify standard infection control procedures needed before, during, and after patient encounters.
13. Outline ways to ensure effective communication with other providers when receiving orders and reporting on your patient's clinical status.
14. Specify how to coordinate your patient's care with that provided by others, as well as when transferring responsibilities to others and planning for patient discharge.
15. Identify examples of how the respiratory therapist can participate effectively as a team member to enhance outcomes in caring for patients with both acute and chronic cardiopulmonary disorders.

OUTLINE

KEY TERMS

action plan
closed-loop communication
culturally competent communication
intimate space
nonverbal communication
patient- and family-centered care (PFCC)
personal protective equipment (PPE)
personal space
protected health information (PHI)
return demonstration
SBAR
social space
Speak Up initiative
standard precautions
teach-back method
territoriality

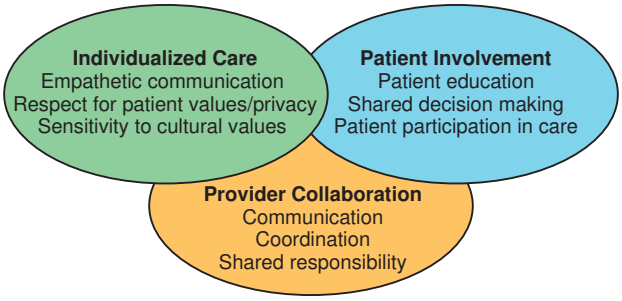

Fig. 1.1 Essential elements of patient- and-family-centered care.

Patient- and family-centered care (PFCC) (Fig. 1.1) depicts three main elements: individualized care, patient involvement, and provider collaboration. PFCC is founded on a two-way partnership between providers and patients, along with their families as respected collaborators. PFCC is designed to ensure that (1) the care given is consistent with each individual's values, needs, and preferences, and (2) patients become active participants in their own care. The core goal of PFCC is to advance the quality of interactions between patients and care providers while promoting compassion, respect, and dignity for all parties. Additionally, PFCC helps minimize medical errors and contributes to enhanced patient safety.

The patient-provider encounter is at the heart of effective PFCC. Such encounters are so commonplace in the daily routine of the respiratory therapist (RT) that we often forget how important these short interactions can be in determining the effectiveness of the care we provide. This chapter focuses on how RTs can use these encounters to promote high-quality care that is attentive to the needs and expectations of each individual patient.

INDIVIDUALIZED CARE

Individualized care requires empathetic, two-way communication; respect for each patient's values; and privacy along with sensitivity to cultural values.

Empathy is recognized as a critical skill in the medical profession. But what is empathy? The definition of empathy is as widely interpreted as the diverse clinicians who practice it. According to Segal and colleagues in *Assessing Empathy*, "In its most basic form, empathy is feeling and understanding the emotions and experiences of others."

SIMPLY STATED

The gift of empathy is the ability to put oneself in another's shoes.

Providing Empathetic Two-Way Communication

The basis of PFCC is empathetic and effective communication. Communication, a two-way process, involves both sending and receiving meaningful messages. *If the receiver does not fully understand the message, effective communication has not occurred.* Multiple personal and environmental factors influence the effectiveness of communication during clinical encounters (Fig. 1.2). Attending to how each of these components may affect communication can make the difference between an effective and an ineffective clinical encounter.

Each party to a clinical encounter brings attitudes and values developed by prior experiences, cultural heritage, religious beliefs, level of education, and self-concept. These personal factors affect the way a message is sent and how it is interpreted and received. Messages can be sent many different ways and at times without awareness. Body movement, facial expression, touch, and eye movement are all types of **nonverbal communication**. Combined with voice tone, nonverbal cues frequently convey more than spoken words. Because one of the purposes of the encounter is to establish a trusting relationship with the patient, the clinician must make a conscious effort to send signals of genuine concern to show compassion and empathize with the patient's circumstances. Techniques useful for this purpose are facing the patient squarely, using appropriate eye contact,

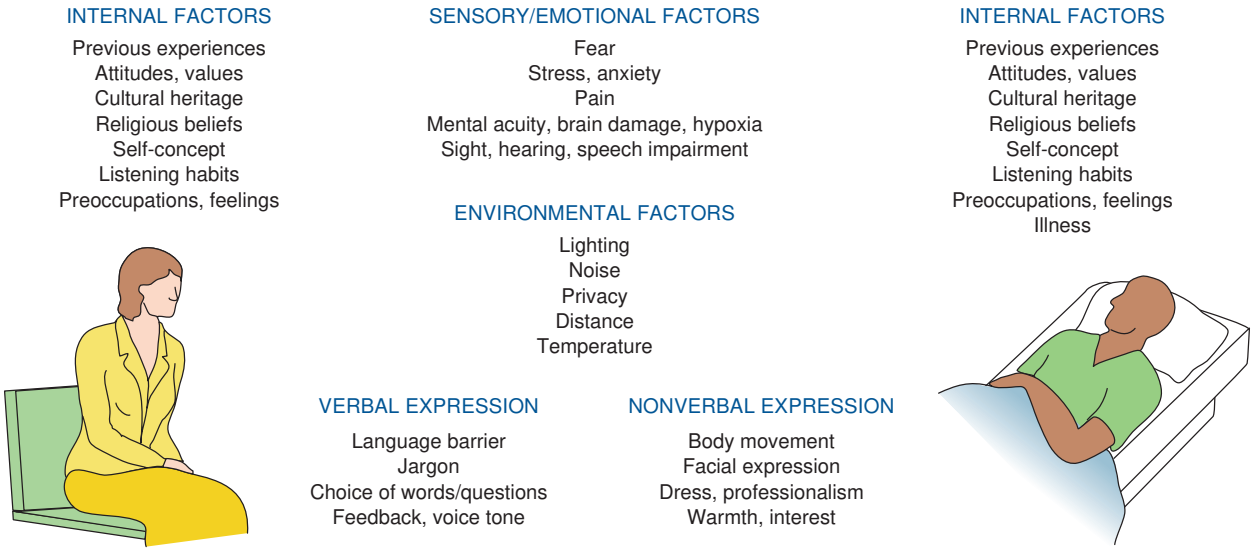

Fig. 1.2 Factors influencing the effectiveness of communication during clinical encounters.

maintaining an open posture, using touch with permission, and actively listening. It also may be helpful to treat the patient as you would expect to be treated if in the patient's situation (the "golden rule" applied to bedside care).

One of the most common mistakes made by clinicians during patient encounters is failing to listen carefully to the patient. Good listening skills require concentration on the task at hand. Active listening also calls for replying to the patient's comments and questions with appropriate responses. Patients are quick to identify the clinician who is not listening and will often interpret this as a lack of empathy or concern. If the patient says something you do not understand, ask the patient to clarify what was said rather than replying with the response you think is right. Asking for clarification tells the patient that you want to make sure you get it right.

Messages are also altered by feelings, language differences, listening habits, comfort with the situation, and preoccupation. Patients experiencing pain or difficulty breathing will have a hard time concentrating on what you are communicating until their comfort is restored. The temperature, lighting, noise, and privacy of the environment also may affect comfort. Look for nonverbal cues of discomfort such as sighing, restlessness, looking into space, grimacing, and avoiding eye contact.

Your use of communication techniques may differ according to the stage of interaction with a patient. Generally, a patient encounter begins with a chart review and then progresses through four additional stages: introductory, initial assessment, treatment and monitoring, and follow-up. Table 1.1 outlines the purpose of these stages and provides example strategies to help ensure effective communication during each major aspect of the patient encounter.

Respecting Patient Needs and Preferences

Individualized care requires that providers respect each patient's needs, preferences, and privacy. Within this framework, we do not, for example, treat "the COPD patient in room 345," but a *patient with COPD*, whose ability to cope with its full range of physical and psychosocial consequences is unique. Effective therapy requires that the individual patient's response to disease be determined as part of the initial patient encounter. For patients with chronic afflictions, regularly assess responses and adapt care plans accordingly.

Whenever possible, care plans should also reflect each individual patient's preferences. For example, after their urgent situation is resolved, patients with asthma should be allowed to participate in deciding which aerosol drug delivery system

TABLE 1.1 Stages of the Clinical Encounter

Stage	Purpose	Communication Strategies
Chart review (preinteraction)	Identifying key patient information	Apply this information in the introductory and initial assessment stages
Introductory	Introducing oneself Confirming patient identity Clarifying purpose/your role Acknowledging family presence Building rapport Inspecting the patient (initial)	Look and act in a professional manner Refer to patient using formal last name Avoid encroaching on personal space Pay attention to nonverbal cues Identify patient emotions Express support and empathy (compassion) React in nonjudgmental way
Initial assessment	Determining patient's status (interview and physical examination) Determining learning needs Assessing cultural differences Determining appropriateness of orders (new Rx)	Use active listening • Avoid interrupting the patient • Use body position to indicate interest • Avoid writing while patient is talking • Make eye contact but do not stare • Encourage open expression Reflect what the patient shares Summarize/request feedback Make facilitative responses, e.g., nodding
Treatment and monitoring	Demonstrating/teaching treatment technique Implementing and modifying treatment based on patient's preferences, monitored responses	Explain therapy in understandable terms Invite questions about the treatment Confirm acceptance of the treatment Assess patient's concerns, expectations Attend to patient discomfort
Follow-up	Confirming patient response Developing shared goals Ensuring follow-up Restoring environment	Invite questions from patient and family Determine information preferences Check the patient's ability to follow the plan Discuss follow-up (e.g., treatment schedule, what to do if symptoms worsen)

Rx, Prescription.

is best for them. Likewise, a patient with cystic fibrosis should be allowed to participate in selecting from a variety of equally effective airway clearance techniques. An individual's needs *during* treatment may involve modifying the therapy based on the patient's response.

Ensuring Privacy and Confidentiality

We address privacy concerns in part by respecting personal space. Respecting patients' privacy rights is both a legal and a moral obligation for health care professionals.

To respect patients' personal space, understand both the general and cultural effects of proximity and direct contact. Fig. 1.3 shows the three zones of space commonly associated with the bedside patient encounter.

The **social space** (4 to 12 feet) is mainly used in the introductory stage of the encounter when you begin to establish rapport. At this distance, you can see the "big picture" and gain awareness of the whole patient and the patient's environment. Discussion is limited to the more formal issues. Avoid personal questions in this space because others in the room may overhear the conversation.

The **personal space** (18 inches to 4 feet) is used primarily during the interview component of the initial assessment, usually after establishing rapport with the patient. This enhanced proximity is generally needed to collect sensitive patient information, such as questions about daily sputum production or smoking habits. Pulling the bedside curtain may help the patient feel more comfortable about sharing personal information. Most patients also feel more comfortable and confident when your appearance is neat, clean, and professional. Patient trust can be enhanced by making appropriate eye contact while in the patient's personal space.

Intimate space (0 to 18 inches) is reserved primarily for the physical examination component and the treatment and monitoring stage of the encounter. Generally, moving into such proximity and touching the patient should be done only after establishing rapport and being given permission to do so. Permission often is obtained by simply asking permission to listen to breath sounds or check vital signs. Doing this before moving into the intimate space communicates both your respect for patient privacy and your willingness to collaborate on decision making. *Minimal eye contact is used in this space.* Limit verbal communication to simple questions or brief requests, such as, "Please take a deep breath."

Some patients may respond poorly to encroachment into their space. Gender, age, race, physical appearance, health status, and cultural background are among the many factors that may influence a patient's comfort level when you enter the intimate

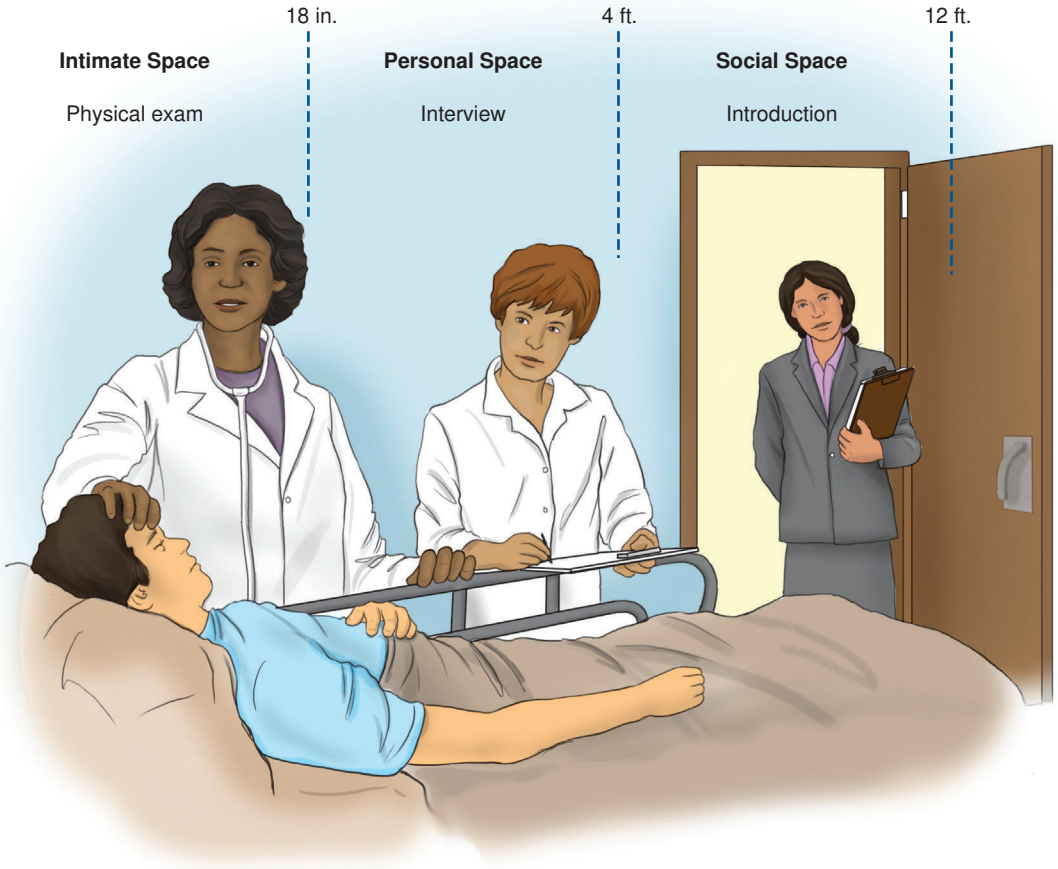

Fig. 1.3 Social, personal, and intimate spaces characterizing the clinical encounter.

space. If the patient's words or nonverbal responses indicate hesitancy with your actions, move more slowly and communicate your intent very carefully.

Related to the concept of proximity is that of **territoriality**. Removing items from the patient's "territory" should occur only after permission has been obtained. For example, when borrowing a chair from the bedside of Mr. Jones for use at the bedside of Mr. Smith, you should ask Mr. Jones for permission, being sure to replace any items temporarily removed from the patient's territory.

SIMPLY STATED

The social space (4 to 12 feet) is for introductions, the personal space (18 inches to 4 feet) is for interviewing, and the intimate space (0 to 18 inches) is for physical examination.

In regard to maintaining confidentiality, all health professionals manage sensitive patient information. For example, your chart review may reveal that a patient under your care has a history of drug abuse or has been diagnosed with a sexually transmitted disease. This information is private and not for public knowledge. You have both a legal and a moral obligation to keep this information in strictest confidence and share it only with other health professionals who have a need to know, such as the patient's nurse or attending physician. Most often, violations of patient confidentiality occur in public spaces while discussing patient information between caregivers and being overheard by visitors. *Discuss your patient's health status only with other members of the health care team who need to know such information and only in a private area where visitors are not allowed.*

Family members and visitors who ask about the patient's diagnosis should be referred to the health care provider. Most people will appreciate a polite and honest response in which you tell them that privacy rights prevent you from discussing the patient's diagnosis with others.

Your legal obligations regarding patient information are specified under the privacy and security rules of the Health Insurance Portability and Accountability Act (HIPAA). These rules establish regulations for the use and disclosure of **protected health information (PHI)**. PHI is any information about health status, provision of health care, or payment for health care services that can be linked to an individual. Examples of PHI include names and addresses, phone numbers, email addresses, Social Security and medical record numbers, and health insurance information. Under the law, patients control access to their PHI. For this reason, use or disclosure of PHI for purposes *other than* treatment, payment, health care operations, or public health requires patient permission (Table 1.2).

Being Sensitive to Cultural Values

According to Betancourt and colleagues "Culture is a system of beliefs, values, rules and customs that is shared by a group and is used to interpret experiences and direct patterns of behavior." Individualized care requires sensitivity toward patients' cultural values and expectations.

Sociocultural factors that impact the delivery of quality health care include differences in race and ethnicity, along with limited English proficiency. To establish collaboration with your patient, you will need to identify and respond appropriately to cultural cues such as beliefs, values, and perspectives on health and well-being. Failure to do so can result in patient dissatisfaction, poor adherence to treatment regimens, and unsatisfactory health outcomes.

Some knowledge about specific cultural issues is helpful and can grow with experience. Aim to achieve at least a basic understanding of various cultures and their beliefs. The growing diversity of the U.S. population makes it impossible to master all the nuances characterizing the range of cultures now represented. Instead, one needs to develop culturally competent communication skills.

Strategies for **culturally competent communication** are active listening, attending to individual needs, eliciting patient concerns, and expressing genuine concern. Apply these strategies during the initial assessment stage to briefly explore the patient's key cultural beliefs, especially those related to gender and family roles, responses to authority, personal space, religious values, and concepts of health and disease. For example, in some cultures it is normal to always defer to the authority of a doctor or health care provider when deciding what is best, so the provider's efforts to involve the patient in decision making may be difficult. Likewise, patients who believe that fate determines disease outcomes may be reluctant to participate in their own care. Reflecting on what the patient shares in a nonjudgmental way can help foster rapport and enhance one's ability to adapt to cultural differences.

Three additional abilities that enhance cultural competence are self-awareness, situational awareness, and adaptability.

TABLE 1.2 Health Insurance Portability and Accountability Act–Related Privacy and Security Considerations

Do's	Don'ts
Do access only that information needed to perform your job	Don't discuss a patient's PHI with people with no need to know
Do keep voices low when discussing patient issues in joint treatment areas	Don't share your computer passwords and log-on information
Do provide only the minimal needed information on request	Don't leave a computer unattended without logging off
Do position workstations so that the screens are not visible to prying eyes	Don't discuss a patient's PHI in public settings where you can be overheard
Do keep patient information on whiteboards to a minimum	Don't communicate PHI by methods that the patient has not approved
Do place fax machines used to receive PHI in secure locations	Don't leave a patient's paper records open and available for prying eyes

PHI, Protected health information.

Self-awareness involves knowledge of one's own cultural beliefs, as well as any potential stereotypes one might hold about particular groups. By being self-aware, you can recognize in advance possible cultural prejudices or emotions you might have toward certain patients that could negate the impact on the care you provide. Situational awareness is the ability to recognize misunderstandings associated with patient-provider cultural differences as they occur during a patient encounter. For example, a woman who is constantly looking toward her husband for approval during a clinical interaction may be signaling a cultural tendency to defer to the man for all major decision making. The culturally competent clinician should be able to adapt to the specific situation by individualizing the communication approach in a manner consistent with the patient's (and family's) values and beliefs. In this case, consider reorienting the encounter by making the husband a major partner in the conversation.

SIMPLY STATED

During the assessment component of the clinical encounter, explore the patient's key cultural beliefs, and use this knowledge to adapt communication to the patient's and family's values and beliefs.

PATIENT INVOLVEMENT

PFCC is a two-way street. To be successful, PFCC must involve the patient and family as partners in setting goals, making decisions, participating in the treatment regimen, providing appropriate self-care, and helping to ensure safety. To meet these expectations, patients—especially those with chronic conditions—must understand the basics about their disease process and how to effectively manage it. This level of involvement can occur only when the clinician includes appropriate educational activities in each clinical encounter.

Assessing Learning Needs and Providing Patient Education

Patient and caregiver education aims to promote healthy behaviors and increase patients' involvement in their health care and safety, resulting in outcomes that satisfy both patient and provider. Full achievement of this goal requires a comprehensive approach, and RTs are part of the interdisciplinary team that plays a key role in achievement of successful outcomes by providing appropriate patient education. The first step is to assess the patient's learning needs. In most hospitals, the initial assessment of learning needs is conducted by nursing staff, occurs after the patient is admitted to a care unit, and is documented in the patient's chart. For this reason, during your chart review you should access and evaluate this record for any important information helpful in planning the respiratory care of your patient.

SIMPLY STATED

Effective respiratory care requires a knowledgeable patient willing and able to participate in treatment, for which patient education is a prerequisite. The first step in patient education is to assess the patient's learning needs.

Briefly conduct your own assessment, focusing on learning needs specific to the patient's disorder and the planned therapy. In general, learning needs assessment progresses through the following key steps:

1. Identify and accommodate barriers to patient learning
2. Assess the patient's preferred learning method
3. Evaluate the patient's readiness to learn
4. Determine the patient's specific learning needs

Table 1.3 identifies several of the barriers to learning commonly encountered by RTs in the clinical setting and various ways to accommodate them.

To assess a patient's preferred way of learning, first observe the environment for clues such as the presence of reading materials, use of television, or (for children) use of toys and games. You also should ask the patient about any recent learning

TABLE 1.3 Barriers to Learning and Their Accommodation

Barrier to Learning	Accommodation
Age (young child)	Keep teaching/learning episodes short Use fun-and-games approach Enlist family assistance
Reduced level of consciousness	Postpone until patient becomes alert Apply methods that do not require cooperation
Presence of pain	Recommend analgesia Postpone until pain management is effective
Presence of anxiety	Take time to calm the patient and explain your actions Postpone until anxiety management is effective Enlist family assistance Recommend anxiolytic therapy
Physical limitations	Ascertain specific limitations Apply methods that circumvent limitation Enlist family assistance
Educational level (low)	Emphasize oral (vs. written) instruction Adjust language level as appropriate Provide written materials at fifth- to eighth-grade level
Potential language barrier	Enlist family assistance Secure translator Use an approved translation service
Cultural or religious factors	Ascertain key factors affecting care Modify to accommodate Enlist family assistance
Vision difficulty	Have patient wear glasses Emphasize sound and touch Enlist family assistance
Hearing difficulty	Speak slowly and clearly while facing the patient Have patient use hearing aid Emphasize visualization and touch Enlist family assistance

Modified from Heuer AJ and Rodriguez N: *Comprehensive respiratory therapy exam preparation guide*. 4th ed. Sudbury, MA, Jones & Bartlett Learning; 2021 (www.jblearning.com). Reprinted with permission.

efforts. Sometimes, preferred methods of learning can be determined from questions about the patient's work or hobbies.

Evaluating the patient's readiness to learn is the next step in assessing learning needs. Patients' spontaneous questions about their condition, its management, or their respiratory care indicate a desire to learn, as do expressions of discomfort with their current abilities or situation.

After you have addressed any barriers to learning and confirmed the patient's desire to progress, you should determine what the patient knows about the care you will provide. Ask relevant questions, using terms and language appropriate to the patient's level of understanding. Questions in this phase of the assessment should address the following areas:

- Understanding of the current condition or disease process
- Knowledge of prescribed medications
- Familiarity with the procedures you will implement
- Familiarity with the equipment needed for care

Box 1.1 provides example questions focusing on a patient's knowledge about a prescribed medication.

A specific learning need is identified when any of the patient's answers indicate a knowledge deficit. In addition to assessing needs, you also should focus on determining "wants," meaning anything the patient wishes to learn more about. Together, these needs and wants can help establish education goals acceptable to both the patient and family.

After conducting any learning activity, evaluate the results. To evaluate a desired change in knowledge, have the patients repeat in their own words the information you are trying to communicate (the **teach-back method**). To confirm that your patients have learned how to perform a particular skill, have them perform a **return demonstration**, that is, going through the motions of the procedure shown to them.

Sharing Goal-Setting and Decision-Making Responsibilities

Effective patient education is a requirement of shared responsibility for goal setting and decision making and collaboration between the patient and the health care interprofessional team, which is usually headed by the attending physician. In this regard, good communication within the team is essential. The RT's function within the team is to assess learning needs and to help the patient set tangible goals related to the patient's respiratory care. Such goals may be as simple as a patient with cystic fibrosis selecting an airway clearance technique, or as complex as reaching agreement with the patient on an action plan for routine self-care of asthma and proper management of its exacerbations.

Written **action plans** are particularly useful for involving patients in goal-setting and self-care activities. Action plan goals should be *SMART*, that is, *s*pecific, *m*easurable, *a*ction oriented, *r*ealistic, and *t*ime limited. The action plan itself should address the following elements:

- Exactly what is the goal?
- How will the goal be achieved (e.g., how, how much, how often)?
- What barriers might prevent achieving the goal?
- How can barriers be overcome?
- By what mechanism will follow-up occur?
- How much confidence does the patient have in achieving the goal?

Box 1.2 provides an example of a simple action plan for an adolescent with moderate asthma who has a recent history of exacerbations causing frequent absences from school.

Encouraging Patient and Family Participation in Care and Safety

Joint goal setting provides the basis for patient and family involvement in treatment regimens and ongoing self-care for those with chronic conditions. Given that the effectiveness of most respiratory care treatments requires patient cooperation and follow-through, you must constantly reiterate how better participation can result in better outcomes. A case in point is the daily tracking of symptoms that the patient with asthma included in her action plan (see Box 1.2). An acute care example is a patient with cystic fibrosis monitoring sputum production after self-administered positive airway pressure therapy. An example of involving the family would be preparing a patient requiring long-term mechanical ventilation for discharge to home.

Involvement of the patient and family in care delivery also has been shown to enhance safety and reduce medical errors.

BOX 1.1 Example Questions Assessing a Patient's Knowledge About a Medication

Which medicine are you currently taking? How often?
Do you know why you are taking this medicine?
Who is responsible for administering the medicine?
Please show me how you take the medicine.
How many times a week do you miss taking the medicine?
What problems have you had taking the medicine (cost, time, lack of need)?
What concerns do you have about your medicine?

BOX 1.2 Example Action Plan Developed by a Patient With Asthma

Action Plan

1. **Goals** (something you *want* to do): cut school absences in half
   How: make sure I take my controller medicine as prescribed; avoid my triggers (pet hair and tobacco smoke); monitor my symptoms (cough, wheeze, chest tightness, shortness of breath); take my reliever if symptoms develop/worsen
   Where: administer meds at home (controller) and at home/school if reliever is needed
   What: controller: Pulmicort Flexhaler (b.i.d.); reliever: Proventil canister
   When: Pulmicort: a.m./p.m.; Proventil puffs as needed; monitor symptoms
   Frequency: medications as prescribed; symptom monitoring daily using diary
2. **Barriers:** many friends smoke or have house pets; hate diary keeping
3. **Plans to overcome barriers:** avoid spending time indoors with smokers or pets; use Twitter to keep my diary entries
4. **Conviction:** 7/10 (being pushed by parents!); **confidence:** 9 (I'm stubborn)
5. **Follow-up:** track absences for the coming semester (goal is less than 5)

b.i.d., Twice a day.

BOX 1.3 Speak Up: Help Prevent Errors in Your Care

Everyone has a role in making health care safe. The Joint Commission's Speak Up program gives simple advice on how you can help make health care a good experience. Research shows that patients who take part in decisions about their own health care are more likely to get better faster. To help prevent health care mistakes, patients are urged to "Speak Up."

S | Speak Up—If you don't understand something or if something doesn't seem right.

P | Pay attention—Check identification (ID) badges worn by doctors, nurses, and other staff.

E | Educate yourself—So you can make well-informed decisions about your care.

A | Advocates such as family members and friends can help give advice and support—but they should respect your decisions about the care you want.

K | Know about your new medicine. Find out how it will help.

U | Use a quality health care organization that has experience taking care of people with your condition.

P | Participate in all decisions about your care. Discuss each step of your care with your doctor.

Modified from The Joint Commission, Oakbrook Terrace, IL 2019. *Speak Up™ About Your Care.* Retrieved from https://www.jointcommission.org/-/media/tjc/documents/resources/speak-up/speak-ups/about-your-care/speak-up-about-your-care-infographic-2019-85x11.pdf

The Joint Commission's **Speak Up initiative** provides excellent guidance in this regard (Box 1.3). Although most hospitals orient patients to this initiative on admission, RTs should use the clinical encounter to reinforce this important role.

To further promote infection control, instruct all patients, family members, and visitors with signs or symptoms of a respiratory infection to follow the Centers for Disease Control and Prevention (CDC) guidance on respiratory hygiene and cough etiquette:

- Cover the nose and mouth when coughing or sneezing.
- If you do not have a tissue, cough or sneeze into your upper sleeve, not your hands.
- Use tissues to contain respiratory secretions.
- Dispose of tissues in the nearest hands-free waste receptacle after use.
- Perform hand hygiene after contacting secretions or contaminated objects.

SIMPLY STATED

Involve the patient and family in care delivery to enhance safety and reduce medical errors. RTs should orient patients and their families to their role in helping ensure safety using strategies such as The Joint Commission's Speak Up initiative and sharing the CDC guidance on respiratory hygiene and cough etiquette.

Clinicians themselves should implement infection control procedures before, during, and after all patient encounters. At a minimum, this involves application of **standard precautions** (Box 1.4). Proper hand hygiene is the single most important element in preventing the spread of infection. Alcohol-based rubs are the preferred method, except when one's hands become visibly soiled with dirt, blood, or body fluids or when caring for patients with infectious diarrhea (e.g., *Clostridium difficile,* norovirus). In these cases, one should proceed with a vigorous soap and water handwashing for at least 15 seconds.

It should be noted that special situations may warrant modifications to the procedure for putting on (donning) and removing (doffing) **personal protective equipment** (PPE) and other infection control measures. In extreme circumstances such as occurred in 2003 during the sudden acute respiratory syndrome (SARS) world pandemic and beginning in 2019 with the COVID-19 Disease outbreak, additional measures may be warranted. These additional measures may include the use of powered air-purifying respirators (PAPRs), witnessed donning and doffing, and rigorous surface decontamination protocols.

PROVIDER COLLABORATION

Medicine is now too complex and far too evolved for any one individual to have the whole picture. Quality patient-centered care requires that all patient providers work together as a team. When health care professionals fail to collaborate effectively, patient safety becomes at risk. Ineffective provider collaboration can result in increased length of stay, wasted resources, and poor patient outcomes.

Collaboration occurs when health care providers assume complementary roles and cooperatively work together, sharing responsibility for patient care. To maximize their impact on patient outcomes, RTs must integrate their services with other providers' services by participating in interprofessional communication, interdisciplinary coordination, and sharing of responsibilities.

Enhancing Interprofessional Communication

The Joint Commission defines *effective communication* as being timely, accurate, complete, unambiguous, and understood by the recipient. Because good interprofessional communication is essential to quality care, all RTs must exhibit these skills, particularly when receiving orders, coordinating the patient's care, reporting the patient's clinical status, and helping plan for patient discharge.

Often, a clinical encounter begins with receipt of an order from an authorized health care provider, such as a physician, physician's assistant, or nurse practitioner. In general, clinicians should not accept orders transmitted to you by unauthorized third parties, such as registered nurses. If an order is transmitted to you by a third party, you must verify the order in the patient's medical record before proceeding unless it follows an institutional protocol. If the order is transmitted orally and you are authorized to take it, you should repeat the order back to verify its accuracy, which is known as **closed-loop communication**. The following actions should be taken to avoid such errors:

- Record the complete order in the medical record as it is being transmitted.
- Read the order back to the originator to verify its accuracy.
- Time and date the order with the name and credentials of the originator, specify "read back and confirmed," and provide your signature and credentials.

BOX 1.4 Centers for Disease Control and Prevention Standard Precautions

Personal Protective Equipment

The type of PPE used will vary based on the level of precautions required, such as standard and contact and droplet or airborne infection isolation precautions. The procedure for putting on (donning) and removing (doffing) PPE should be tailored to the specific type of condition or situation. In extreme circumstances, such as that which occurred in 2003 during the SARS world pandemic and the Covid-19 Disease outbreak which began in 2019, additional measures may be warranted. These additional measures may include the use of PAPRs, witnessed donning and doffing, and surface decontamination.

Hand Hygiene

Always perform hand hygiene in the following situations:

- Before touching a patient, even if gloves will be worn
- After contact with a patient and before leaving the patient care area
- After contact with blood, body fluids, excretions, or wound dressings
- Before performing an aseptic task (e.g., accessing a vascular port)
- Whenever hands move from a contaminated body area to a clean area
- After glove removal

Gown

- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist

Mask and Respirator

- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator

Goggles or Face Shield

- Place over face and eyes and adjust to fit

Gloves

- Extend to cover wrist of isolation gown
- Use safe work practices to protect yourself and limit the spread of contamination
- Perform proper hand hygiene
- Keep hands away from face
- Limit surfaces touched
- Change gloves when torn or heavily contaminated

Soiled Patient Care Equipment

Handle in a manner to prevent contact with skin or mucous membranes and to prevent contamination of clothing or the environment.

- Wear gloves
- Perform hand hygiene after handling

Needles and Other Sharps

- Receive training on how to use sharps safety devices; assess hazards
- Keep exposed sharp in view; be aware of others around you
- Avoid hand passing sharps and use verbal alerts when moving sharps
- Activate safety features after use
- Place used sharps in puncture-resistant container; keep fingers away from openings (Centers for Disease Control and Prevention, http://www.cdc.gov/sharpssafety/)

Patient Resuscitation

- Use mouthpiece with one-way valve, resuscitation bag, and other ventilation devices to prevent contact with mouth and oral secretions (Centers for Disease Control and Prevention, http://cdc.gov).

PAPR, Powered air-purifying respirators; *PPE,* personal protective equipment; *SARS,* sudden acute respiratory syndrome.

All respiratory care orders must be verified as accurate and complete. Should any element of an order be missing or unclear, contact the prescriber for clarification before implementing the request. The same procedure applies if the order falls outside one's institutional standards. For example, if the order specifies an abnormally high drug dosage or includes a ventilator setting not normally applied in similar cases, you should contact the prescriber and request an explanation before proceeding. More detail on standards for order writing and order taking are provided in Chapter 21.

After most patient encounters, communicate your findings to other members of the health care team. Written documentation in the patient's chart or electronic health record may suffice if the patient is stable after routine treatment. Whenever a patient's condition changes or a procedure is poorly tolerated, in addition to providing written documentation, you *must* communicate your findings orally to the patient's nurse and physician. In this case, your chart documentation should include not only your findings but also who was notified about the change in the patient's condition.

For example, on entering the room of Mr. Jones to provide treatment for his asthma, you note that he appears much more short of breath than usual. The treatment you give him does not appear to help. Document and communicate your findings. Oral discussion with the patient's nurse is a good place to start. Notify the patient's physician of the change in Mr. Jones's condition when warranted. Next, you must document the patient's condition in his chart and note whom you communicated with about the patient and what was said. If there is evidence of deteriorating vital signs, you should activate the Medical Emergency Team (MET) or Rapid Response Team (RRT) and support the patient until the team arrives.

SIMPLY STATED

Whenever you observe a change in a patient's condition, note your observations in the chart, orally report your findings to the patient's nurse, and document in writing whom you notified about the situation.

Coordinating Patient Care

RTs also need to help coordinate their patients' care. To do so, you need to communicate with the interdisciplinary team to schedule procedures at times least likely to conflict with other essential patient activities and most likely to coincide with any relevant

drug regimen. For example, you would communicate with nursing to ensure that before implementing a ventilator-weaning trial, sedation has been appropriately lowered or held back from the patient.

Another key aspect related to good communication and coordinating patient care is the patient "handoff." The Joint Commission has identified inadequate hand-off communication as a critical point when medication errors, lapses in treatment, and adverse events occur. Common patient handoffs take place when delivering a patient to or receiving a patient from a care unit or diagnostic facility, when providing patient reports at shift change, or when having a colleague take over in an emergency situation. Ideally, communication during such handoffs should be short but precise, giving the essential information needed by the recipient. One method for standardizing these brief episodes is the **SBAR** (***s**ituation*, ***b**ackground*, ***a**ssessment*, ***r**ecommendation*) format; using this format, communication about your patient should address those four essential elements. The same format also can be used when making recommendations to the patient's physician for a change in therapy or when documenting a patient encounter in the medical record. Chapter 21 provides more detail on the appropriate use of this communication tool, including an example.

Patient care should not end abruptly at hospital discharge. Ideally, an interdisciplinary posthospitalization care plan should be developed based on each patient's individual needs and be consistent with current guidelines for managing the patient's condition. Such plans are normally ordered by the patient's primary care provider and coordinated by a nurse practitioner or case manager. As identified by the National Heart, Lung and Blood Institute (NHLBI), American Association for Respiratory Care (AARC) and COPD National Action Plan, patient discharge plans should include the following:

- A time frame for implementation
- Clearly defined responsibilities of team members for daily care
- Mechanisms for communication among members of the health care team
- Arrangements for patient integration back into the community, including a pulmonary rehabilitation program if applicable
- Tobacco and smoking cessation
- Plans for medication and oxygen administration
- Strategies for patient self-care as appropriate
- Mechanisms for securing and training caregivers
- Plans for monitoring and responding to changes in the patient's condition
- Alternative emergency and contingency plans
- Plans for use, maintenance, and troubleshooting of equipment
- Methods for ongoing assessment of outcomes
- Specification of follow-up mechanisms

RTs should participate in discharge planning for patients with respiratory-related diagnoses. For example, to help prevent exacerbations and readmission of a patient with asthma, RTs help coordinate plans for aerosol drug therapy (based on assessment of learning needs), develop strategies for patient self-care, participate as appropriate in caregiver training, establish action plans for responding to changes in the patient's condition, plan for equipment needs, and specify approaches for assessing patient progress. More detail on the role of the RT in assessing the patient and planning for care at home is provided in Chapter 20.

Sharing Responsibility

Truly integrated care requires that all the clinicians involved in a patient's management share a common set of goals and assume joint responsibility for their achievement. Ideally, each team member should be tasked with addressing a particular patient problem. For example, an RT working in the intensive care unit may be given primary responsibility for implementing a ventilator-weaning protocol. However, the team as a whole must coordinate these individual efforts and evaluate their overall success.

Team membership depends on each patient's unique set of problems. As experts on respiratory care, RTs function as vital members of teams supporting management of patients with both chronic and acute cardiopulmonary disorders. In terms of sharing responsibility for the management of chronic disorders such as chronic obstructive pulmonary disease (COPD), RTs should assume responsibility for providing patient education about the nature of the disease process, train patients in applicable self-care techniques (such as aerosol drug administration), and help patients develop good action plans to deal with exacerbations. In regard to shared responsibility for management of patients with acute care needs, working as a team member to prevent ventilator-associated pneumonia and weaning a patient from ventilatory support are good examples.

The best documented approach to sharing responsibility for patients in acute care settings is to combine interdisciplinary intensive care unit rounds with a daily goals form (Fig. 1.4). The form facilitates communication during rounds by requiring team members, including RTs, to state their goals; the tasks needed to achieve them; and how they will communicate with the patient, family, and other caregivers. All members of the team then review the goals during each shift and modify or update them as needed. For example, an RT sets a goal for a newly intubated patient with acute respiratory distress syndrome (ARDS) of reducing the patient's plateau pressure at or below 30 cm H_2O while maintaining adequate ventilation. Tasks involved might include making incremental adjustments in the tidal volume and rate according to the ARDSNet protocol while monitoring changes in arterial pH. As the patient's status improves, the therapist would recommend new goals, such as reducing the fraction of inspired oxygen (Fio_2) or positive end-expiratory pressure levels, with the ultimate aim being extubation and removal of ventilatory support. Because the therapist is a key contributor to the management team, the full potential of the patient clinical encounter can be realized.

DAILY GOALS			
Room Number:	**Date:**		
Attending Initials:	**Initial as Goals Are Reviewed**		
Goals+	**0700-1500**	**1500-2300**	**2300-0700**
What needs to be done to discharge the patient from the ICU?			
What is this patient's greatest safety risk? How can we reduce that risk?			
Pain management/sedation			
Cardiac/volume status			
Pulmonary/ventilator (PP, VAP bundle)			
Mobilization			
Infectious disease, cultures, drug levels			
GI/nutrition			
Medication changes (can any be discontinued?)			
Tests/procedures			
Review scheduled labs; morning labs and CXR			
Consultations			
Communication with primary service			
Family communication			
Can catheters/tubes be removed?			
Is this patient receiving DVT/PUD prophylaxis?			
+PP, plateau pressure; GI, gastrointestinal; labs, laboratory tests; CXR, chest radiograph; DVT, deep venous thrombosis; PUD, peptic ulcer disease			

Fig. 1.4 Daily goals form. *ICU*, Intensive care unit; *VAP*, ventilator-associated pneumonia. (Adapted from Pronovost P, Berenholtz S, Dorman T, et al: Improving communication in the ICU using daily goals. *J Crit Care*. 2003;18[2]:71–75.)

KEY POINTS

- PFCC involves three key elements: individualized care, patient involvement, and provider collaboration.
- Communication during a clinical encounter is affected by the attitudes and values of the clinician and patient, one's choice of words, nonverbal expressions, and environmental factors.
- A patient encounter generally begins with a chart review and then progresses through four stages: introductory, initial assessment, treatment and monitoring, and follow-up; communication strategies vary according to the purpose of each stage.
- Whenever possible, respiratory care plans should reflect each patient's preferences.
- Use the social space (4 to 12 feet) during the introductory stage of the clinical encounter to establish rapport, the personal space (18 inches to 4 feet) for the interview, and the intimate space (0 to 18 inches) to conduct the physical examination and apply and monitor therapy; enter the intimate space only after gaining patient permission.
- Discuss your patient's health status only with other members of the health care team who need to know such information and only in private locations where others cannot overhear; always refer questions about your patient's diagnosis to the attending physician.
- The culturally competent clinician is a good communicator who is aware of his or her own cultural beliefs and can recognize and adapt to differences in values and beliefs during the clinical encounter.
- Patients and their families should be engaged as partners in setting health care goals, making decisions, participating in the treatment regimen, providing appropriate self-care, and helping ensure safety.
- To assess a patient's learning needs, (1) identify and accommodate any barriers to learning, (2) assess the patient's preferred learning method, (3) evaluate the patient's readiness to learn, and (4) determine the patient's specific learning needs.
- Involve patients in goal-setting and self-care activities using a written action plan that specifies a measurable goal, the actions needed to achieve the goal (including barriers to overcome), and an appropriate follow-up mechanism.
- During clinical encounters, orient patients and their families to their role in helping ensure safety using strategies such as The Joint Commission's Speak Up initiative and sharing the CDC guidance on respiratory hygiene and cough etiquette.
- Proper hand hygiene is the single most important element in preventing spread of infection in the hospital.

- In extreme circumstances such as the SARS world pandemic of 2003 and the Covid-19 Disease outbreak which began in 2019, additional infection control measures may be warranted such as the use of PAPRs, witnessed donning and doffing, and rigorous surface decontamination protocols.
- If any element of a respiratory care order is missing, is unclear, or falls outside institutional protocols, you must contact the prescriber for clarification before implementing the request.
- To coordinate your patient's care with that provided by others, communicate with the patient's nurse or team to schedule therapy at times least likely to conflict with other essential activities and most likely to coincide with any relevant drug regimen.
- Whenever you observe a change in a patient's condition or judge that a procedure was poorly tolerated, you must communicate your findings orally to the patient's nurse and physician and document in writing whom you notified about the situation; if the change involves deteriorating vital signs, call for the MET or the RRT, and support the patient until the team arrives.
- To effectively communicate relevant information about your patient during handoffs to others, use the SBAR format.
- To enhance outcomes in critical care settings, RTs should participate in interdisciplinary rounds and be responsible for communicating the essential respiratory-related daily goals and tasks needed to achieve them, as well as coordinating these efforts with other members of the team.

ASSESSMENT QUESTIONS

1. Which of the following are key elements in the provision of patient- and family-centered care (PFCC)?
   1. Patient involvement
   2. Individualized care
   3. Legal representation
   4. Provider collaboration
   - **a.** 1 and 2
   - **b.** 1, 2, and 4
   - **c.** 3 and 4
   - **d.** 1, 2, 3, and 4
2. After a postoperative patient whom you are interviewing grimaces while holding her abdomen, you note some confusion about her responses. Which of the following factors likely is affecting communication?
   - **a.** Self-concept
   - **b.** Listening habits
   - **c.** Pain and anxiety
   - **d.** Hearing impairment
3. Active listening is most essential during what stage of the clinical encounter?
   - **a.** Introductory stage
   - **b.** Initial assessment stage
   - **c.** Treatment and monitoring stage
   - **d.** Follow-up stage
4. After several attempts to instruct a patient with chronic obstructive pulmonary disease (COPD) on the proper use of a metered-dose inhaler, the patient complains of the inability to master the correct technique. Applying patient-centered principles, you should:
   - **a.** Request permission from the patient's doctor to find a more acceptable delivery system
   - **b.** Cease trying to train the patient and recommend discontinuing the therapy
   - **c.** Push the patient to keep practicing until a return demonstration indicates competency
   - **d.** Chart the treatment as not given and return for another try on second rounds
5. In which of the following spaces is patient rapport best established?
   - **a.** Social
   - **b.** Personal
   - **c.** Intimate
   - **d.** Territorial
6. Which of the following violates Health Insurance Portability and Accountability Act (HIPAA)-related privacy and security rules?
   - **a.** Providing the minimal needed patient information on request
   - **b.** Never keeping patient information on a whiteboard near the hallway or other public place
   - **c.** Discussing a patient's health status with the nurse at the bedside
   - **d.** Leaving a computer unattended without logging off
7. Which of the following cultural beliefs should be explored with your patients during the initial assessment stage of the clinical encounter?
   1. Concepts of health and disease
   2. Responses to authority
   3. Gender and family roles
   4. Religious values
   - **a.** 1 and 2
   - **b.** 3 and 4
   - **c.** 1, 2, and 3
   - **d.** 1, 2, 3, and 4
8. For most respiratory care to succeed, patients need to:
   - **a.** Have at least a high school education
   - **b.** Actively participate in the treatment regimen
   - **c.** Demonstrate good hand-eye coordination
   - **d.** Be at least somewhat fluent in English
9. During an initial patient encounter, you note that the patient's acute anxiety appears to be affecting your ability to help her learn more about her disease process. To overcome this problem, you would consider all of the following *except:*
   - **a.** Recommending that the doctor prescribe an analgesic
   - **b.** Enlisting family assistance to calm the patient down
   - **c.** Recommending that the doctor prescribe an anxiolytic
   - **d.** Postponing further efforts until anxiety management is effective
10. A good patient action plan should include which of the following elements?
    1. Actions needed to achieve the goal
    2. Barriers to goal achievement

3. A specific, measurable goal
4. A follow-up mechanism
   a. 3 and 4
   b. 1 and 2
   c. 1, 2, and 3
   d. 1, 2, 3, and 4

11. While supervising a respiratory therapy student, you observe that an anxious patient asks her if the aerosol bronchodilator she is about to deliver has any bad effects. The student replies, "None to worry about." After the treatment session is over, you should explain to the student that:
    a. Only the patient's doctor should be discussing medication effects with the patient
    b. Her reply was consistent with what the patient needs to know
    c. Patients should be encouraged to ask questions about their medications
    d. Her reply was good—no need to further worry an anxious patient
12. For a clinical encounter with a patient on airborne precautions, you should:
    a. Wear goggles or an eye shield
    b. Wear a properly fitting N95 respirator
    c. Perform a surgical hand scrub
    d. Don sterile gloves
13. A patient responds poorly to a treatment you have given. After ensuring that the patient is stable, you should:
    a. Carefully note the patient's response to treatment in the patient's chart
    b. Speak with the patient's nurse, chart the response, and chart whom you notified
    c. Orally notify the patient's nurse of his poor response to treatment
    d. Request that the patient's physician discontinue the therapy
14. SBAR stands for:
    a. Situation, Background, Ailments, Requests
    b. Situation, Background, Assessment, Recommendation
    c. Scenario, Background, Assessment, Room Number
    d. Situation, Blood type, Assessment, Recommendation
15. All of the following are appropriate roles for a respiratory therapist serving on a team managing a patient with chronic obstructive pulmonary disease (COPD) *except:*
    a. Helping the patient develop good action plans
    b. Training the patient in self-care techniques
    c. Recommending changes in diet and nutrition
    d. Providing patient education about the disease

Answer Key

1. b
2. c
3. b
4. a
5. a
6. d
7. d
8. b
9. a
10. d
11. c
12. b
13. b
14. b
15. c

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2

The Medical History and the Interview

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LEARNING OBJECTIVES

After reading this chapter, you will be able to:

1. Recognize the importance of properly obtaining and recording a patient history.
2. Describe the techniques for structuring the interview.
3. Summarize the techniques used in interviewing.
4. Identify alternative sources available for the patient history.
5. Define the difference between objective and subjective data and the difference between signs and symptoms.
6. Describe the components of a complete health history and the type of information found in each section of the history.
7. Describe the value in reviewing the following parts of a patient's chart: (1) admission notes, (2) physician orders, and (3) progress notes.
8. Summarize what is indicated by a DNR order and label on the patient's chart, as well as an advance directive.

OUTLINE

KEY TERMS

advance directive
do not resuscitate (DNR)
electronic health record (EHR)
objective data
pack-years
pertinent negatives
pertinent positives
signs
subjective data
symptoms
telemedicine

The history is the foundation of patient assessment. It is a recorded picture of the patient's perception of his or her past and present health status and how health problems have affected both personal and family lifestyle. Properly performed, it generally provides an organized, unbiased, and detailed sequence of symptom development causing the patient to seek health care. The history guides the rest of the assessment process: physical examination, x-ray and laboratory studies, and special diagnostic procedures. When skillfully obtained, the history often contributes in a significant way to an accurate diagnosis. It is believed by many clinicians that an accurate diagnosis can often be made after the history has been obtained and before the physical examination begins.

Traditionally, the task of obtaining a patient's complete history has belonged to the physician, and only sections of the history were taken by other members of the health care team. Today, however, complete health histories are taken by nurses and physician assistants. In addition, physical therapists, social workers, dietitians, and respiratory therapists (RTs) obtain medical histories from patients, with an emphasis on information pertaining to their specialty.

Regardless of whether a student or clinician is expected to obtain and write a comprehensive history, each must be able to

locate and interpret historical information recorded in the patient's medical record. The information is used with other assessment data and provides the foundation for communication to enable many medical disciplines to collectively develop or alter a plan of care. In addition, identifying the patient's symptoms and changes in those symptoms permits the patient care team to assess the effect of therapeutic interventions and overall progress.

This chapter highlights interviewing principles and describes the types of questions used in history taking and the content of the comprehensive health history, emphasizing specific information needed for assessment of the patient with cardiopulmonary complaints. Chapter 3 discusses the most common cardiopulmonary symptoms.

SIMPLY STATED

The history is the foundation of comprehensive assessment—a recorded picture of the patient's perception of his or her health status, current problem, and effectiveness of treatment. It comprises subjective data—information that the patient reports, feels, or experiences that cannot be perceived by an observer.

PATIENT INTERVIEW

Principles of Communication

Communication is a process of imparting a meaningful message. The principles and practices of effective communication, which are outlined in Chapter 1, help form the basis for a properly conducted patient interview. Multiple personal, cultural, and environmental factors affect the way both patients and health care professionals communicate during an interview. As a result, attention to the effects each of these components may have on communication makes the difference between an effective and an ineffective interview.

Structuring the Interview

The ideal interview, whether a 5-minute assessment of therapy or a 50-minute history, is one in which the patient feels secure and free to talk about important personal things. Interviewing is an art that takes time and experience to develop. It is a skill as useful in daily patient care as it is to the person obtaining a comprehensive history. Your ability to project a sense of undivided interest in the patient is the key to a successful interview and patient rapport. As such, it is generally best to review medical records and prepare equipment and charting materials before beginning the interview.

It should be noted that that although many patient interviews are conducted face to face, increasingly, they may be performed remotely via digital technology such as computers, tablets, or even cell phones. When a patient interview, assessment, or care planning and execution are done using this form of technology, it is known as a type of **telemedicine**.

1. Whether done in a traditional face-to-face manner or using telemedicine, your introduction establishes your professional role, asks permission to be involved in the patient's care, and conveys your interest in the patient. The following are key points to keep in mind when beginning and conducting the interview.
   - Identify any language barriers, and make appropriate accommodations (translator services).
   - Dress and groom professionally.
   - Begin the interview with a brief introduction and a smile.
   - Make immediate eye contact, and if the patient is well enough, introduce yourself with a firm handshake or other appropriate greeting.
   - State your role and the purpose of your visit, and define the patient's involvement in the interaction.
   - Call the patient by name. A person's name is one of the most important things in the world to that person; use it to identify the patient and establish the fact that you are concerned with the patient as an individual. Address adult patients by title—Mr., Mrs., Miss, or Ms.—and their last name. Occasionally, patients will ask to be called by their first name or nickname, but that is the patient's choice and not an assumption. Keep in mind that by using the more formal terms of address, you alert the patient to the importance of the interaction.
   - For telemedicine interactions, briefly test the digital platform to ensure that the patient can hear and see you and that you can do likewise. Ensure the patient has appropriate digital contact information (e.g., website address, URL, log-in information) in the event you get cut off or they have subsequent questions.
2. Professional conduct shows your respect for the patient's beliefs, attitudes, and rights and enhances patient rapport.
   - Position yourself so that direct eye contact is comfortable for the patient.
   - For in-person interviews, be sure the patient is appropriately covered, and avoid standing at the foot of the bed or in the doorway as this may send the nonverbal message that you are rushed. Ask the patient's permission before moving any personal items or making adjustments in the room (see Chapter 1).
   - Remember, the patient's dialogue with you and the patient's medical record are confidential. The patient expects and the law demands that this information be shared only with other professionals directly involved in the patient's care.
   - Be honest. Never guess at an answer or information you do not know. Remember, too, that you have no right to provide information beyond your scope of practice.
   - Make no moral judgments about the patient. Set your values for patient care according to the patient's values, beliefs, and priorities.
   - Be mindful and respectful of cultural, ethnic, religious, and other forms of diversity (see Chapter 1).
   - Expect a patient to have an emotional response to illness and the health care environment, and accept that response. Listen, then clarify and teach, but never argue. If you are not prepared to explore the issues with the patient, ask another clinician to do so.
   - Adjust the time, length, and content of the interaction to your patient's needs. If the patient is in distress, obtain

only the information necessary to clarify immediate needs. It may be necessary to repeat some questions later, to schedule several short interviews, or to obtain the information from other sources.

3. A relaxed, conversational style on the part of the health care professional, with questions and statements that communicate empathy, encourages patients to express their concerns.
   - Expect and accept some periods of silence in a long or first interview. Both you and the patient need short periods to think about the correct responses.
   - Close even the briefest interview by asking if there is anything else the patient needs or wants to discuss and telling the patient when you will return.

SIMPLY STATED

A patient interview, whether a short assessment of therapy or an extended history, must allow the patient to feel secure and free to discuss personal things. Based on the material in this chapter and in Chapter 1, be mindful of the following best practices:

- Identify language barriers before the patient encounter, and take appropriate action (translator services).
- Dress and act professionally.
- Prepare by reviewing relevant records in advance.
- Project a sense of undivided interest.
- Use a relaxed conversational style.
- Respect your patients' cultural, ethnic, religious, and other diverse beliefs and attitudes.
- Remember to reassure your patients that their conversations with you, as well as their medical records, are confidential.

SIMPLY STATED

When using telemedicine technology to conduct a patient interview, first test the digital platform to ensure that the patient can hear and see you and that you can do likewise. In addition, make sure the patient has appropriate digital contact information (e.g., website address, URL, log-in information) in the event you get cut off or they have subsequent questions.

Questions and Statements Used to Facilitate Conversational Interviewing

An interview made up of one direct question followed by an answer and another direct question is mechanical, monotonous, and anxiety producing. Frankly, such an approach can make patients feel as though they are being interrogated. In addition, this type of interview usually takes longer and acquires less pertinent information than a more casual, conversational interview. A rambling discussion is also inefficient and frustrating. Therefore a conversational style that combines the types of questions and responses as described in the following list encourages open and honest descriptions by the patient, family member, or other historian while giving enough direction to clarify, quantify, and qualify details.

1. Open-ended questions encourage patients to describe events and priorities as they see them and thereby help bring out concerns and attitudes and promote understanding. Questions such as "What prompted you to come to the hospital?" or "What happened next?" encourage conversational flow and rapport while giving patients enough direction to know where to start.
2. Closed questions such as "When did your cough start?" or "How long did the pain last?" focus on specific information and provide clarification.
3. Direct questions can be either open ended or closed and always end in a question mark. Although they are used to obtain specific information, a series of direct questions or frequent use of "Why?" can sound intimidating.
4. Indirect questions are less threatening because they sound like statements: "I gather your doctor told you to monitor your peak expiratory flow rates every day." Inquiries of this type also work well to confront discrepancies in the patient's statements: "If I understood you correctly, it is harder for you to breathe now than it was yesterday."
5. Neutral questions and statements are preferred for all interactions with the patient. "What happened next?" and "Tell me more about…" are neutral open-ended questions. A neutral closed question might give a patient a choice of responses while focusing on the type of information desired: "Would you say there was a teaspoon, a tablespoon, or a half-cup?" In contrast, leading questions such as "You didn't cough up blood, did you?" should be avoided because they imply a desired response.
6. Reflecting (echoing) is repeating words, thoughts, or feelings the patient has just stated and is a successful way to clarify and stimulate the patient to elaborate on a particular point. For example, saying to the patient, "So you just said that you could not breathe well and your cough was getting worse for about a week," might encourage the patient to relay more information. However, overuse of reflecting can make the interviewer sound like a parrot.
7. Facilitating phrases, such as "yes" or "umm" or "I see," used while establishing eye contact and perhaps nodding your head, show interest and encourage patients to continue their story, but this type of phrase should not be overused.
8. Communicating support (empathy) with statements such as "That must have been very hard for you" shows your concern for the patient as a human being. Showing the patient that you really care about how life situations have caused stress, hurt, or unhappiness tells the patient it is safe to risk being honest about real concerns. Other techniques for showing empathy are described in Chapter 1.

Alternative Sources for a Patient History

Various factors affect the patient's ability or willingness to provide an accurate history. Age, alterations in level of consciousness, language and cultural barriers, emotional state, medications, inability to breathe comfortably, and the acuteness of the disease process may alter a patient's ability to communicate. For instance, the patient suffering an acute asthma attack or someone just admitted to an intensive care unit may be unable to give even a brief history. Patients with long-standing chronic disease may have become so accustomed to the accompanying symptoms, or their lives may have changed so gradually, that they may minimize and even deny symptoms. In addition, some aspects of the history

may be embarrassing to the patient, such as smoking and vaping history or alcohol use. In such cases, the patient's **electronic health record** (EHR) as well as family members, friends, work associates, previous physicians, and past medical records often can help formulate an accurate picture of the history and progression of symptoms. Keeping these possibilities in mind, most hospital histories begin with a one- or two-sentence description of the current state of the patient, the source of the history, and a statement of the estimated reliability of the historian.

CARDIOPULMONARY HISTORY AND COMPREHENSIVE HEALTH HISTORY

Abnormalities of the respiratory system frequently reflect other systemic disease processes. In addition, alterations in pulmonary function may affect other body systems. Therefore cardiopulmonary assessment cannot be limited to the chest, and a complete evaluation of the patient's entire health status is essential. A detailed discussion of all aspects of obtaining and recording such a health history is beyond the scope of this text but has been well covered by other authors (see the Bibliography). This section provides an overview of the content of complete health histories and discusses specifically (in their classic order) chief complaint (CC), history of present illness (HPI), past history, family history, and occupational and environmental history.

Variations in Health Histories

Health (medical) histories vary in length, organization, and content, depending on the preparation and experience of the interviewer, the patient's age, the reason for obtaining the history, and the circumstances surrounding the visit or admission. A history taken for a 60-year-old person complaining of chronic and debilitating symptoms is much more detailed and complex than that obtained for a summer camp application or a school physical examination. Histories recorded in emergency situations are usually limited to describing events surrounding the patient's immediate condition. In such situations it is often difficult to get a thorough history, unless the patient is accompanied by someone who can speak on his or her behalf. Nursing histories emphasize the effect of the symptoms on activities of daily living and the identification of the unique care, teaching, and emotional support needs of the patient and family. Histories performed by physicians often focus on making a diagnosis. Because diagnosis and initial treatment may be done before there is time to dictate or record the history, the experienced physician may record data obtained from a combination of the history, physical examination, laboratory tests, and x-ray films rather than the more traditional history outlined in Box 2.1.

General Content of Health Histories

Although variations in recording styles exist, all histories contain the same types of information:

- General background information
- Screening information
- Descriptions of present health status or illness

BOX 2.1 Outline of a Complete Health History

1. Demographic data (usually found on first page of chart): name, address, age, birth date, birthplace, race, nationality, marital status, religion, occupation, source of referral
2. Date and source of history, estimate of historian's reliability ("the patient seems to be a good/fair/poor historian")
3. Brief description of patient's condition at time of history or patient profile
4. Chief complaint: reason for seeking health care
5. History of present illness (chronologic description of each symptom)
   - Onset: time, type, source, setting
   - Frequency and duration
   - Location and radiation
   - Severity (quantity)
   - Quality (character)
   - Aggravating/alleviating factors
   - Associated manifestations
6. Past history or past medical history
   - Childhood diseases and development
   - Hospitalizations, surgeries, injuries, accidents, major illnesses
   - Allergies
   - Medications
   - Immunizations
   - General health and sources of previous health care
7. Family history
   - Familial disease history
   - Marital history
   - Family relationships
8. Social and environmental history
   - Education
   - Military experience
   - Occupational history
   - Religious and social activities
   - Living arrangements
   - Hobbies, recreation, and travel
   - Habits, including smoking and vaping
   - Alcohol or drug use
   - Exposure to friends or family who are ill
   - Satisfaction/stress with life situation, finances, relationships
   - Recent travel or other event that might affect health
9. Review of systems (see Fig. 2.1)
10. Signature

Background Information

Background information tells the interviewer who the patient is and what types of diseases are likely to develop. It also provides a basic understanding of the patient's previous experiences with illness and health care and the patient's current life situation, including the effect of culture, attitudes, relationships, and finances on health. Knowing the level of education, patterns of health-related learning, past health care practices, and reasons for compliance or lack of compliance with past therapy gives insight into patients' ability to understand their current health status. This may predict their willingness or ability to participate in learning and therapy. From the free discussion used to obtain background information, the interviewer may also get clues about patients' reliability and possible psychosocial implications of their disease.

Screening Information

Screening information is designed to uncover problem areas the patient forgot to mention or omitted. This information is classically obtained by a head-to-toe review of all body systems but may also be obtained by a review of common diseases or from a description of body functions.

Description of Present Health Status or Illness

A description of present health status or illness is included in even the briefest histories. Chief complaint and history of present illness are the most commonly used headings, although reason for visit and current health status may be seen in some outpatient records. Because this is the information that most concerns the patient, the interview and recording of the history begin with this information.

Review of Systems

Review of systems (ROS) is a recording of past and present information that may be relevant to the present problem but might otherwise have been overlooked. It is grouped by body or physiologic systems to guarantee completeness and to assist the examiner in arriving at a diagnosis. Fig. 2.1 is an example of an ROS checklist that may be completed by a patient before an interview or by a clinician. It provides for recording both positive and negative responses so that when the documentation is later reviewed, there is no doubt as to which questions were asked. Negative responses to important questions asked at any time during the interview are termed **pertinent negatives**; affirmative responses are termed **pertinent positives**. For example, if a patient complains of acute coughing but denies any fever, the fever would represent a pertinent negative, whereas the cough is a pertinent positive.

Experienced examiners usually elicit the ROS information in conjunction with the system-by-system physical examination; however, the two must not be confused. The physical examination provides **objective data**, or that which can be seen, felt, smelled, or heard by the examiner, commonly referred to as **signs**. On the other hand, the ROS provides **subjective data**, or that which is evident only to the patient and cannot be perceived by an observer or is no longer present for the observer to see and therefore can only be described by the patient. Subjective manifestations of disease are termed **symptoms**, several of which are detailed in Chapter 3.

Chief Complaint

The CC relates to why the patient sought health care. It is the answer to such open-ended questions as "What caused you to come to the hospital?" or "What is bothering you the most?" Each symptom is recorded separately with its duration or date of initial occurrence. Ideally, symptom descriptions are written in the patient's own words. They should not be diagnostic statements, someone else's opinion, or vague generalities. At times, more directed questions such as "Could you describe what you mean by 'not enough air'?" or "In what ways don't you feel well?" are necessary to clarify the changes in perceptions or body functions experienced by the patient.

Asking the patient to recount the sequence of symptoms and then closing this section of the interview with a question such as "What else is bothering you?" often elicit problems the patient forgot to mention or was too uncomfortable to mention earlier. Now the interviewer is left with two types of problems: (1) those related to the CC and (2) those that are important to the patient but may have little or no relationship to the present illness. The interviewer must now group the problems and decide how to proceed with the interview. Problems not related to the illness are usually incorporated with an appropriate section of background data when the history is written.

The symptoms relating to the current illness are listed as the CC and then investigated one by one and described in detail under HPI. Once written, the CC should express the patient's, not the examiner's, priorities; provide a capsule account of the patient's illness; and guide the collection of the HPI.

The symptoms most commonly associated with problems of the cardiopulmonary system include coughing with or without sputum production (expectoration), breathlessness (dyspnea), chest pain, and wheezing, commonly described as chest tightness. Other symptoms associated with cardiopulmonary problems include coughing up blood (hemoptysis), hoarseness, voice changes, dizziness and fainting (syncope), headache, altered mental status, and ankle swelling. These symptoms are discussed in Chapter 3. Some symptoms, such as ankle swelling, can also be seen by the examiner and can therefore be both a sign and a symptom. Common cardiopulmonary signs are also discussed in Chapter 5.

Patients with cardiopulmonary problems may also have any of the so-called constitutional symptoms, which are those commonly occurring with problems in any of the body systems. Constitutional symptoms include chills and fever, excessive sweating, loss of appetite (anorexia), nausea, vomiting, weight loss, fatigue, weakness, exercise intolerance, and altered sleep patterns. Hay fever, allergies, acute sinusitis, postnasal discharge, and frequent bouts of colds or flu are upper respiratory tract symptoms commonly associated with pulmonary disease.

SIMPLY STATED

Cardiopulmonary symptoms are subjective (known only to the patient), so information about symptoms can be obtained only from the patient. Although initial information can be obtained by having the patient complete a questionnaire, a complete history can be obtained only through questioning the patient.

History of Present Illness

The HPI is the narrative portion of the history that describes chronologically and in detail each symptom listed in the CC and its effect on the patient's life. It is the most difficult portion of the history to obtain and record accurately, but it is the information that guides the physical examination and diagnostic testing to follow. All caregivers should be familiar with the HPI for each of their patients.

Encouraging the patient to talk freely about each problem allows maximal information to be obtained. The patient is initially asked to describe the progression of symptoms from the

Have you recently had the following? (Circle "yes" or "no"; if in doubt, leave blank)

General

Tire easily, weakness	yes	no
Marked weight change	yes	no
Night sweats	yes	no
Persistent fever	yes	no
Sensitivity to heat	yes	no
Sensitivity to cold	yes	no

Skin

Eruptions (rash)	yes	no
Change in color	yes	no
Change in hair	yes	no
Change in fingernails	yes	no

Eyes

Trouble seeing	yes	no
Eye pain	yes	no
Inflamed eyes	yes	no
Double vision	yes	no
Wear corrective lenses	yes	no

Ears

Loss of hearing	yes	no
Ringing in ears	yes	no
Discharge	yes	no

Nose

Loss of smell	yes	no
Frequent colds	yes	no
Obstruction	yes	no
Excess drainage	yes	no
Nosebleeds	yes	no

Mouth

Sore gums	yes	no
Soreness of tongue	yes	no
Dental problems	yes	no

Throat

Postnasal drainage	yes	no
Soreness	yes	no
Hoarseness	yes	no

Breasts

Lumps	yes	no
Discharge	yes	no

Cardiorespiratory system

Cough, persistent	yes	no
Sputum (phlegm)	yes	no
Bloody sputum	yes	no
Wheezing	yes	no
Chest pain or discomfort	yes	no
Pain on breathing	yes	no
Shortness of breath	yes	no
Difficulty breathing while lying down	yes	no
Swelling of ankles	yes	no
Bluish fingers or lips	yes	no
High blood pressure	yes	no
Palpitations	yes	no
Vein trouble	yes	no

Digestive system

List average food selection each meal

Breakfast:

Lunch:

Dinner:

Digestive system (cont.)

Change in appetite	yes	no
Difficulty swallowing	yes	no
Heartburn	yes	no
Abdominal distress	yes	no
Belching or excess gas	yes	no
Abdominal enlargement	yes	no
Nausea	yes	no
Vomiting	yes	no
Vomiting of blood	yes	no
Rectal bleeding	yes	no
Tarry stools	yes	no
Dark urine	yes	no
Jaundice	yes	no
Constipation	yes	no
Diarrhea	yes	no
Hemorrhoids	yes	no
Need for laxatives	yes	no

Genitourinary system

Increase in frequency of urination (day)	yes	no
Increase in frequency of urination (night)	yes	no
Feel need to urinate without much urine	yes	no
Unable to hold urine	yes	no
Pain or burning	yes	no
Blood in urine	yes	no
Albuminuria	yes	no
Impotence	yes	no
Lack of sex drive	yes	no
Pain with intercourse	yes	no

Endocrine system

Thyroid trouble	yes	no
Adrenal trouble	yes	no
Cortisone treatment	yes	no
Diabetes	yes	no

Motor system

Muscle cramps	yes	no
Muscle weakness	yes	no
Pain in joints	yes	no
Swollen joints	yes	no
Stiffness	yes	no
Deformity of joints	yes	no

Nervous system

Headache	yes	no
Dizziness	yes	no
Fainting	yes	no
Convulsions or fits	yes	no
Nervousness	yes	no
Sleeplessness	yes	no
Depression	yes	no
Change in sensation	yes	no
Memory loss	yes	no
Poor coordination	yes	no
Weakness or paralysis	yes	no

GYN-OB

Age started menstruating _____

Interval between periods _____

Duration of periods _____

Flow: light normal heavy

Pain with periods? _____

Date of last period _____

Pregnancies _____ Births_____

Weight of babies at birth _____

Fig. 2.1 Review of systems template that can be completed by patient or examiner.

first occurrence to the present. On occasion, patients are unable to recall the first occurrence of the symptom, and the chronologic picture must then be developed by working backward from the most recent event.

Once a rough chronologic picture is outlined, the interviewer obtains a description of each symptom by using an open-ended approach such as "Now tell me about your (cough, chest pain, and so on)." Using silence, nonverbal clues (such as leaning forward expectantly), and facilitative expressions such as "Yes," "Hmm," and "Tell me more about…," or restating or summarizing what the patient just said shows interest and encourages the patient to continue talking. When the patient exhausts the spontaneous description of each symptom, directed questions are used to elicit whatever additional information is necessary. Questions that can be answered with "yes" or "no" and leading questions are avoided. For example, "What brings on your cough?" encourages more accurate information than a question such as "The only time you cough is when you first get up in the morning, isn't it?" Because most patients want to please the interviewer, they are likely to agree with a leading question rather than report the specific information needed.

SIMPLY STATED

All clinicians who care for patients should be familiar with the history of present illness for each patient treated.

Describing Symptoms

When the patient's descriptions and the interviewer's clarifying questions are complete, it is often appropriate to gather additional information for each symptom. As an example, it is not unusual to ask patients to rate their pain on a scale of 1 to 10 (highest) or to ask nonverbal patients to point to the best visual descriptor, such as a happy or sad face. To accomplish this, the following information should be gathered for each symptom:

1. Description of onset: date, time, and type (sudden or gradual)
2. Setting: cause, circumstance, or activity surrounding onset
3. Location: where on the body the problem is located and whether it radiates
4. Severity: how bad it is and how it affects activities of daily living
5. Quantity: how much, how large an area, or how many
6. Quality: what it is like and character or unique properties, such as color, texture, odor, composition, sharp, viselike, or throbbing
7. Frequency: how often it occurs
8. Duration: how long it lasts and whether it is constant or intermittent
9. Course: is it getting better, getting worse, or staying the same?
10. Associated symptoms: symptoms from the same body system or other systems that occur before, with, or after the problem
11. Aggravating factors: things that make it worse such as a certain position, weather, temperature, anxiety, exercise, and so on
12. Alleviating factors: things that make it better such as a change in position, hot, cold, rest, and so on

BOX 2.2 PQRST Mnemonic

P | Provocative/palliative: What is the cause? What makes it better? What makes it worse?
Q | Quality/quantity: How much is involved? How does it look, feel, sound?
R | Region/radiation: Where is it? Does it spread?
S | Severity scale: Does it interfere with activities? (Rate on scale of 1 to 10.)
T | Timing: When did it begin? How often does it occur? Is it sudden or gradual?

Various listings and mnemonic devices have been suggested to help the novice remember all of the information necessary to fully describe a symptom. One such mnemonic device is PQRST (Box 2.2).

Once all of the information is collected, it is written in narrative form, with a paragraph given to each time division in the chronologic progression of the symptoms. The left-hand margin of the page or the first few words of each paragraph are used to identify the applicable date or the time period (days, weeks, months, or years) before admission.

By the time each symptom is reviewed in detail, even a novice is usually able to assign the majority of the symptoms to one body system. The pertinent points of the ROS, personal history, and family history are reviewed for the applicable body systems. The pertinent negatives, as well as positives, are recorded. Usually, when writing the ROS, the interviewer puts "see HPI" behind the applicable body system rather than restating data previously recorded.

Past History

The past history, also called the *past medical history*, is a written description of the patient's past medical problems. It may include previous experiences with health care and personal attitudes and habits that may affect both health and compliance with medical treatment plans. Information recorded in the past history includes a chronologic listing of the following:

1. Illnesses and development since birth
2. Surgeries and hospitalizations
3. Injuries and accidents
4. Immunizations
5. Allergies, including a description of the allergic reactions and effective treatment
6. Medications (both prescribed by a physician and over-the-counter drugs), vitamins, herbs, and "home remedies"
7. Names of physicians and sources and types of previous health care
8. Habits, including diet, sleep, exercise, and the use of alcohol, coffee, tobacco, and illicit drugs
9. Description of general health

Templates or forms (Fig. 2.2) may be used by either the patient or the interviewer to concisely record much of the information just listed. It is important to record the dates of accidents, major illnesses, hospitalizations, and immunizations. If past medical records are needed during the patient's hospitalization, the names and addresses of hospitals and physicians that have provided care to the patient in the past should be recorded.

PERSONAL HISTORY

Birthplace _____ Date _____

Nationality _____ Religion _____

Marital status _____ Health of spouse _____

Occupations _____

_____

Residence past 5 years: _____

Education through _____ grade Sleep (usual hrs.) _____ Aids to sleep _____

Recreation _____

Exercise _____

Average per day: _____

Alcohol (type) _____

Tobacco (type) _____

Tea, coffee _____

Medicines taken regularly	Reason	Last Dose

PERSONAL PAST HISTORY

Have you ever had:	Circle "yes" or "no"		Year
Measles	yes	no	
Mumps	yes	no	
Whooping cough	yes	no	
Polio	yes	no	
Scarlet fever	yes	no	
Diphtheria	yes	no	
Meningitis	yes	no	
Infectious mono	yes	no	
Valley fever	yes	no	
Tuberculosis (TB)	yes	no	
Exposure to TB	yes	no	
Malaria	yes	no	
Hives	yes	no	
Cancer	yes	no	
Venereal disease	yes	no	
Arthritis	yes	no	
Back trouble	yes	no	
Bronchitis	yes	no	
Pneumonia	yes	no	
Pleurisy	yes	no	
Asthma	yes	no	
Emphysema	yes	no	
Rheumatic fever	yes	no	
High blood pressure	yes	no	
Heart disease	yes	no	
Anemia	yes	no	
Bleeding tendency	yes	no	
Blood transfusion	yes	no	
Hepatitis (yellow jaundice)	yes	no	
Ulcer	yes	no	
Hemorrhoids	yes	no	
Bladder infections	yes	no	
Kidney disease	yes	no	
Hay fever/sinusitis	yes	no	
Glaucoma	yes	no	
Nosebleeds	yes	no	

Operations	Circle "yes" or "no"		Year
Tonsils	yes	no	
Appendix	yes	no	
Gallbladder	yes	no	
Stomach	yes	no	
Breast	yes	no	
Uterus and/or ovary	yes	no	
Prostate	yes	no	
Hernia	yes	no	
Thyroid	yes	no	
Varicose veins	yes	no	
Hemorrhoids	yes	no	
Heart	yes	no	
Other	yes	no	
Injuries			
Head	yes	no	
Chest	yes	no	
Abdomen	yes	no	
Broken bones	yes	no	
Back	yes	no	
Other	yes	no	
Allergies (are you allergic to)			
Tetanus antitoxin	yes	no	
Penicillin	yes	no	
Sulfa	yes	no	
Other drugs	yes	no	
List _____			
_____			
Foods	yes	no	
Cosmetics	yes	no	
Other	yes	no	
Immunizations			
Smallpox	yes	no	
Tetanus	yes	no	
Polio, shots	yes	no	
Polio, oral	yes	no	
Other	yes	no	

Fig. 2.2 Template for recording personal history and personal past history (past medical history).

Disease and Procedure History

For patients with cardiopulmonary complaints, it is important to ask about the frequency and treatment of each of the following diseases: pneumonia, pleurisy, fungal diseases, tuberculosis, colds, sinus infections, bronchiectasis, asthma, allergies, pneumothorax, bronchitis, or emphysema. Because of the close relationship between the heart and the lungs, it is also important to know whether the patient has a history of heart attack, hypertension (high blood pressure), heart failure, or congenital heart disease.

Dates and types of heart or chest surgeries and traumas should be recorded. Dates and results of tests that assess pulmonary status, including chest x-ray films, bronchoscopy, pulmonary function tests, and skin tests, should also be documented. This respiratory-specific past history information is summarized in the portion of a pulmonary history questionnaire shown in Fig. 2.3. A patient's discussion of previous diseases, tests, and treatments gives a good indication of his or her understanding of the disease process and compliance with medical therapy.

Drug, Smoking, and Vaping History

There is a strong link between the use of illicit drugs and cardiopulmonary problems; however, an honest history of drug

Please answer by circling "yes" or "no" and provide the specific information.

PAST MEDICAL HISTORY

Have you ever had the following?			**If "yes" give year/specifics**
Asthma	yes	no	_____
Allergies	yes	no	_____
Frequent colds	yes	no	_____
Sinus infections	yes	no	_____
Chronic bronchitis	yes	no	_____
Emphysema	yes	no	_____
Pleurisy	yes	no	_____
Pneumonia	yes	no	_____
Pneumothorax	yes	no	_____
Tuberculosis	yes	no	_____
Other lung problems	yes	no	_____
Heart trouble of any type	yes	no	_____
Chest trauma	yes	no	_____
Chest, lung, or heart surgery	yes	no	List: _____

Have you ever had any of the following?			**If "yes" give month/year last performed**
Chest x-ray: ever abnormal?	yes	no	____/____
TB skin test: ever positive?	yes	no	____/____

Have you had any of the following?			
Other skin tests	yes	no	____/____
Pulmonary function test	yes	no	____/____
Bronchoscopy	yes	no	____/____
Other pulmonary tests	yes	no	____/____

SMOKING HISTORY

Do you currently smoke or use tobacco regularly?	**yes**	**no**
1. How old were you when you started smoking?		
2. For how many years have you smoked regularly?		
3. How many cigarettes do you now smoke each day?		
4. How many cigars do you now smoke each day?		
5. How much pipe tobacco do you now smoke each week?		
6. Were there periods when you stopped smoking?		
7. How long did you stop smoking?		

Have you ever smoked regularly?	**yes**	**no**
1. How old were you when you started smoking?		
2. How many years did you smoke regularly?		
3. When did you quit smoking? (month/year)	____/____	
4. How many cigarettes did you usually smoke per day?		
5. How many cigars did you usually smoke per day?		
6. How much pipe tobacco did you smoke per week?		

Did you smoke anything other than tobacco?	**yes**	**no**
What, how much, how often? _____		

Does someone smoke in your home or office?	**yes**	**no**
1. How many years has someone smoked in your home?		
2. How many years has someone smoked in your office?		

Fig. 2.3 Past medical history and smoking sections from a pulmonary history questionnaire.

abuse is extremely difficult for even the most experienced examiner to obtain. It is often the bedside clinician, such as the RT, who first learns that drug abuse may be related to the patient's complaints. The patient should be encouraged to share this information honestly with the primary physician so that the best treatment can be obtained as early as possible. Patients should be reassured of the confidential nature related to such disclosures. In addition, clinicians and students must remember that a breach of this confidentiality is illegal and may result in losing the patient's trust. Also, concluding too quickly that a drug history is the cause of the patient's problem may result in a missed diagnosis and an improper treatment program.

Because of the strong relationship between smoking and chronic pulmonary diseases, respiratory infections, lung cancer, and cardiovascular diseases, a careful and accurate smoking history is important. It is preferable to ask a patient "What types of tobacco and/or vaping substances have you used, how often do you use them, and at what age did you begin smoking or vaping?" rather than "Do you smoke or vape?" Use of pipes, cigars, marijuana, chewing tobacco, snuff, or vaping substances is usually recorded in terms of the amount used daily. As a result of the variety of substances used in vaping devices and electronic cigarettes and because many contain nicotine and other potentially harmful chemicals, their use by the patient should be explored by the clinician and recorded in the medical record.

The use of cigarettes should be recorded in pack-years. The term **pack-years** refers to the number of years the patient has smoked times the number of packs smoked each day. It is also important to record the age when the patient began to smoke, variations in smoking habits over the years, the type and length of the cigarettes smoked, the habit of inhaling, the number and success of attempts to quit, and the date when the patient last smoked (see Fig. 2.3). Similar information should be gathered on the use of vaping devices and electronic cigarettes. Members of the health care team have a professional responsibility to educate patients and their families about the harmful effects of smoking and vaping to guide them to programs designed to help people stop.

SIMPLY STATED

The term *pack-years* is the number of years the patient has smoked multiplied by the number of packs per day. If a patient smoked one pack per day for 30 years, it would be recorded as a 30 pack-year smoking history.

Family History

The purpose of the family history is to learn about the health status of the patient's blood relatives. This is where the interviewer records the presence of diseases in immediate family members with hereditary tendencies. Sources of physical, emotional, or economic support or stress within the family structure are also documented here when important.

To assess the current health status of the extended family, the patient is asked to describe the present age and state of health of blood relatives for three generations: siblings; parents, aunts, and uncles; and grandparents. The resulting information may be recorded in narrative style, drawn schematically as a family tree, or entered into a template or form such as that shown in Fig. 2.4. When information is entered into a template or form in this manner, the responses should be reviewed and notations added as necessary to capture the age and cause of death or current health status for each family member. A notation such as "18 A/W" indicates that the person listed was 18 years old and alive and well on the day the history was recorded.

The health of the current family of a patient who was adopted is important for identification of communicable and environmentally related diseases; however, a history of the patient's true blood relatives is needed to assess genetically transmitted diseases or illnesses with strong familial relationships.

In addition to documenting the current health status of the family members, a review of diseases with strong hereditary or familial tendencies is also performed. Fig. 2.4 shows a template that permits either the patient or the examiner to record the presence or absence of the most frequently reviewed diseases known to occur in the patient's family (pertinent positives) and those denied by the patient (pertinent negatives).

Has any blood relative had any of the following?	Circle "yes" or "no"		**If "yes," what relationship?**
Anemia	yes	no	
Bleeding tendency	yes	no	
Leukemia	yes	no	
Repeated infections	yes	no	
Crippling infections	yes	no	
Heart disease	yes	no	
Chronic lung disease	yes	no	
Tuberculosis	yes	no	
High blood pressure	yes	no	
Kidney disease	yes	no	
Asthma	yes	no	
Severe allergies	yes	no	
Mental illness	yes	no	
Convulsions or fits	yes	no	
Migraine headaches	yes	no	
Diabetes	yes	no	
Gout	yes	no	
Obesity	yes	no	
Thyroid trouble	yes	no	
Peptic ulcer	yes	no	
Chronic diarrhea	yes	no	
Cancer	yes	no	

	Present Age, or Age at Death	**If living, health (good, fair, poor) if deceased, cause of death**
Father		
Mother		
Brothers or Sisters		
1.		
2.		
3.		
4.		
5.		
6.		
7.		
Children		
1.		
2.		
3.		
4.		
5.		
6.		
7.		

Fig. 2.4 Template for recording family history.

Patients with cardiopulmonary complaints are asked specifically about the following diseases or problems that have been shown to have a hereditary link with pulmonary disease: chronic allergies, asthma, lung cancer, cystic fibrosis, emphysema, neuromuscular disorders, kyphosis, scoliosis, sleep disturbances and sleep apnea, collagen vascular diseases (e.g., lupus erythematosus), α_1-antitrypsin deficiency, cardiovascular disorders (e.g., hypertension, heart attack, heart failure, and congenital abnormalities), diabetes, and obesity. Because exposure to family and friends with infections can also result in pulmonary symptoms, the patient is asked about contact with or family history of frequent colds, tuberculosis, influenza, pneumonia, and fungal infections.

Occupational and Environmental History

An occupational and environmental history is particularly important in patients with pulmonary symptoms. The purpose is to elicit information concerning exposure to potential disease-producing substances or environments. Most occupational pulmonary diseases result from workers inhaling particles, dusts, fumes, or gases during the extraction, manufacture, transfer, storage, or disposal of industrial substances (Table 2.1). However, the hazards of an industrial society are not limited to those working directly with the toxic substances. Other employees working in or near an industrial plant, as well as people living in the surrounding areas, are subject to breathing toxic fumes and dusts. Family members come in contact with contaminated clothing, such as asbestos from clothing being laundered, and may develop pulmonary disease years later. Accidental spills of toxic chemicals and gases can endanger and even necessitate evacuation and treatment of large numbers of people.

Although there have been dramatic decreases in exposure to some hazardous materials, exposures to dusts, fumes, and chemicals from indoor and outdoor air pollutants continue to increase. Outbreaks of work-related illnesses in buildings not contaminated by industrial processes can be traced to these pollutants

TABLE 2.1 Occupational Lung Disease

Inhaled Substance	Occupation or Source	Usual Symptoms and Course	Disease Names
Acute Airway or Lung Reactions			
Irritant Gases			
Chlorine, ammonia, sulfur dioxide	Various industries Accidental exposure	Short exposure Eye and airway irritation, dry cough Prolonged exposure Dyspnea, wheezing, pulmonary edema	
Insoluble Gases and Metal Fumes			
Nitrogen dioxide	Filled silos, closed welding spaces, chemical laboratories	Very little airway irritation Headache, shortness of breath, cough, chest tightness, pulmonary edema	Silo-filler's disease
Phosgene	Chemical warfare, heating metals treated with production chlorine	Acute pulmonary edema, pneumonitis	
Copper, zinc, iron, nickel, tin, antimony, manganese, magnesium	Welders in closed spaces, mining, electroplating	Fever, malaise, nausea, aching muscles, lasting 2–3 days	Metal fume fever Galvanization Polymer fume fever
Cadmium, mercury, beryllium		Above with acute pulmonary edema and pneumonia	
Acute or Subacute Allergic Reactions			
TDI Proteolytic enzymes (detergents)	Plastic and foam production Industrial accidents Manufacture of detergents	Immediate or delayed asthma-like reactions usually occur in sensitive persons but may occur in others; fever, chills, malaise, weight loss, nocturnal wheezing, cough, cyanosis, dyspnea at rest	Hypersensitivity pneumonitis Extrinsic allergic alveolitis Occupational asthma
Droppings/Feathers			
Pigeons, parakeets, chickens, turkeys	Bird handlers	Acute reactions within 4–8 hours Delayed reactions occur at night after leaving work environment In some cases, chronic disease with fibrosis may develop if repeated exposure continues	Bird-fancier's lung, ornithosis Pigeon-breeder's lung

Continued

TABLE 2.1 Occupational Lung Disease—cont'd

Inhaled Substance	Occupation or Source	Usual Symptoms and Course	Disease Names
Pituitary Extract/Organic Dusts			
Paprika, fishmeal, coffee bean, weevil-infested flour Cotton, hemp, flax Fungal spores from moldy hay, straw, grains, malt or barley, sugar cane (bagasse), mushroom compost, maple bark, logs, wood pulp (Western red cedar)	Workers with specific products Textile and farm workers Agriculture and farm workers Wood and paper mill workers Lumbering	"Monday fever" Repeated bouts of pneumonia with fever and weight loss	Pituitary snuff-taker's lung Wheat-weevil lung Byssinosis (brown lung) Farmer's lung Malt-worker's lung Bagassosis Mushroom-handler's lung Wood/paper mill–worker's lung Maple bark–stripper's lung
Contaminated water Drugs and chemicals	Air conditioners, humidifiers Antibiotic, pharmaceutical, chemical manufacture		Air-conditioner (humidifier) lung
Chronic Occupational Lung Diseases			
Crystalline-free silica	Sandblasters in enclosed spaces, manufacture of ceramics and abrasive agents, construction, mines, quarries, foundries: gold, copper, lead, zinc, iron, coal, granite	Acute (1–3 years of intense exposure): shortness of breath, fever, frequent pulmonary infections Chronic (20 years or more of exposure): no exertional dyspnea, obstructed breathing, productive cough, reduced exercise tolerance, chest pain, weight loss, hemoptysis with fibrosis; 40+ years: infection, cor pulmonale	Silicosis Associated in unknown way with rheumatoid arthritis and scleroderma High incidence of associated tuberculosis and bronchogenic cancer
Coal	Coal miners	Simple: asymptomatic, cough with smoking	Coal-worker's pneumoconiosis
		Complicated: fibrosis, dyspnea, black sputum	Coal-miner's lung
Asbestos	Manufacture of fireproofing and insulation, shipbuilding, automobile mechanics (clutch and brake), demolition workers, firefighters, living/working near dumps or high-use areas	Exertional dyspnea, clubbing, restricted breathing, crackles at lung bases usually appear before x-ray film changes and cancer symptoms about 20 years after exposure	Asbestosis
Other Mineral Dusts			
Fuller's earth, kaolin (China clay), graphite, tin, iron, mixed dusts, tungsten	Quarrying, mining, milling, drying, bagging, and loading minerals	Vary from asymptomatic with dust retention to same as complicated silicosis	Pneumoconiosis
	Welding and foundries		Stannosis
	Manufacture of industrial precision instruments		Siderosis
Beryllium	Nuclear physics, manufacture of electronics, ceramics, x-ray tube windows (in past: fluorescent lights)	Acute pulmonary edema, pneumonia	Pulmonary granuloma
		Chronic granulomatous disease appears years after exposure	
		Dyspnea, dry cough, weakness, weight loss, skin lesions, crackles	
Paraquat	Agriculture	Inhalation or ingestion may lead to pulmonary fibrosis	

TDI, Toluene diisocyanate.

or simply to an inadequate provision of fresh air with no identifiable contaminant. The terms *tight-building syndrome* and *sick-building syndrome* are now used to describe these epidemics in which large numbers of employees complain of symptoms, including runny or stuffy nose, eye irritation, cough, chest tightness, fatigue, headache, and malaise.

Reactions to inhalation of toxic substances can occur within minutes to hours (acute) or may take weeks, months, or years to develop. Inhalation of soluble gases, such as ammonia, chlorine, or sulfur dioxide, causes sufficient upper airway irritation to warn workers of immediate danger. However, metal fumes and insoluble gases, such as phosgene and nitrogen dioxide, are less irritating to the upper airways. Because they may be inhaled for long periods of time with little discomfort, workers are not warned to escape, and more severe pulmonary damage results.

Hypersensitivity reactions may be acute or delayed and often occur in patterns. Shortness of breath, wheezes, or flulike symptoms usually occur within 4 to 8 hours of exposure. However, symptoms may occur only at night and may recur for several nights after a single exposure. In some cases the most severe symptoms occur at the start of the workweek, and tolerance develops as the week progresses. Such a pattern, often termed *Monday fever,* is commonly seen with inhalation of cotton dust. More commonly, allergic reactions worsen with reexposure and decrease during days off. In subacute forms of hypersensitivity pneumonitis, symptoms occur insidiously over weeks. Most of the chronic occupational pulmonary diseases (pneumoconioses) take 20 years or more to become symptomatic. Whenever there is a delay in the development of pulmonary symptoms, their relationship to occupational and environmental exposure becomes obscure.

The occupational and environmental history must therefore be more than just a chronologic listing of job titles. Questioning may include the occupation of the patient's father and descriptions of childhood residences. Lung disease caused by the inhalation of asbestos fibers (asbestosis) has been seen in people who lived near shipyards or asbestos dump sites as children and in people whose fathers were asbestos workers. The patient should be queried about location of schools, summer jobs, dates and types of military service, and all subsequent full- and part-time jobs. The precise dates, duration, and activities of each job must be delineated. These include materials and processes involved, amount of workspace and type of ventilation, use of protective devices, cleanup practices, and work going on in adjacent areas.

Work or residence near mines, farms, mills, shipyards, or foundries should be clarified. Sources of possible irritants within the home, such as humidifiers, air-conditioning systems, woodpiles, insulation, smoking, paints and glues used for hobbies, and household pets, must also be reviewed.

It is important to review the various places a patient has lived or visited for any period of time. Certain fungal infections that involve the respiratory system have strong geographic relationships. Histoplasmosis is particularly common in Ohio, Maryland, the central Mississippi Valley, and the Appalachian Mountains; blastomycosis is found in the southwestern United States, especially Arizona, Texas, and the San Joaquin Valley in California, as well as sections of South America.

When the pulmonary history is written, occupational and environmental histories are usually given specific headings because of the detail recorded. However, in most routine histories this information may be found under general headings such as personal history, social history, psychosocial history, or social-environmental history.

REVIEWING THE PATIENT'S MEDICAL RECORD

The RT often prepares to visit the patient by first reviewing the patient's medical record. This record may be brief on admission but builds if the patient is admitted for more than a couple of days. It is the RT's responsibility to become familiar with pertinent information recorded in the chart and overall medical record.

In the past this generally meant reviewing only a hard copy of the patient's chart. However, with the advent of EHRs, most such records, including admitting information, history and assessment notes, laboratory tests, and imaging studies (radiographs and computed tomography scans), are now entered into and stored within computerized databases. Therefore it is essential for the RT to both enter relevant assessment data into the EHR and review current data recorded there to help optimize care planning. EHRs and overall documentation of the patient assessment and care plan are detailed in Chapter 21. The following information represents aspects of the patient's medical record that are generally most useful.

Admission Note

The admission note is written by the admitting physician and is a narrative description of important facts related to the patient's need to be hospitalized. The physician documents the patient's baseline status on admission in the admission note. The RT should review this important notation before seeing the patient for the initial visit to help identify why the patient was admitted, evaluate the current clinical condition, and understand the overall treatment plan.

Physician Orders

The admitting physician lists the treatment plan and monitoring techniques that he or she believes are needed to best care for the patient. The RT should carefully review all orders related to the treatment and monitoring of cardiopulmonary disorders and specifically review the orders pertaining to respiratory care.

Progress Notes

Each day the attending physician will visit the patient at least once. During this visit the physician will interview and examine the patient to identify the patient's progress and response to treatment. The physician will follow up by documenting progress notes in the patient's chart. RTs should review these notes daily to identify the physician's perception of the patient's progress toward treatment goals.

In addition to the physician, other health care providers will document progress notes in the patient's chart. The nurse, physical therapist, occupational therapist, nutritionist, social worker, and other health care providers may record their findings and

treatment plan in a progress note, often using a SOAP (*s*ubjective, *o*bjective, *a*ssessment, *p*lan) format (see Chapter 21).

Do Not Resuscitate Status and Advance Directives

Some patients will have a **do not resuscitate (DNR)** label on their chart to alert the patient care team that there is a concurrent physician's order in the chart. A DNR is usually instituted when resuscitation would not alter the ultimate outcome of a disease. In such cases resuscitation should not be attempted if the patient experiences respiratory or cardiac arrest. The DNR may be initiated by someone entitled to make decisions on a patient's behalf. Alternatively, it can be instituted on the basis of a physician's own initiative, in consultation with the patient and/or family members, when it is determined that the patient is in the end stages of a terminal illness that is not reversible.

It is important to remember that there are variations of DNR orders. One such variation, which prohibits intubation but may allow the administration of certain cardiopulmonary resuscitative medications such as epinephrine or atropine, is known as a *do not intubate* (DNI) order. It should also be noted that an alternative term for a DNR is an *allow natural death* (AND) order.

An **advance directive** is a legal document in which individuals specify what actions should be taken for their health if they are no longer able to make decisions for themselves because of illness or incapacity. In the United States an advance directive has a legal status, and many states require that patients be asked and/or informed about whether they have or want such a document on admission to a hospital or other health care facility. A living will is one form of advance directive, leaving instructions for treatment. Another form is a specific type of power of attorney or health care proxy, in which the person authorizes someone to make decisions on his or her behalf when the person is incapacitated. Associated procedures generally require one or more trained medical professionals to determine that patients are not competent to make their own health decisions before the advance directive takes effect and clinical decisions are made on their behalf. Most medical records have a separate section for DNR and advance directives.

ASSESSMENT STANDARDS FOR PATIENTS WITH PULMONARY DYSFUNCTION

The beginning student may be confused by the fact that the patient's medical record contains more than one style of history recorded on or about the same date. This occurs in teaching institutions because students and residents, as well as the attending physician, see the patient. It also occurs because each of the health care professions is responsible for specifying the scope of practice for its practitioners and monitoring the quality of their performance. As a result, there may be patient histories completed by nursing and several allied health professions in addition to those done by physicians. Some hospitals are moving toward what is termed the *patient history*—one history per patient per admission—which is used and augmented by all the allied health professionals involved in the patient's care, as well as by physicians.

The American Thoracic Society adopted specific standards for assessment of adult patients with actual or potential pulmonary dysfunction. These process and outcome standards are used with assessment, goal setting, intervention, and evaluation to ensure that the patient receives an acceptable level of care. The pulmonary history assessment guide from these standards is shown in Box 2.3. Note that in addition to gathering and analyzing the traditional pulmonary history, this assessment includes additional categories that focus on the patient's response to interferences with normal respiratory function, self-management capacity, resources, and knowledge of respiratory medications and treatments. The student will find this document helpful as a tool to review the multiple variables that affect both the quality of care and quality of life for a patient with pulmonary dysfunction.

BOX 2.3 American Thoracic Society's Nursing Assessment Guide for Adult Patients With Pulmonary Dysfunction

History and Symptoms

Pulmonary Symptoms[a]

Dyspnea
Cough
Sputum
Hemoptysis
Wheeze
Chest pain (e.g., pleuritic)

Extrapulmonary Symptoms

Night sweats
Headaches on awakening
Weight changes
Fluid retention
Nasal stuffiness, discharge
Fatigue
Orthopnea, paroxysmal nocturnal dyspnea
Snoring, sleep disturbances, daytime drowsiness
Sinus problems

Pulmonary Risk Factors

Smoking, vaping, and tobacco history
Type (cigarettes, cigar, pipe, vaping substances or smokeless tobacco)
Amount per day
Duration (years)
Childhood respiratory diseases/symptoms
Family history of respiratory disease
Alcohol and chemical substance abuse (e.g., heroin, marijuana, cocaine)
Environmental exposures
Location (e.g., home, work, region)
Type (e.g., asbestos, silica, gases, aerosols)
Duration

BOX 2.3 American Thoracic Society's Nursing Assessment Guide for Adult Patients With Pulmonary Dysfunction—cont'd

Obesity or nutritional depletion
Compromised immune system function (e.g., immunoglobulin G deficiency, HIV infection, α_1-antitrypsin deficiency)

Previous History
Pulmonary problems
Treatments
Number of hospitalizations
Medical diagnoses
Immunizations

Self-Management Capacity
Physical Ability (0-to-4 scale, 0 = independent, 4 = dependent)
Lower extremity (e.g., walking, stair climbing)
Upper extremity (e.g., shampooing, meal preparation)
Activities of daily living
- Toileting
- Hygiene
- Feeding
- Dressing

Activity pattern during a typical day
Patient statement about management of problems
Sensory-perceptual factors (e.g., vision, hearing)

Cognitive Ability
Mental age
Memory
Knowledge about diagnosis, end treatment of pulmonary problems, or risk factors of pulmonary disease
Judgment

Psychosocial-Cultural Factors
Self-concept
Self-esteem
Body image
Roles, changes
Value system (e.g., spiritual and health beliefs)
Coping mechanisms
Displaced anger
Anxiety
Hostility
Dependency
Withdrawal, isolation
Avoidance
Denial
Noncompliance
Acceptance

Socioeconomic Factors
Social support system
Family
Significant others
Friends
Community resources
Government resources
Financial situation/health insurance
Employment/disability

Environmental Factors
Home
Community
Worksite
Health care setting (e.g., hospital, nursing home)

[a]Consider onset, duration, precipitating factors, aggravating factors, and relieving factors of symptoms.

KEY POINTS

- The medical history of the patient is most often obtained by the patient's physician. RTs often interview the patient to identify changes in the patient's health status in response to therapy.
- Interviewing skills require practice and are an important part of patient assessment for all health care providers.
- Communicating with the patient to obtain information about his or her health status requires the interviewer to be skilled at verbal and nonverbal communication.
- Body movement, facial expression, touch, and eye movement are all types of nonverbal communication.
- One of the most common mistakes made by the interviewer is failing to listen carefully to the patient's answers and questions.
- The ability of the interviewer to project a sense of undivided interest in the patient is the key to a successful interview and the development of good patient rapport.
- Open-ended questions encourage patients to describe events and priorities as they see them and thereby help bring out concerns and attitudes and promote understanding.
- Closed questions such as "When did your cough start?" or "How long did the pain last?" focus on specific information and provide clarification.
- Neutral questions and statements, as opposed to leading questions, are preferred for all interactions with the patient. Leading questions prompt the patient to provide a certain answer and therefore may lead to inaccurate information.
- ROS is a recording of past and present information that may be relevant to the present problem but might otherwise have been overlooked.
- The CC is documentation in the patient's current medical history explaining why he or she sought health care. It is the answer to such open-ended questions as "What brought you to the hospital?"
- The HPI is the narrative portion of the history that describes chronologically and in detail each symptom listed in the CC and its effect on the patient's life.
- The EHR is both a digital repository for recoding clinical data and is a rich source for historical patient information.

- Because of the strong relationship between smoking and chronic pulmonary diseases, respiratory infections, lung cancer, and cardiovascular diseases, a careful and accurate smoking history is important.
- Because many substances used in vaping devices and electronic cigarettes contain nicotine and other potentially harmful chemicals, their use should be investigated and recorded in the medical record.
- The purpose of the family history is to learn about the health status of the patient's blood relatives. The interviewer records the presence of diseases with hereditary tendencies in immediate family members.
- The purpose of the occupational history is to elicit information concerning exposure to potential disease-producing substances or environments. Most occupational pulmonary diseases are the result of workers inhaling particles, dusts, fumes, or gases during the extraction, manufacture, transfer, storage, or disposal of industrial substances.
- It is important to document in the history the various places a patient has lived or visited for any period of time. Certain fungal infections that involve the respiratory system have strong geographic relationships.
- It is the RT's responsibility to become familiar with pertinent information recorded in the chart before caring for the patient with respiratory illness.
- A DNR order is usually instituted for very ill patients when resuscitation would likely not alter the ultimate outcome of a disease.
- An advance directive is a legal document that specifies what medical actions should be taken (or not taken) if the patient is no longer able to make decisions for himself or herself.

ASSESSMENT QUESTIONS

1. True or False: Proper diagnosis and treatment are determined to a great extent by the accuracy and detail of the patient's history.
2. During the interview, if the therapist responds to the information provided by the patient with appropriate comments, this is evidence of which of the following?
   1. Nonverbal communication
   2. Active listening
   3. Pertinent positives
   4. Reflecting
      a. 1 and 3
      b. 2 and 4
      c. 3 and 4
      d. All of the above
3. Proper introduction of yourself to the patient before the interview is useful for all of the following *except:*
   a. Establishing your role
   b. Asking permission to be involved
   c. Conveying your sincere interest in the patient
   d. Identifying diagnostic information
4. Which of the following would be examples of techniques used in conversational interviewing?
   a. Using questions such as "What happened next?"
   b. Saying things such as "You feel better now, don't you?"
   c. Asking for clarification of a symptom
   d. a and c
5. A patient cannot provide a medical history, and it is obtained from a close relative. This is an example of which of the following?
   a. Family history
   b. Background information
   c. Screening information
   d. Alternative source
6. In what section of the patient history can a detailed description of the patient's current symptoms be found?
   a. Chief complaint
   b. History of present illness
   c. Past medical history
   d. Occupational history
7. Information that is evident only to the patient and cannot be perceived by the observer is known as which of the following?
   a. Subjective data
   b. Objective data
   c. Clinical signs
   d. Pertinent negatives
8. In what section of the patient's history would you find information about a possible history of exposure to asbestos?
   a. History of present illness
   b. Family history
   c. Occupational history
   d. Past medical history
9. Your patient has a 50 pack-year smoking history. Which of the following is consistent with this history?
   a. The patient smoked 2 packs/day for 25 years
   b. The patient smoked 1 pack/day for 50 years
   c. The patient smoked 5 packs/day for 10 years
   d. All of the above
10. Subjective manifestations of disease are termed:
    a. Symptoms
    b. Clinical findings
    c. Objective data
    d. Pertinent negatives
11. Your patient has pneumonia and complains of chest pain and cough but denies fever. How would you classify the lack of fever in this case?
    a. Cumulative data
    b. Pertinent positive
    c. Pertinent negative
    d. Physical examination finding
12. Which of the following is not considered a constitutional symptom?
    a. Nausea
    b. Weakness
    c. Chills and fever
    d. Dyspnea

13. The family history may be helpful in diagnosing a patient with which of the following problems?
    a. Acute bronchitis
    b. Cystic fibrosis
    c. Pneumothorax
    d. Pulmonary edema
14. Which of the following illnesses may be related to visiting or living in certain geographic locations?
    a. Congestive heart failure
    b. Fungal pneumonia
    c. Cystic fibrosis
    d. Emphysema
15. Your patient has a do not resuscitate (DNR) label on his chart and at the head of his bed. This indicates which of the following?
    a. The patient is not responsive
    b. The patient is not oriented to time, place, and person
    c. The patient should not be resuscitated if cardiac arrest occurs
    d. The patient has psychiatric problems and needs close supervision

Answer Key

1. T
2. b
3. b
4. d
5. d
6. b
7. a
8. c
9. d
10. a
11. c
12. d
13. b
14. b
15. c

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3

Cardiopulmonary Symptoms

Albert J. Heuer

LEARNING OBJECTIVES

After reading this chapter, you will be able to:

Describe the causes and common characteristics of the following symptoms:

- Cough
- Sputum production
- Hemoptysis
- Dyspnea
- Chest pain
- Dizziness and fainting
- Swelling of the ankles
- Fever, chills, and night sweats
- Headache, altered mental status, and personality changes
- Snoring
- Gastroesophageal reflux
- Daytime somnolence (sleepiness)

OUTLINE

KEY TERMS

angina
bronchorrhea
cough
daytime somnolence
diaphoresis
dyspnea
edema
fetid
fever
frothy
gastroesophageal reflux disease (GERD)
hematemesis
hemoptysis
night sweats
obstructive sleep apnea (OSA)
orthodeoxia
orthopnea
orthostatic hypotension
paroxysmal nocturnal dyspnea (PND)
phlegm
platypnea
sleep disordered breathing
sputum
syncope
tenacious
trepopnea

Symptoms are subjective clinical findings generally reported by the patient during or shortly after the initial interview (described in Chapter 2). Clinical signs, on the other hand, are objective and measurable, such as the vital signs and laboratory studies detailed in subsequent chapters of this text. Respiratory therapists (RTs) will encounter patients with a variety of symptoms. The primary symptoms associated with cardiopulmonary disorders are cough, sputum production, hemoptysis, shortness of breath (SOB; dyspnea), and chest pain. Other less specific complaints include dizziness and fainting; ankle swelling (peripheral edema); fever, chills, and night sweats; snoring; personality changes; daytime somnolence (sleepiness); and gastric reflux. This chapter defines the terms associated with these symptoms, briefly discusses their causes (etiology), and describes how these symptoms relate to commonly associated diseases. The more familiar RTs are with these symptoms and their characteristics, the better they can ask relevant questions, assist the patient care team in making a correct diagnosis, and help design an appropriate interdisciplinary treatment plan.

SIMPLY STATED

Cardiopulmonary symptoms are assessed to determine the following:
- The seriousness of the patient's problem
- The potential underlying cause of the problem
- The effectiveness of treatment

COUGH

Cough is one of the most common, although nonspecific, symptoms seen in patients with pulmonary disease. It is the powerful protective reflex arising from stimulation of receptors located in the pharynx, larynx, trachea, large bronchi, and even the lung and the visceral pleura. Coughing can be caused by inflammatory, mechanical, chemical, or thermal stimulation of cough receptors found anywhere from the oropharynx to the terminal bronchioles or simply by tactile pressure in the ear canal. There are many conditions that can make a patient cough. The key to determining the cause in many cases can be found in a careful review of the history, physical examination, and chest radiograph (Table 3.1).

Stimulation of the cough receptors is carried by afferent pathways of the reflex, primarily the vagus, phrenic, glossopharyngeal, and trigeminal nerves, to the cough center located diffusely in the medulla, separate from the respiratory center. Conduction of the impulses down the efferent pathway of the reflex stimulates the smooth muscles of the larynx and tracheobronchial tree, the diaphragm, and other respiratory muscles through the phrenic and other spinal motor nerves. The cough mechanism can be divided into the following three phases:

1. *Inspiratory phase:* reflex opening of the glottis and contraction of the diaphragm, thoracic, and abdominal muscles cause a deep inspiration with a concomitant increase in lung volume accompanied by an increase in the caliber and length of the bronchi.
2. *Compression phase:* closure of the glottis and relaxation of the diaphragm while the expiratory muscles contract against the closed glottis can generate very high intrathoracic pressures and narrowing of the trachea and bronchi.
3. *Expiratory phase:* opening of the glottis, explosive release of trapped intrathoracic air, and vibration of the vocal cords and mucosal lining of the posterior laryngeal wall shake secretions loose from the larynx and move undesired material out of the respiratory tract.

The cough reflex may be voluntary or involuntary and normally occurs in everyone from time to time. The quality of a cough (force of the airflow) is determined by the depth of the inspiration and amount of pressure that can be generated in the airways. The effectiveness of a cough is reduced if one or more of the following conditions exist:

1. Weakness of either the inspiratory or expiratory muscles
2. Inability of the glottis to open or close correctly
3. Neurologic abnormalities that inhibit normal airway reflexes
4. Obstruction, collapsibility, or alteration in shape or contours of the airways
5. Decrease in lung recoil as occurs with emphysema
6. Abnormal quantity or quality of mucus production (e.g., thick sputum)

TABLE 3.1 Possible Causes of Cough Receptor Stimulation

Types of Stimulation	Possible Causes
Inflammatory	Infection, lung abscess, drug reaction, allergy, edema, hyperemia, collagen vascular disease, radiotherapy, pneumoconiosis, tuberculosis
Mechanical	Inhaled dusts, suction catheter, food
Obstructive	Foreign bodies, aspirations of nasal secretions, tumor or granulomas within or around the lung, aortic aneurysm
Airway wall tension	Pulmonary edema, atelectasis, fibrosis, chronic interstitial pneumonitis
Chemical	Inhaled irritant gases, fumes, smoke
Temperature	Inhaled hot or cold air
Ear	Tactile pressure in the ear canal (Arnold nerve response) or from otitis media

Causes and Clinical Presentation

Most patients will have a single cause for their cough; however, in some patients two or three simultaneous causes (comorbidities) may be present. Cough may be acute (sudden onset, usually severe with a short course, self-limited), chronic (persistent and troublesome for more than 3 weeks), or paroxysmal (periodic, prolonged, and forceful episodes). An acute self-limited cough is usually caused by a viral infection involving the upper airway, which usually resolves in a few days. A chronic persistent cough is most commonly caused by postnasal drip syndrome, followed by acute asthma, acute exacerbation of chronic obstructive pulmonary disease (COPD), allergic rhinitis, **gastroesophageal reflux disease (GERD)** (see discussion later

in this chapter), chronic bronchitis, bronchiectasis, and other conditions such as left-sided heart failure, bronchogenic cancer, and sarcoidosis. In long-term smokers, chronic cough is usually caused by chronic bronchitis ("smoker's cough"). Still other chronic coughs may result from certain medications, such as angiotensin-converting enzyme (ACE) inhibitors (e.g., lisinopril and ramipril), which are commonly prescribed for congestive heart failure (CHF) and other cardiac conditions. Although not fully understood, patients taking ACE inhibitors may develop a chronic dry cough, possibly as a result of an increase in cough mediators that accumulate in the upper airway. Hence the medication history described in Chapter 2 can provide vital clues to the underlying cause. Aggravating, painful, or persistent cough or cough equivalent, such as throat clearing, is not normal and warrants further clinical investigation.

Cough may occur with other pulmonary symptoms such as wheezing, stridor, chest pain, and dyspnea. In addition, cough may cause problems. The intense muscular activity and high intrathoracic pressures created by forceful coughing may produce a number of complications, such as torn chest muscles, rib fractures, disruption of surgical wounds, pneumothorax or pneumomediastinum, syncope (fainting), arrhythmia, esophageal rupture, and urinary incontinence.

Descriptions

Cough should be described as effective (strong enough to clear the airway) or inadequate (audible but too weak to mobilize the secretions), productive (mucus or other material is expelled by the cough), or dry and nonproductive (moisture or secretions are not produced). Because dry coughs often become productive, a chronologic report of the circumstances surrounding the change and a description of the sputum should be recorded.

The quality, time, and setting in which a cough occurs may also provide some clues to the location and type of disorder (Table 3.2). Barking (like a seal), brassy (harsh, dry), and hoarse coughs, as well as those associated with inspiratory stridor, are usually heard when there is a problem with the larynx (e.g., infection or tumor). Wheezy coughs (accompanied by whistling or sighing sounds) suggest bronchial disorders. Acute productive coughs are most often seen with allergic asthma, as well as bacterial or viral respiratory infections, and chronic productive coughs are generally indicative of significant bronchopulmonary disease (e.g., chronic bronchitis). Hacking (frequent brief periods of coughing or clearing the throat) may be dry and the result of smoking, a viral infection, a nervous habit, or difficult-to-move secretions, which may occur with postnasal drip.

Acute onset or change in a cough is often obvious to the patient and family and is therefore often reported to the interviewer recording the clinical history. However, careful inquiry is often required to identify the characteristics of a chronic cough. Because coughing and sputum production are generally not socially acceptable, patients may deny or minimize the presence of the cough or learn to adapt to the extent that they may even be unaware of coughing chronically. Questioning family members or close friends may provide valuable information about the presence and characteristics of a cough.

TABLE 3.2 Terms Used to Describe Cough

Description	Possible Causes
Acute (<3 wk) or recurrent (adults) productive	Postnasal drip, allergies, infections, especially viral URI, bronchitis
Acute or recurrent (adults) and nonproductive	Laryngitis, inhalation of irritant gases
Chronic productive	Bronchiectasis, chronic bronchitis, lung abscess, asthma, fungal infections, bacterial pneumonias, tuberculosis
Chronic (>3 wk) or recurrent (adults) and nonproductive	Postnasal drip, asthma, gastroesophageal reflux, bronchiectasis, COPD, lung tumor, sarcoidosis, ACE inhibitors, left-sided heart failure
Recurrent (children)	Viral bronchitis, asthma, allergies
Dry	Viral infections, inhalation of irritant gases, interstitial lung diseases, pleural effusion, cardiac condition, nervous habit, tumor, radiation therapy, chemotherapy
Dry, progressing to productive	Atypical and mycoplasma pneumonia, AIDS, Legionnaires' disease, asthma, silicosis, pulmonary embolus and edema, lung abscess, emphysema (late in disease), smoking
Inadequate, weak	Debility, weakness, oversedation, pain, poor motivation, emphysema
Paroxysmal (especially night)	Aspiration, asthma, left-sided heart failure
Barking	Epiglottal disease, croup, influenza, laryngotracheal bronchitis
Brassy or hoarse	Laryngitis, laryngotracheal bronchitis, laryngeal paralysis, pressure on recurrent laryngeal nerve: mediastinal tumor, aortic aneurysm, left atrial enlargement
Inspiratory stridor	Tracheal or main stem bronchial obstruction, croup, epiglottitis
Wheezy	Bronchospasm, asthma, bronchitis, cystic fibrosis
Morning	Chronic bronchitis, smoking
Associated with position change or lying down	Bronchiectasis, left-sided heart failure, chronic postnasal drip or sinusitis, gastroesophageal reflux with aspiration
Associated with eating or drinking	Neuromuscular disease of the upper airway, esophageal problems, aspiration

ACE, Angiotensin-converting enzyme; *AIDS,* acquired immunodeficiency syndrome; *COPD,* chronic obstructive pulmonary disease; *URI,* upper respiratory infection (common cold).

QUESTIONS TO ASK

Cough

Ask the patient to describe the cough in his or her own words; if unable to give a description, use suggestions of descriptive words.

- Can you describe your cough? How long have you had the cough?
- When did the cough start? Did the cough start suddenly? What were you doing when the cough started?
- Do you smoke or vape? If so, what do you smoke or vape? How much or how often and for how many years?
- Do you have postnasal drip? Do you wheeze? Do you have heartburn? Do you notice an acid or bitter taste in your mouth?
- Do you cough up sputum or mucus and, if so, what is the amount, color, thickness, and odor?
- Is your cough better or worse at certain times of the day and does it wake you up?
- Do you cough on most days? Do you cough more during a particular day of the week? A particular season of the year?
- Is the cough worse in any position or when you are in a certain location?
- Is the cough associated with eating, drinking, or medications?
- Are there any other symptoms associated with the cough like chest pain? Wheezing? Fever? Runny nose? Hoarseness? Night sweats? Weight loss? Headache? Dizziness? Loss of consciousness?
- What relieves the cough?
- Have you had the flu or a "cold" with a cough recently?
- Have you ever been exposed to anyone with tuberculosis, the flu, or a "cold"?
- Do you have contact with animals? If so, what type, when, and how often?
- Are you taking ACE inhibitors? Have you taken ACE inhibitors in the past?
- Are you under stress?
- Is your cough dry? Do you clear your throat frequently?
- Have you been diagnosed with nasal allergies or allergic rhinitis?
- Do you have chronic bad breath (halitosis)? Do you have facial pain?
- Do you sleep with more than one pillow?
- Do you cough after exercise or physical exertion?
- What is your occupation? Is your cough worse during or immediately after work?

SPUTUM PRODUCTION

Sputum is the substance expelled from the airways, mouth, sinuses, and nose by coughing or clearing the throat. The term **phlegm** refers strictly to secretions from the lungs and tracheobronchial tree. These respiratory tract secretions may contain a variety of materials, including mucus, cellular debris, microorganisms, blood, pus, and foreign particles and should not be confused with saliva. Up to 100 mL of sputum is produced each day. Sputum is moved upward by the wavelike motion of the cilia (tiny hairlike structures) lining the larynx, trachea, and bronchi, and it is usually swallowed unnoticed. As previously mentioned, sputum may be difficult or impossible for the patient to describe accurately because of the social stigma and lack of awareness. Thus collection and inspection of a sputum sample is often necessary to evaluate the patient's pulmonary status.

Causes and Descriptions

Excessive sputum production is most often caused by inflammation of the mucous glands. Inflammation of these glands occurs most often with infection, smoking, and allergies.

Sputum should be described as to the color, consistency, odor, taste, quantity, time of day, and presence of blood or other features. The amount may vary from scanty (a few teaspoons) to copious (as much as a pint or more), as seen in certain chronic bronchial infections and bronchiectasis. Excessive bronchial secretion production of more than 100 mL per day associated with these and other conditions is also known as **bronchorrhea**. The amount and other characteristics of the sputum may be highly indicative of the underlying disorder (Table 3.3). Although sputum culture and sensitivity tests described in Chapter 7 provide for a more in-depth microbiologic examination of sputum, bedside examination can be helpful as an initial screening tool.

The consistency of sputum may be described as thin, thick, viscous (gelatinous), **tenacious** (extremely sticky), or **frothy**. Color depends on the origin and cause of the sputum production. Descriptions for the color of sputum include mucoid (clear, thin, and may be somewhat viscous as a result of oversecretion of bronchial mucus), mucopurulent (thick, viscous, colored, and often in globs with an offensive odor), and blood tinged. Large amounts of foul-smelling, or **fetid**, sputum that separates into layers when standing often occurs with bronchiectasis and lung abscess.

Excessive morning secretions are often caused by accumulation of secretions during the night, as seen with bronchitis.

TABLE 3.3 Presumptive Sputum Analysis

Appearance of Sputum	Possible Cause
Clear, colorless, like egg white	Normal
Black	Smoke or coal dust inhalation
Brownish	Cigarette smoker
Frothy white or pink	Pulmonary edema
Sand or small stone	Aspiration of foreign material, broncholithiasis
Purulent (contains pus)	Infection, pneumonia caused by:
Apple-green, thick	*Haemophilus influenzae*
Pink, thin, blood streaked	Streptococci or staphylococci
Red currant jelly	*Klebsiella* species
Rusty	Pneumococci
Yellow or green, copious	*Pseudomonas* species pneumonia, advanced chronic bronchitis, bronchiectasis (separates into layers)
Foul odor (fetid)	Lung abscess, aspiration, anaerobic infections, bronchiectasis
Mucoid (white-gray and thick)	Emphysema, pulmonary tuberculosis, early chronic bronchitis, neoplasms, asthma
Grayish	Legionnaires' disease
Silicone-like casts	Bronchial asthma
Mucopurulent	As above with infection, pneumonia, cystic fibrosis
Blood streaked or hemoptysis (frankly bloody)	Bronchogenic carcinoma, tuberculosis, chronic bronchitis, coagulopathy, pulmonary contusion or abscess (see discussion of causes of hemoptysis)

Nonpurulent, silicone-like bronchial secretions that assume the shape of the airway are called *casts* and are seen with severe cases of asthma. Sudden large amounts of sputum production may be indicative of a bronchopleural fistula.

QUESTIONS TO ASK

Sputum

Ask the patient to describe the sputum in his or her own words; if unable to give a description, use suggestions of descriptive words (e.g., green, yellow, white, clear, teaspoon, tablespoon, cup).

- Do you usually bring up phlegm or mucus from your chest first thing in the morning?
- Do you usually bring up phlegm or mucus at other times of the day?
- Can you estimate the amount you bring up? About a cup? About a tablespoon? Has this amount changed?
- What color is it? Does it have a foul odor or taste?
- Has the sputum changed color recently?

SIMPLY STATED

Chronic sputum production is most often related to irritation or disease of the airways (e.g., asthma or chronic bronchitis).

HEMOPTYSIS

Definition

Hemoptysis, expectoration of sputum containing blood, varies in severity from slight streaking to frank bleeding. It can be an alarming symptom that may suggest serious disease and massive hemorrhage. In more severe forms, it is a frightening experience for both the patient and the RT or other member of the health care team.

Causes

Differential diagnosis is complex and includes bronchopulmonary, cardiovascular, hematologic, and other systemic disorders (Box 3.1). A history of pulmonary or cardiovascular disease; cigarette smoking, vaping, or e-cigarette use and tobacco use; trauma; aspiration of a foreign body; repeated and severe lung infections; bleeding disorder; use of anticoagulant agents (warfarin or heparin), aspirin, nonsteroidal antiinflammatory agents, or chemotherapeutic agents; or inhaling crack cocaine suggests the possible cause of hemoptysis. A history of travel to places where tuberculosis or fungal infections, such as coccidioidomycosis or histoplasmosis, are prevalent, including central Africa (tuberculosis) and the San Joaquin Valley of California (coccidioidomycosis), may also help identify the underlying disorder.

The site of bleeding may be anywhere in the respiratory tract, including the nose or mouth. The amount and mechanisms of bleeding are varied. Tissues engorged by inflammation or back pressure from heart failure or other cardiac problems may bleed easily and cause frothy pink sputum. Trauma bruises tissue or may tear a vessel. Chronic or repeated respiratory infections resulting in bronchiectasis can predispose the patient to bleeding. A tumor or granuloma can erode surrounding tissue or the bronchial wall. An acute infective process can create an abscess in the bronchial tree or lung parenchyma, which can erode into another structure (e.g., bronchopleural fistula) or completely through a vessel wall. If the vessel is an artery, hemorrhage can be sudden and massive and may lead to death caused by excessive blood loss.

Historically, tuberculosis and bronchiectasis were the most common causes of hemoptysis. Erosive bronchitis in smokers with chronic bronchitis and bronchogenic carcinoma are now also recognized as frequent causes of hemoptysis. In fact, blood-streaked sputum may be the only hint that bronchogenic cancer has developed in the smoker.

BOX 3.1 Notable Causes of Hemoptysis

Frequent Causes of Hemoptysis

Acute bronchitis with severe coughing
Bronchogenic carcinoma[a]
Bronchiectasis[a]
Chronic bronchitis
Tuberculosis

Less Frequent Causes of Hemoptysis

Pulmonary

Aspiration of a foreign body
Bronchoarterial fistula
Broncholithiasis
Deep mycotic infection
Metastatic carcinoma
Pulmonary abscess
Pulmonary embolism, infarction
Trauma, pulmonary contusion

Cardiopulmonary

Arteriovenous malformation
Mitral stenosis
Cardiac pulmonary edema
Pulmonary hypertension

Systemic

Coagulation disorders
Goodpasture syndrome
Sarcoidosis, Wegener granulomatosis

Other Pseudohemoptyses

Emesis
Oropharyngeal or nosebleed

[a]Potential causes of massive hemoptysis.

Descriptions

Obtaining a description of the amount, odor, color, and appearance of blood produced, as well as the acuteness or chronicity of the bleeding, may provide a clue to the source of bleeding. The most common causes of streaky hemoptysis are pulmonary infection (chronic bronchitis, bronchiectasis, or bacterial pneumonias), lung cancer, and thromboemboli.

Careful evaluation and description of hemoptysis production are crucial because it can include clots of blood as well as blood-tinged sputum. Coughing up clots of blood is a symptom of extreme importance that suggests serious illness. Massive hemoptysis (400 mL in 3 hours or more than 600 mL in 24 hours) is seen with lung cancers, tuberculosis, bronchiectasis, and trauma. It is an emergency condition associated with possible mortality. Immediate action is required to maintain an adequate airway, and emergency bronchoscopy and surgery may be necessary.

TABLE 3.4 Distinguishing Characteristics of Hemoptysis and Hematemesis

Characteristic	Hemoptysis	Hematemesis
History	Cardiopulmonary disease	Gastrointestinal disease
As stated by the patient	Coughed up from lungs/chest	Vomited from stomach
Associated symptoms	Dyspnea, pain or tickling sensation in chest	Nausea, pain referred to stomach
Blood: pH	Alkaline	Acid
Mixed with	Sputum	Food
Froth	May be present	Absent
Color	Bright red	Dark, clotted, "coffee grounds"

Associated symptoms may also provide a clue to the source of bleeding. Sometimes patients can describe a sensation, often warmth, in the area where the blood originates. Others perceive a bubbling sensation in the airways followed by expectoration of blood. Hemoptysis associated with sudden onset of chest pain and dyspnea in a patient at risk for venous stasis of the legs must prompt evaluation for pulmonary embolism and possible infarction. Frothy, blood-tinged sputum associated with nighttime cough accompanies cardiac-induced pulmonary edema.

Hemoptysis without severe coughing is sometimes associated with a bronchial tumor.

Hemoptysis versus Hematemesis

"Spitting up blood," as patients frequently call it, may be confused with blood originating in the oropharynx, esophagus, or stomach. The patient with a nosebleed at night could cough up blood in the morning. The presence of symptoms, such as nausea and vomiting, especially with a history of alcoholism or cirrhosis of the liver, may suggest the esophagus or stomach as the source. Conversely, vomiting of blood may sometimes manifest from bronchopulmonary bleeding. When bleeding occurs during the night and the blood reaches the oropharynx, it may be swallowed without the patient waking. The swallowed blood may act as an irritant, and the patient may vomit early in the morning. Careful questioning and often examination of the bloody sputum are required to distinguish hemoptysis from **hematemesis** (vomited blood) (Table 3.4). It is important to try to determine whether the blood originated in the respiratory tract and was swallowed and then vomited, or the blood was vomited, aspirated, and later expectorated, to help ensure an accurate differential diagnosis.

QUESTIONS TO ASK

Hemoptysis

Ask the patient the following questions to help obtain an accurate and impartial history:

- Do you smoke? If so, how much and what do you smoke?
- Do you use a vaping device or e-cigarettes? If so, how much and how often?
- Do you use smokeless tobacco? If so, how much and what do you use?
- Did you start coughing up blood suddenly?
- How long have you noticed the blood?
- Do you have a fever? Do you have a cough?
- Do you cough up anything else with the blood? Can you describe what it looks like?
- Is the sputum blood tinged or are there actual clots of blood?
- Have there been recurrent episodes of coughing up blood?
- Do you have chest pain?
- What seems to bring on the coughing up of blood? Is it brought on by vomiting, coughing, or nausea?
- Have you felt any unusual sensations in your chest after you cough up the blood? Before you cough up the blood? If yes, where? Can you tell me how it feels?
- Have you had a recent nosebleed?
- Have you been involved in a recent accident or had an injury to your chest, side, or back?
- Have you traveled lately?
- Have you ever had tuberculosis? Have you been exposed to anyone who has had tuberculosis?
- Are you positive for human immunodeficiency virus (HIV)? Do you have a history of cancer?
- Have you had recent surgery?
- Have you had night sweats? Shortness of breath? Irregular heartbeats? Hoarseness? Weight loss? Swelling or pain in your legs?
- Is there a family history of coughing up blood? Are you aware of any bleeding tendency in you or your family?
- Have you been exposed to anything at work or while pursuing hobbies?
- Do you take any blood thinners or aspirin? If yes, how much and how often?
- Do you take oral contraceptives? Do you use injection drugs?

SHORTNESS OF BREATH (DYSPNEA)

SOB (as it is commonly abbreviated in the medical record) or difficult breathing as perceived by the patient is the most distressing symptom of respiratory disease and is a cardinal symptom of cardiac disease. Dyspnea may also be associated with metabolic diseases (such as diabetic ketoacidosis), hematologic disorders, toxic ingestion, or psychiatric conditions. Difficult breathing impairs the ability to work or exercise and may interfere with the simplest activities of daily living such as walking, eating, bathing, speaking, and sleeping. In patients with pulmonary disease, it is the single most important factor limiting their ability to function on a day-to-day basis and is frequently the reason the patient seeks medical care.

Dyspnea (*dys,* difficult; *pnea,* breathing) is defined as a subjective experience of breathing discomfort that consists of

qualitatively distinct sensations that vary in intensity. The sensations associated with dyspnea range from a slight awareness of breathing to severe respiratory distress and may be mixed with anxiety in severe cases. The sensations experienced by the patient are a product of various factors such as the severity of the physiologic impairment and the psychological makeup of the patient.

Subjectiveness of Dyspnea

Dyspnea may be difficult to evaluate because it is so subjective. The sensation of dyspnea is made up of the following components:

1. *Sensory input to the cerebral cortex:* multiple sources of sensory information from mechanoreceptors in the upper airway, thorax, and muscles are integrated in the central nervous system and sent to the sensorimotor cortex in the brain. In general, the sensation of dyspnea is related to the intensity of the input from the thoracic structures and from chemoreceptors. It varies directly with ventilatory demand such as exercise and inversely with ventilatory capacity (ability to move gas in and out of the lung). The more stimulation of the drive to breathe when ventilatory abnormalities exist, the greater the dyspnea.
2. *Perception of the sensation*: perception relies on interpretation of the information arriving at the sensorimotor cortex, and interpretation is highly dependent on the psychological makeup of the person. The emotional state, distraction, and belief of significance can influence the perception of dyspnea.

A patient's perception of dyspnea may have no relation to the patient's breathing appearance. Remember, dyspnea is subjective—a symptom—and what the patient feels. A patient may have labored and rapid breathing and deny feeling short of breath. Conversely, a patient may appear to be breathing comfortably and slowly but may feel breathless. You can never assume that a patient with a rapid respiratory rate is dyspneic. In addition, a patient's complaint of dyspnea must be considered a symptom of a medical problem and must be taken seriously until proved otherwise. In fact, the onset of dyspnea may be the first clue to identifying serious problems.

Patients' perceptions of dyspnea vary greatly. A healthy person notices the increased ventilatory demand required to climb stairs or to exercise but expects it and does not interpret it as unpleasant. In fact, the athlete may consider the breathlessness occurring after a sprint to be exhilarating and even a necessary aspect of physical conditioning. Patients, on the other hand, may describe the feeling as "breathless," "short winded," "feeling of suffocation," or a sensation of "air hunger" at rest or during minimal exercise.

Dyspnea Scoring Systems

A variety of methods have been devised to help quantify dyspnea at a single point in time or to help track changes in dyspnea over time or with treatment. In the clinical setting, patients are frequently asked to rate the severity of a symptom, such as dyspnea or pain, using a severity scale of 0 to 10. The patient is asked a question such as "On a scale of 0 to 10, how would you rate your shortness of breath when you are resting? Using this scale, 0 means no shortness of breath, and 10 means the worst or maximum shortness of breath." The patient's response may be recorded simply as "SOB at rest 7/10."

Visual analog scales are straight lines, usually 10 cm long, with the words "Not Breathless" (or normal breathing) at one end and "Extremely Breathless" at the other end. The patient marks the line to indicate his or her level of respiratory discomfort. The score is measured as the length of the line between "Not Breathless" and the mark made by the patient. The score may be recorded as 5.5/10 or simply as 5.5 (the 10 is implied).

A modified Borg Scale, such as shown in Table 3.5, also uses a 0-to-10 scoring system with descriptive terms to depict the perceived intensity of a symptom such as dyspnea after a specified task. In addition, there are questionnaires that attempt to quantify the severity of dyspnea by asking patients to rate their SOB while performing a variety of activities of daily living.

Other scales have emerged for rating dyspnea in cardiopulmonary disease. One such scale is the Dyspnea-12 Survey, or "D-12," which quantifies a patient's level of breathlessness using 12 physical and psychosocial descriptors. This rating scale has proven useful in characterizing the severity of dyspnea in patients who have asthma. Another even simpler such scale often used for COPD patients is the Modified Medical Research Council (MMRC) Dyspnea Scale. This scale classifies the grade of dyspnea based on which one of five choices best describes the patient's breathlessness. The MMRC ranges from a grade of "0" for patients who *only get breathless with strenuous exercise* to a grade of "4" for those who claim to be *too breathless to leave the house* or become *breathless when dressing.*

Causes, Types, and Clinical Presentations of Dyspnea

Dyspnea is most often related to pulmonary or cardiac disease, but it is also seen with hematologic, metabolic, chemical,

TABLE 3.5 Modified Borg Scale for Estimation of Subjective Symptoms

Rating	Intensity of Sensation
0	Nothing at all
0.5	Very, very mild/weak
1	Very mild/weak
2	Mild/weak
3	Moderate
4	Somewhat severe/strong
5	
6	
7	Very severe/strong
8	
9	Very, very severe/strong
10	MAXIMAL

TABLE 3.6 Causes of Dyspnea by Body System

System	Common Causes of Dyspnea
Respiratory	Airway obstruction, asthma, COPD, pneumonia, pulmonary embolus, pneumothorax, pulmonary fibrosis, pleural effusion
Cardiac	Congestive heart failure, pericardial effusion, cardiac shunts, valvular lesions
Hematologic	Severe anemia, carbon monoxide poisoning, hemoglobinopathies
Neurologic	Brain tumor, CNS inflammation, increased intracranial pressure, hypertensive encephalopathy, CVA
Metabolic and endocrine	Toxins, uremia, hepatic coma, thyrotoxicosis, myxedema
Psychiatric	Pain-related dyspnea, severe anxiety, hyperventilation syndrome
Mechanical factors	Chest wall deformities, diaphragmatic paralysis, hepatosplenomegaly, massive ascites, tumors, pregnancy, obesity

CNS, Central nervous system; *COPD,* chronic obstructive pulmonary disease; *CVA,* cerebrovascular accident.

neurologic, psychogenic, and mechanical disorders. Dyspnea may also be grouped in other ways including by body system as listed in Table 3.6.

Attempts to understand the physiologic bases of dyspnea have evolved around several separate concepts, including mechanics of breathing, ventilatory performance, work and efficiency of breathing, oxygen cost, length-tension inappropriateness, chemoreception, and exercise testing. The discussion of each concept and its related disorders is beyond the scope of this text. However, it is helpful to remember that patients with respiratory disorders will complain of dyspnea when any of the following are present alone or in combination:

1. The work of breathing is abnormally high for the given level of exertion. This is common with narrowed airways as in asthma and when the lung is stiff as in pneumonia.
2. The ventilatory capacity is reduced. This is common when the vital capacity is abnormally low as seen in patients with neuromuscular disease.
3. The drive to breathe is elevated beyond normal (e.g., hypoxemia, acidosis, or exercise).

Clinical Types of Dyspneas

The physiologic cause of a patient's dyspnea often results in the patient using unique terms to describe his or her discomfort. The patient with asthma frequently describes dyspnea as "tightness in the chest." Patients with congestive CHF often describe a sensation of "suffocation" or "air hunger." Patients with COPD and interstitial lung disease often complain of "increased effort to breathe," probably because of the increased work of breathing associated with these disorders. These results suggest that dyspnea may vary from patient to patient according to the underlying pathophysiology.

Cardiac- and circulatory-related dyspnea occurs primarily when there is an inadequate supply of oxygen to the tissues. In early heart failure, dyspnea is seen primarily during exercise when the decreased pumping power of the heart cannot keep up with the demands created by exercise. The SOB may be accompanied by hyperventilation and be associated with fatigue or a feeling of smothering or sternal compression. In later stages, the lungs become congested with blood and edema, causing an increase in the work of breathing and dyspnea at rest and when lying down. Dyspnea is also associated with anemia and occurs primarily with exertion unless the anemia is extreme. "Air hunger" is a grave sign indicating the need for immediate transfusion in the anemic patient.

Psychogenic dyspnea, or *panic disorder* as it is sometimes called, is a hysterical type of overbreathing that usually presents as breathlessness. A precipitating event other than stress can rarely be identified. The event is not related to exertion; testing and physical examination are negative. Hyperventilation is common in patients with panic disorder.

Hyperventilating is breathing at a rate and depth in excess of the body's metabolic need, which causes a decrease in arterial carbon dioxide ($Paco_2$) and results in a decrease in cerebral blood flow. Patients with psychogenic dyspnea are usually very anxious and may describe feeling faint or lightheaded, with numbness and tingling around their mouth and in their extremities. They may report having visual disturbances. If they continue to hyperventilate, they may lose consciousness.

Acute and Chronic Dyspnea

Dyspnea may be acute or chronic, progressive, recurrent, paroxysmal, or episodic. Acute dyspnea in children is most frequently associated with asthma, bronchiolitis, croup, and epiglottitis. In adults the causes are more varied (Box 3.2). Pulmonary embolism should be suspected if a patient is in the postoperative period or has a history of prolonged bed rest, phlebitis, or cardiac arrhythmia. Women who are pregnant or taking birth control pills are also at higher risk for pulmonary embolism. Asthma, upper airway obstruction, foreign body aspiration, pneumonia, pneumothorax, pulmonary edema, hyperventilation, and panic disorder may also cause acute dyspnea.

Chronic dyspnea is almost always progressive. It begins with dyspnea on exertion and over time progresses to dyspnea at rest. Most patients with chronic dyspnea do not seek medical help until their lung disease is advanced and treatment options are limited. Instead, as their lung disease progresses, they adopt a sedentary lifestyle that requires very little exertion to avoid feeling short of breath.

COPD and CHF are the most common causes of chronic dyspnea in adults. Determining whether the dyspnea is related to the lungs versus the heart can be difficult, especially in older patients. Pulmonary function testing, electrocardiogram, and chest radiographs often prove helpful.

Descriptions

Patients may complain of dyspnea occurring at certain times of the day, in association with a position, or during a specific phase

BOX 3.2 Common Causes of Acute and Chronic Dyspnea

Acute Dyspnea

Asthma[a]
Chest trauma
Physical exertion
Pleural effusion
Pneumonia
Pulmonary edema
Pulmonary embolism
Pulmonary hemorrhage
Spontaneous pneumothorax
Cardiac pulmonary edema
Acute interstitial lung disease (e.g., hemorrhage, ARDS)
Upper airway obstruction (e.g., aspirated foreign body, laryngospasm)

Chronic Dyspnea

(usually progressive)
Asthma
CHF, left ventricular failure
Cystic fibrosis
Pleural effusion
Interstitial lung diseases
Pulmonary vascular disease
Pulmonary thromboembolic disease
COPD
Severe anemia
Psychogenic dyspnea
Hypersensitivity disorders
Chest wall abnormalities (e.g., neuromuscular disease, kyphoscoliosis, diaphragm paralysis)

[a]Asthma and left ventricular failure represent chronic causes of dyspnea with paroxysmal exacerbations.
ARDS, Acute respiratory distress syndrome; *CHF,* congestive heart failure; *COPD,* chronic obstructive pulmonary disease.

of the respiratory cycle. Inspiratory dyspnea is usually associated with upper airway obstruction, whereas expiratory dyspnea occurs with obstruction of smaller bronchi and bronchioles.

Paroxysmal nocturnal dyspnea (PND) is the sudden onset of difficult breathing that occurs when a sleeping patient is in the recumbent position. It is often associated with coughing and is relieved when the patient assumes an upright position. In patients with CHF, PND usually occurs 1 to 2 hours after lying down and is caused by the gradual transfer of fluid in the lower extremities to the lungs.

Orthopnea is the inability to breathe when lying down. It is often described as two- or three-pillow orthopnea, depending on the number of pillows the patient must use to elevate the upper portion of the body and obtain relief. PND and orthopnea are most commonly associated with left-sided heart failure and occur when reclining causes fluid to collect in the lungs.

Trepopnea is dyspnea caused by lying on one side that does not occur when the patient turns to the other side. Trepopnea is most often associated with disorders of the chest that occur on only one side such as unilateral lung disease, unilateral pleural effusion, or unilateral airway obstruction.

Platypnea, the opposite of orthopnea, is dyspnea caused by upright posture and relieved by a recumbent position. **Orthodeoxia** (*ortho,* positional; *deoxia,* decrease of oxygen) is arterial oxygen desaturation (hypoxemia) that is produced by assuming an upright position and relieved by returning to a recumbent position. Orthodeoxia and platypnea are seen in patients with right-to-left intracardiac shunts from congenital heart disease and in patients with venous-to-arterial shunts in the lung related to severe lung disease or chronic liver diseases such as cirrhosis. Simply stated, when these patients are upright there is an increased amount of blood shunted from the right side of the heart to the left without being adequately oxygenated. When orthodeoxia is severe, patients experience increasing dyspnea (platypnea) while standing. Orthodeoxia also may occur after a pneumonectomy (removal of a lung). Terms commonly used to describe breathing are listed in Table 3.7.

Occurrences of dyspnea should be chronologically recorded, including related symptoms such as coughing, wheezing, pain, position, and exertion. Coughing in conjunction with dyspnea occurs with acute or chronic infection, asthma, aspiration, CHF, COPD, and many of the diffuse lung diseases. Dyspnea with minimal exertion is frequently associated with poor conditioning, inactivity, obesity, and heavy smoking. SOB during exercise or excitement is also a common complaint associated with chronic severe anemia (e.g., hemoglobin concentration less than 6 to 7 g/dL). Table 3.8 lists associated symptoms, precipitating

TABLE 3.7 Terms Commonly Used to Describe Breathing

Medical Term	Definition
Apnea	Absence of spontaneous ventilation
Dyspnea	Unpleasant awareness of difficulty breathing, shortness of breath, or breathlessness
Eupnea	Normal rate and depth of breathing
Bradypnea	Less than normal rate of breathing
Tachypnea	Rapid rate of breathing
Hypopnea	Decreased depth of breathing
Hyperpnea	Increased depth of breathing with or without an increased rate
Orthopnea	Dyspnea in the recumbent position but not in the upright or semivertical position
Trepopnea	Dyspnea in one lateral position but not in the other lateral position
Platypnea	Dyspnea caused by upright posture and relieved by a recumbent position
Orthodeoxia	Arterial oxygen desaturation (hypoxemia) that is produced by assuming an upright position and relieved by returning to a recumbent position
Hyperventilation	Increased alveolar ventilation caused by an increased rate or increased depth of breathing or both
Hypoventilation	Decreased alveolar ventilation caused by a decreased rate or decreased depth of breathing or both
Air hunger	A grave sign associated with extreme shortness of breath, indicating the need for immediate treatment

TABLE 3.8 Causes and Characteristics of Shortness of Breath

Cause	Type of Dyspnea	Associated Symptoms	Precipitating and Aggravating Factors	Patient Characteristics	Usual Physical Findings
Acute or Recurrent Dyspnea					
Asthma	Acute dyspnea Periodic	Cough indicates asthmatic bronchitis Dyspnea may be exertional and/or worse at night	Allergies, noxious fumes, exercise, respiratory tract infection Exposure to cold or use of certain types of β-blockers	Most common cause of recurrent dyspnea in children	Bilateral wheezing, prolonged expiration
Pneumothorax	Acute onset	Sudden, sharp pleuritic pain	Spontaneous, COPD, trauma, cystic fibrosis	Often a prior history of similar episode	Decreased or absent breath sounds Tracheal shift if tension pneumothorax
Foreign-body aspiration	Acute dyspnea			Most common in children and intoxicated or semiconscious people during eating	Tachypnea, inspiratory stridor, localized or unilateral wheeze, suprasternal retraction with respiration
Pulmonary emboli	Acute onset	Chest pain, faintness, loss of consciousness	Prolonged lying down; women using birth control pills, especially those who smoke	Postoperative, phlebitis, postpartum, arrhythmia (atrial fibrillation and flutter)	Tachypnea, crackles, low blood pressure, wheezing → pleural friction rub
Pulmonary edema	Acute onset Episodic	Dyspnea on exertion Orthopnea, PND			Gallop rhythm crackles at bases
Hyperventilation and anxiety	Acute dyspnea, "sighing" respiration	Lightheaded, palpitations, tingling (especially around mouth and extremities)	Stress, panic	Usually anxious	Signs of anxiety but no signs of dyspnea
Poor physical conditioning	Dyspnea on minimal exertion			Obese, physically inactive	After exercise, pulse slows very gradually
Chronic Dyspnea					
Congestive heart failure	Chronic dyspnea with gradual onset, PND	Edema, dyspnea remains long after exercise is stopped	Exercise, lying down, trauma, anesthesia, shock, hemorrhage, calcium channel blockers or β-blockers	Older patients, nocturnal dyspnea relieved by sitting	Shallow respirations but not necessarily rapid, basilar crackles, jugular venous distention, edema, third heart sound, hepatomegaly
Chronic bronchitis	Dyspnea not necessarily presenting symptom	Persistent, productive cough	Infection, exertion	Overweight	Coarse crackles, cyanosis
Emphysema	Progressive, usually no dyspnea at rest	Weak cough	Exertion	Malnourished	Hyperinflated lungs, decreased breath sounds, increased resonance, increased AP chest diameter, use of accessory muscles at rest

AP, Anteroposterior; *COPD,* chronic obstructive pulmonary disease; *PND,* paroxysmal nocturnal dyspnea.

and relieving factors, and characteristics of the dyspnea-related disorders.

The effects of dyspnea on activities of daily living (dressing, eating, sleeping, or walking) must be reviewed. Patients with COPD tend to decrease their exercise progressively to prevent being short of breath until their activities of daily living are compromised out of proportion to their actual cardiorespiratory potential. It is essential to gain a picture of the patient's daily habits and routines, as well as the physical, emotional, familial, and occupational environment. The potential for relief of the factors contributing to dyspnea should be assessed and recorded.