

Assessment-Based Respiratory Care

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Preface

Traditionally, only physicians have been involved in assessing a patient's health, prescribing therapy, and determining the efficacy of that therapy. Consequently, respiratory therapists have been restricted to assembling, installing, performing, and monitoring respiratory therapy modalities. Recently, the role of the respiratory therapist has started to expand and take on new importance due to several factors. First, new therapeutic procedures and concepts have been developed. Second, the number of respiratory therapists has grown, and they are more highly educated than in the past. Finally, governmental, public, and private agencies are giving more recognition to the value of respiratory therapy.

For these reasons, training in patient assessment is receiving increasing emphasis in respiratory therapy education. I have written this book with two primary objectives. The first objective is to examine the subject of chest physical assessment in depth for respiratory therapists, respiratory therapy students, and any other professionals involved in respiratory care. The second objective is to present the techniques for relating the physical assessment findings to disease processes, suggesting appropriate therapeutic modalities, and evaluating the effectiveness of those therapies.

This book explores the following areas:

1. Assessment. The assessment of the pulmonary system clinically, radiographically, and by laboratory methods. The assessment of the cardiovascular system clinically and by electrocardiogram.
2. Therapy. A review of each current therapeutic modality. Therapeutic objectives, indications, equipment usage, performance objectives, hazards, and evaluation criteria are listed and explained.
3. Clinical manifestations of pulmonary diseases, clinical syndromes, and associated conditions:
4. The use of assessment forms to evaluate various pulmonary disease entities and conditions.

I would like to emphasize that no textbook can make the reader an expert in chest physical assessment. It is a skill that can only be acquired through practice.

My appreciation goes to Ms. Deanna Howell for her tireless efforts in the preparation of this manuscript, Dr. Edward Hawkins, Dr. John Bass, Dr. Ronald Allison, Dr. Michael Kirkpatrick, and Mr. Bill Wojciechowski for their reviews and editorial comments, and Mike Hall, R.R.T., for modeling the chest assessment photographs. I would also like to thank Ms. Wendy Hill for the preparation of numerous diagrams.

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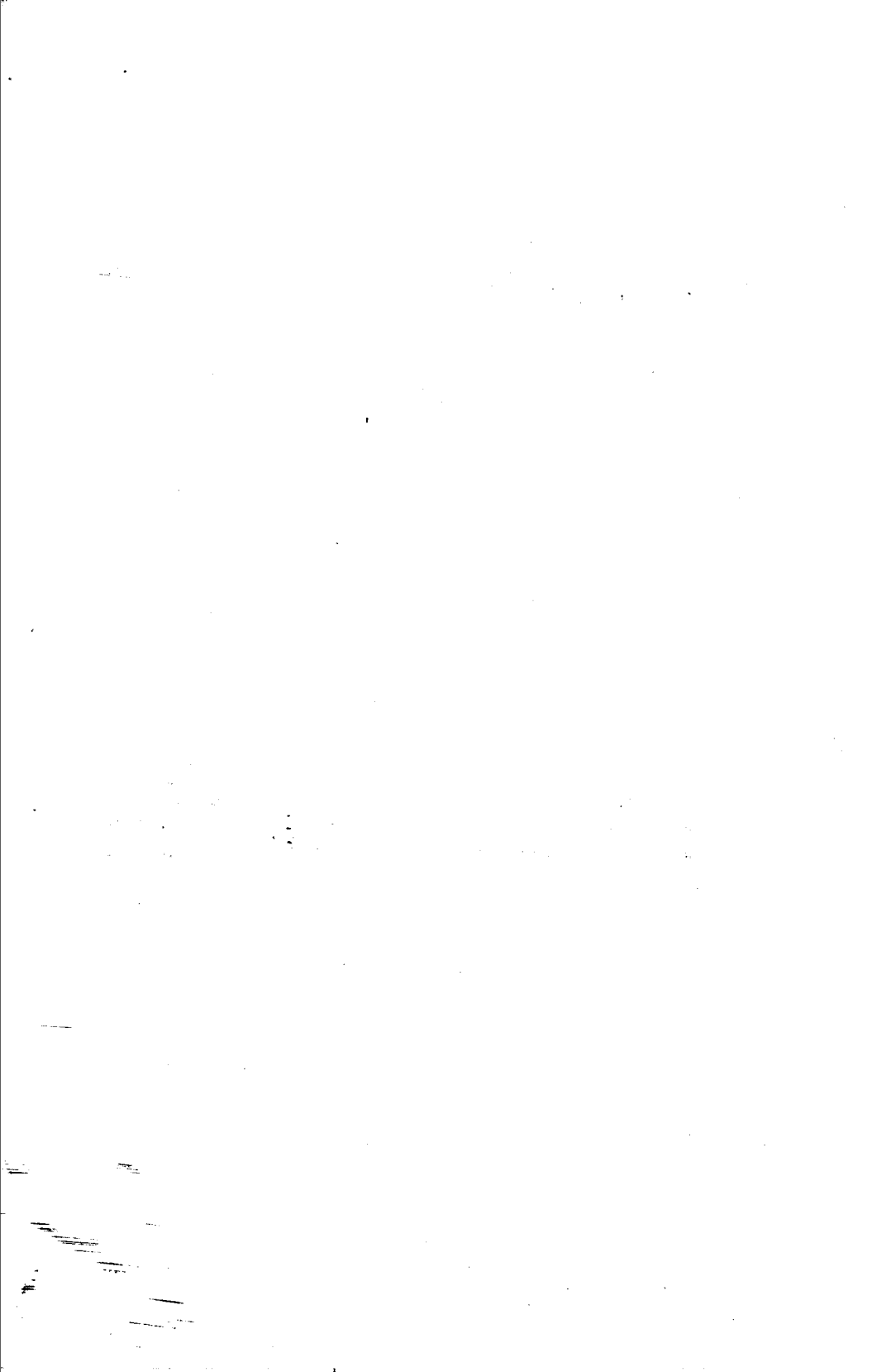
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Part **I**

Assessment of the Pulmonary System

This section of the text discusses chest physical assessment, which includes the basic assessment techniques of history taking, observation, palpation, percussion and auscultation. In order for the therapist to perform a more comprehensive assessment, the topics of cough and sputum assessment, bedside pulmonary function screening, blood gas and electrolyte analysis and chest radiography are included. Under each topic, normal and abnormal findings, particular techniques of assessment and the therapeutic implications of abnormalities in each finding are presented. Because the performance and interpretation of these techniques are so important in the determination of therapy, it is essential that the therapist become proficient before attempting to make therapeutic decisions.



Preliminary Data

Therapy based on assessment is always designed to meet the patient's need for medical care. This book concentrates on the assessment and therapy of the respiratory system with particular attention to the care provided by respiratory therapists. Patient assessment by the therapist occurs on initial contact, usually by a physician's order for some form of therapy. The assessment continues on a regular basis during the therapeutic regimen. Therapy is based on the clinical and laboratory analyses of the patient in consultation with the physician. Each time the patient receives therapy, an evaluation of therapeutic effectiveness is performed by the therapist. This pattern continues until it is apparent that the patient no longer needs therapy.

The three goals of this process are:

1. To ensure that the correct therapy is initiated and continued for the proper amount of time (1).
2. To foster a closer relationship among physicians, nurses, respiratory therapists, and other health care professionals.
3. To standardize the documentation of respiratory therapy by the use of well-known, accepted medical terminology.

ASSESSMENT AND THERAPEUTIC PROCEDURE

After receiving an order for respiratory care, the therapist proceeds to the patient care area. Based on the knowledge of the assessment process, the following procedure is implemented.

1. The patient's chart is reviewed with emphasis on: history and physical examination, progress notes, diagnosis, type and location of surgery

if applicable, medications, chest radiography report(s), arterial blood gas and electrolyte analyses, sputum Gram's stain results, and culture and sensitivity of sputum.

2. The therapist sees the patient and completes the patient care evaluation form as much as possible. Applicable observations may include: general appearance, condition of fingers and face, chest movement, chest symmetry, use of accessory muscles, presence of retractions, palpation, percussion, auscultation, tidal volume, vital capacity, inspiratory capacity, ventilatory rate, forced expiratory flows, pulse, blood pressure, capillary refill, color, mental state, ventilatory pattern and cough.
3. The therapist observes any other available items pertinent to the assessment, such as a posted chest radiograph, blood gases, and ECG monitor.
4. If the abnormalities observed by the therapist are consistent with the indications for the ordered therapy, the therapist proceeds with the therapy.
5. Based on the assessment, if the therapist has some doubt about the indication, or if there are more indications present than for those of the ordered therapy, the physician is consulted.
6. Therapy proceeds and is documented and monitored.
7. Therapy is evaluated to determine if the therapeutic objectives have been achieved or partially achieved.
8. Any therapeutic objectives left partially achieved or unachieved are related to the physician either in writing or orally with suggestions for further therapy. A complete assessment on each patient is performed as needed. This ensures the attainment of the goals of the assessment process. Examples of the assessment process and sample evaluation forms are provided throughout this book.

These procedures have been used as part of a protocol in respiratory therapy departments (2,3). Such protocols are accepted by patients, physicians, respiratory therapists, and the Joint Commission for the Accreditation of Hospitals (JCAH). Several advantages have emerged as a result of these protocols:

1. Since therapy is evaluated daily, the number of unnecessary treatments is reduced.
2. There has been wide physician acceptance.
3. There has been increased morale among therapists, who are more involved and feel a greater sense of responsibility.
4. The ongoing scrutiny of mode of therapy satisfied the "progressive audit requirements" of the JCAH.

5. New improvements in respiratory care are immediately available.
6. There has been increasing cost effectiveness.

The procedures in this book are proposed to aid in the development and use of a respiratory therapy protocol. They should be performed when applicable (and in some cases only by a physician's order) to complete the assessment and construct a problem list. The problem list can be used to construct a care plan for therapy.

Each parameter is described using standard pulmonary terminology. Pathologic or pathophysiologic processes concerning each parameter are identified. Interpretation of the findings are followed by suggested treatment modalities. Usually, no one finding should be used to determine therapy. Careful consideration of all the parameters should be undertaken before a respiratory care plan is developed.

RECORDING ASSESSMENT DATA

Several methods have been suggested for the formal recording of assessment data, so that the subjective and objective information gathered can be presented systematically. A respiratory assessment form has been devised that can be used by the therapist during daily treatment rounds (Fig. 1-1). This form allows the examiner to:

1. Focus on the pulmonary complication or indication for therapy.
2. Record physical and respiratory assessment data in an orderly manner.
3. Communicate with other medical professionals regarding the patient's status and the possibility of making changes in therapeutic regimen.
4. Compile all pertinent physical, laboratory, and radiographic data necessary to make an informed decision regarding therapy.

This form is used as follows:

1. The therapist/evaluator reviews the patient's chart for the physician's diagnosis or the pulmonary complication requiring therapy, history and physical examination, current therapy orders, progress notes, and laboratory and chest radiography reports.
2. The therapist/evaluator approaches the patient and obtains vital signs, assesses the chest (observes, palpates, percusses, and auscultates), obtains bedside pulmonary function studies when indicated, and evaluates cough and sputum production.

UNIVERSITY OF SOUTH ALABAMA RESPIRATORY THERAPY PATIENT EVALUATION AND PHYSICIAN COMMUNICATION FORM										
ATTN. PHYSICIAN: THERAPY HAS BEEN PERFORMED AND EVALUATED ON THIS PATIENT. PLEASE CONSIDER THIS EVALUATION AND THE COMMENTS AND SUGGES- TIONS WHEN ORDERING FUTURE RESPIRATORY CARE.						TO BE INSERTED IN PROGRESS NOTES OR ORDERS SECTION OF CHART. NOT FOR RETENTION IN PERMANENT RECORD.				
Date	Time	Physician								
Diagnosis/Pulmonary Complication Requiring Therapy										
Current Therapy			Therapeutic Objective(s)							
Temperature	Blood Pressure	Pulse	Ventilatory Rate	Chest Observation						
Chest Palpation/Fremitus		Chest Percussion		Sputum Qualities						
Auscultation			Serum Electrolytes							
			<table border="1"> <tr> <td>K</td> <td>Cl</td> </tr> <tr> <td>Na</td> <td>HCO₃</td> </tr> </table>			K	Cl	Na	HCO ₃	
K	Cl									
Na	HCO ₃									
Spont. V _T	Spont. VC	Spont. IC	Pred. IC	OTHER	Effectiveness of Cough					
Blood Gases: FiO ₂ or Flow, Appliance			pH	PCO ₂	PO ₂	Radiologic Findings				
COMMENTS AND SUGGESTIONS:										
EVALUATOR SIGNATURE						PHONE/PAGER #				

FIGURE 1-1. Patient assessment form.

3. The therapist/evaluator then does one of three things:
 - a. The therapist proceeds with therapy as ordered as the indications match the ordered therapy.
 - b. The therapist consults with the physician regarding the results of the pulmonary assessment and arrives at a satisfactory respiratory care plan.
 - c. Following assessment, the therapist proceeds with therapy and leaves suggestions applicable to the patient's therapy on the assessment form. Changes in therapy can then be made at the physician's discretion.
4. Following therapy, the patient's response to therapy is noted. If necessary, the physician is contacted for a change in the care plan.
5. The assessment form is left with the chart, and/or a copy is made for future use by the therapist.

Such an assessment may not be practical each time therapy is performed, but should be done each time a discontinuation of therapy is anticipated (such as is the case with automatic stop orders). The assessment could also be performed each shift on patients in the intensive care unit or approximately every 72 hours on patients receiving routine floor care (intermittent therapy, oxygen, or aerosol therapy).