DECISION MAKING IN

Critical Care Nursing

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To Darryl, Carol, Peter, and Sarah

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PREFACE

Critical care nurses make many complex clinical decisions; it is the essence of the profession. Information is systematically gathered, analyzed, and weighted, diagnoses are made, and actions are chosen from a number of alternatives. The outcome of these actions is then evaluated and the process repeated in a continuous cycle.

The purpose of this book is to cut through the huge volume of information that is available to the nurse in order to identify those clinical problems most likely to be encountered in adult critical care practice, to suggest one logical sequence of decisions to be made and alternative actions to consider, and to give the rationale for the essential steps in the decision-making process. The information is presented by the use of the decision tree (algorithm) that follows the thought process of an experienced clinician. The book is written primarily for the practicing critical care nurse and nurse educator, but the general adult and primary care nursing practitioner will also find it useful since much of the content is applicable to the general patient population.

There is a wide variability among nurses in how they practice and in what they are able, willing, or allowed to practice. Alternative courses of action are influenced by many factors including the education and experience of the nurse, institutional protocols and policies, and the need for physician involvement. This book should be viewed as a guide and not as the only approach to the problem presented. Readers should alter the decision trees as they deem best to conform to their particular situation.

I am grateful to a number of colleagues at the Louisiana State University Medical Center in Shreveport whose assistance was invaluable during the course of this work: Dr. George DeVault and Dr. Steven Conrad of the Department of Medicine for review of selected manuscripts; Bonnie Seelig, medical librarian, for reference assistance; and Jim Wilson for the many fine line drawings. Finally, my special appreciation to Dana Dreibelbis, Agnes McIvor, and Amy Gewirtzman of B.C. Decker for keeping me on track and never giving up on the project.

Susan M. Williams, RN, MSN

INTRODUCTION

Decision Making in Critical Care Nursing uses the format of the decision tree (algorithm), accompanied by an explanation of content and suggested references to support the chapter. Illustrations are included to clarify or enhance specific information. Each decision tree begins with a problem, diagnosis, or therapeutic procedure common to critical care nursing practice and follows the process of decision making from assessment to outcome. Independent nursing actions are boxed; however, these should be viewed as suggestions only because opinion varies considerably as to what constitutes an independent nursing action. In truth, most of critical care nursing practice is interdependent and requires close cooperation with physician colleagues and specialists from other disciplines. The need for consultation and referral is emphasized throughout the text.

Most topics are presented in a single tree with explanations in the text on the facing page. Where the situation in particularly complex, decision trees with text are arranged sequentially on subsequent pages. The material is of necessity arranged in a stepwise fashion, although in reality nurses rarely do only one thing at a time (for example, assessments are made while procedures are performed). Furthermore, selection of a single action does not eliminate other possible choices or changes in options when a new situation arises.

The material is organized into four sections: Problems of Critical Illness (such as nutritional needs and pain control), Common Diagnoses (both nursing and medical), Procedures and Treatments, and Legal and Ethical Concerns. As there is overlap among the chapters, cross-referencing is used extensively. For example, the patient with a diagnosis of adult respiratory distress syndrome (p 76) will most certainly have the need for pulmonary artery pressure monitoring (p 212) and positive pressure ventilation (p 248) with positive end-expiratory pressure (p 260). Decisions involving all these interventions, and many more, must be dealt with simultaneously by the nurse. An attempt has been made to be as inclusive as possible, but the field of critical care is so enormous and evolving that it is impossible to provide heavily detailed information. The reader is encouraged to consult any of the excellent textbooks and journals in the field for additional information.

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LEGAL AND ETHICAL CONCERNS

PROBLEMS OF CRITICAL ILLNESS

Fluid Imbalances
Prevention of Nosocomial Infection
Nutritional Support
Pain Control
Psychological Problems
Sleep Pattern Disturbance
Rehabilitation and Self-Care Knowledge
Discharge Planning

FLUID IMBALANCES

Charold L. Baer

A. The clinical signs and symptoms of hypovolemia and hypervolemia are listed in Table 1.

B. The laboratory values most helpful in determining hypovolemia are increased serum hematocrit, hemoglobin, red blood cell count, and BUN levels; decreased urinary sodium and chloride levels; an increased urinary specific gravity (> 1.026); and an increased urine to serum osmolality ratio (> 2). The serum sodium level is not a reliable indicator because it varies with etiology. Laboratory values may not be very helpful in determining a hypervolemic state; however, decreased serum hematocrit, hemoglobin, and red blood cell count, and decreased urinary sodium and specific gravity may be indicative. Depending upon the etiology, there may also be a change in the serum sodium and an increase in the BUN and creatinine levels.

C. The data are analyzed, and a specific nursing diagnosis is formulated.

D. Fluid shifts into nonaccessible third spaces are sometimes the cause of hypovolemia. Clinical conditions associated with third spacing include ascites, peritonitis, intestinal obstruction, burns, and pancreatitis (p 154).

E. The therapy for hypovolemia begins with treating the cause. The physician then prescribes fluid replacements based on a trilevel approach. The first level is the administration of hydrating solutions to elicit a renal response. Once adequate renal function has been documented, second level or balanced solutions may be given. Third level replacement fluids are those specifically designed to compensate for actual losses. Nursing interventions complement these therapies and assist the individual to cope with the systemic effects of hypovolemia.

F. To evaluate the individual's response to the nursing interventions for hypovolemia, document weight changes and intake and output of all secretions; measure expanded third spaces for a change in status; assess the status of the skin and mucous membranes, the individual's energy level, all vital signs, and central venous pressure (p 206), when possible; and evaluate appropriate laboratory data.

G. If the problem is not resolved, formulate additional nursing interventions to correct the imbalance and deal with its systemic effects.

H. The etiology of hypervolemia influences the type and priority of nursing interventions that are implemented.

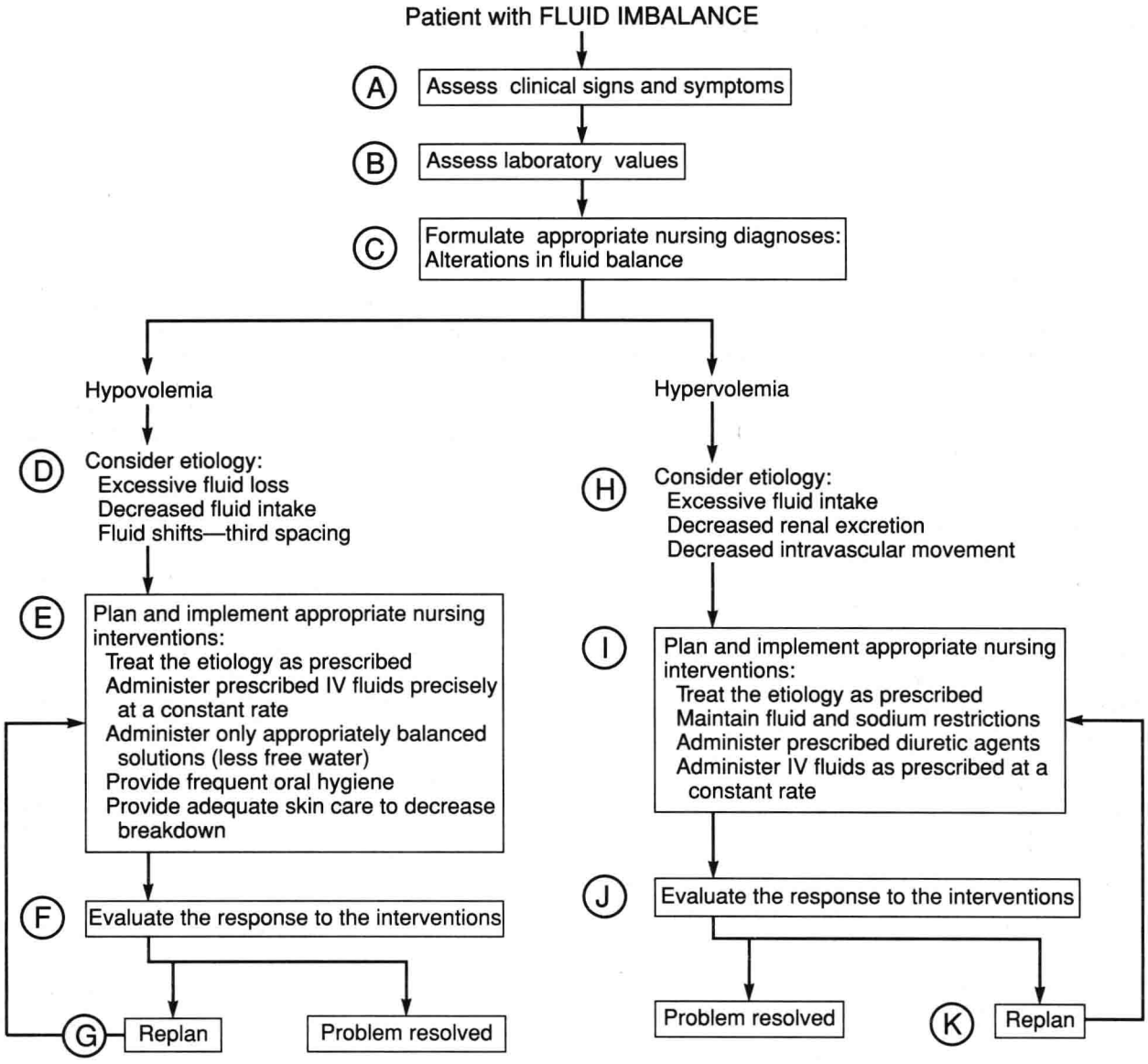
I. The treatment for hypervolemia also begins with trying to eliminate the cause, after which the physician prescribes therapies to decrease the excess fluid volume, such as diuretic agents, fluid and sodium restrictions, and dialysis if renal dysfunction is present. Nursing interventions assist the individual to deal with the systemic effects of hypervolemia.

J. To evaluate the individual's response to the nursing interventions for hypervolemia, assess the same parameters listed for hypovolemia (see F), but also assess the patient for signs and symptoms of peripheral, systemic, or pulmonary edema (p 86).

K. If the problem is not resolved, formulate additional nursing interventions to correct the imbalance and deal with its systemic effects.

TABLE 1 Signs and Symptoms of Hypovolemia and Hypervolemia

Hypovolemia	*Hypervolemia*
Acute weight loss	Acute weight gain
Decreased postural systolic blood pressure	Systemic edema
Tachycardia	Ascites
Decreased venous pressure	Increased central venous pressure
Dry skin and mucous membranes	Hypertension
Decreased skin turgor and elasticity	Bounding pulse
Furrowed tongue	Dyspnea
Decreased temperature after initial increase	Moist rales
Decreased eyeball turgor	Puffy eyelids
Decreased perspiration	
Thirst	
Oliguria	
Lassitude	
Fatigue	



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PREVENTION OF NOSOCOMIAL INFECTION

Sue Crow

Nosocomial infections are common complications of intensive care units. This is due primarily to extensive use of invasive devices, the severity of the patient's illness, host susceptibility, and lack of attention to aseptic technique by critical care unit personnel.

A. Although pneumonia and bacteremia are the leading causes of nosocomial infections in the ICU, each unit should know its specific nosocomial rates and risks. In addition, nurses should be familiar with the endogenous bacterial flora common to their unit. Review the culture reports to help determine these endemic microorganisms. Most ICUs harbor highly resistant microorganisms. The infection control practitioner can help the nurse identify these problems and help differentiate between endogenous and exogenous bacteria as well as colonization. An understanding of microbes is important if the nurse is to reduce the infection risk.

B. When assessing the patient for nosocomial risk, it is important to recognize that invasive lines increase the danger of these infections. When fever develops, regardless of the diagnosis, the invasive lines should be suspected as the cause. In addition, patients should be assessed daily to determine who is at greatest risk of nosocomial infection. Studies indicate that when personnel are aware of the nosocomial risk the vulnerability is decreased. Usually, compromised patients and patients undergoing surgery are at the greatest risk.

C. The nurse must keep abreast of new aseptic technique. This can be done by reviewing written patient care policies, reviewing the literature, involving asepsis into quality care, or consulting the infection control practitioner.

D. The principles of infection control should be practiced at all times. Handwashing after each patient contact has been identified as the most important practice to reduce infections. However, studies show that nurses sometimes do not use this simple technique. Handwashing, plus the use of clean gloves when handling *all* patients' body fluids, reduces the risk of nosocomial infection not only for the patient but also for personnel.

E. Only patients with respiratory infections spread via the air need a private room with negative pressure. The cardinal rule of isolation is to *confine* and *contain*. When gloves are worn, handwashing is practiced, and body fluid spills are readily cleaned up, there is minimum risk of contamination. When there is a possibility of splashing the patient's body fluids, especially laden with blood, into personnel's mucous membranes, glasses and mask should be worn. Personnel who are ill with infectious diseases can pose a risk to the compromised patient. When they are ill, nurses should make every effort to avoid direct patient care. Nosocomial infections can be a risk not only for patients but for personnel: Using the aseptic principles of *confine* and *contain* reduces these risks.

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