After reading this chapter, you should know the answers to these questions:

- What are the four major information-management issues in patient care?
- How have patient-care systems evolved during the past four decades?
- How have patient-care systems influenced the process and outcomes of patient care?
- Why are patient-care systems essential to the computer-based patient record?
- How can they be differentiated from the computer-based patient record itself?

16.1 Information Management in Patient Care

Patient care is the focus of many clinical disciplines—medicine, nursing, pharmacy, nutrition, therapies such as respiratory, physical, and occupational, and others. Although the work of the various disciplines sometimes overlaps, each has its own primary focus, emphasis, and methods of care delivery. Each discipline’s work is complex in itself, and collaboration among disciplines adds another level of complexity. In all disciplines, the quality of clinical decisions depends in part on the quality of information available to the decision-maker. The systems that manage information for patient care are therefore a critical tool. Their fitness for the job varies, and the systems enhance or detract from patient care accordingly. This chapter describes information-management issues in patient care, the evolution of patient care systems in relation to these issues, and current research. It will also show how patient care systems provide the infrastructure that determines the quality and functions of the computer-based patient record.

16.1.1 Concepts of Patient Care

Patient care is an interdisciplinary process centered on the care recipient in the context of the family, significant others, and community. Typically, patient care includes the services of physicians, nurses, and members of other health disciplines according to patient needs: physical, occupational, and respiratory therapists; nutritionists; psychologists; social workers; and many others. Each of these disciplines brings specialized perspectives and expertise. Specific cognitive processes and therapeutic techniques vary by discipline, but all disciplines share certain commonalities in the provision of care.

In its simplest terms, the process of care begins with collecting data and assessing the patient’s current status in comparison to criteria or expectations of normality. Through
cognitive processes specific to the discipline, diagnostic labels are applied, therapeutic goals are identified with timelines for evaluation, and therapeutic interventions are selected and implemented. At specified intervals, the patient is reassessed, the effectiveness of care is evaluated, and therapeutic goals and interventions are continued or adjusted as needed. If the reassessment shows that the patient no longer needs care, services are terminated. This process was illustrated for nursing in 1975 (Goodwin & Edwards, 1975) and was updated and made more general in 1984 (Ozbolt et al., 1985). The flowchart reproduced in Figure 16.1 could apply equally well to other patient-care disciplines.

Although this linear flowchart helps to explain some aspects of the process of care, it is, like the solar-system model of the atom, a gross simplification. Frequently, for example, in the process of collecting data for an initial patient assessment, the nurse may recognize (diagnose) that the patient is anxious about her health condition. Simultaneously with continuing the data collection, the nurse sets a therapeutic goal that the patient’s anxiety will be reduced to a level that increases the patient’s comfort and ability to participate in care. The nurse selects and implements therapeutic actions of modulating the tone of voice, limiting environmental stimuli, maintaining eye contact, using gentle touch, asking about the patient’s concerns, and providing information. All the while, the nurse observes the effects on the patient’s anxiety and adjusts his behavior accordingly. Thus, the complete care process can occur in a microcosm while one step of the care process—data collection—is underway. This simultaneous, nonlinear quality of patient care poses challenges to informatics in the support of patient care and the capture of clinical data.

Each caregiver’s simultaneous attention to multiple aspects of the patient is not the only complicating factor. Just as atoms become molecules by sharing electrons, the care provided by each discipline becomes part of a complex molecule of interdisciplinary care. Caregivers and developers of informatics applications to support care must recognize that true interdisciplinary care is as different from the separate contributions of the various disciplines as an organic molecule is from the elements that go into it. The contributions of the various disciplines are not merely additive; as a force acting on the patient, the work of each discipline is transformed by its interaction with the other disciplines in the larger unity of patient care.

For example, a 75-year-old woman with rheumatoid arthritis, high blood pressure, and urinary incontinence might receive care from a physician, a home-care nurse, a nutritionist, a physical therapist, and an occupational therapist. From a simplistic, additive perspective, each discipline could be said to perform the following functions:

1. Physician: diagnose diseases, prescribe appropriate medications, authorize other care services
2. Nurse: assess patient’s understanding of her condition and treatment and her self-care abilities and practices; teach and counsel as needed; help patient to perform exercises at home; report findings to physician and other caregivers
3. Nutritionist: assess patient’s nutritional status and eating patterns; prescribe and teach appropriate diet to control blood pressure and build physical strength
4. Physical therapist: prescribe and teach appropriate exercises to improve strength and flexibility and to enhance cardiovascular health, within limitations of arthritis