

Tech update

A vital sign of the time: CIS software

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Abstract: New software for clinical information systems (CIS) allows nurses and other providers to access vital patient information through a variety of wired and wireless options. [Nurs Manage 2004;35(4):75-76]

In 2001, the American Association of Critical-Care Nurses estimated that nurses spend up to 30% of their time attempting to obtain necessary information to provide patient care. To put this into perspective, that's 12 hours out of a 40-hour work week.¹ It can take hours, days even, to obtain laboratory results, radiology reports, and records from previous admissions.

The software solution

Paper-based systems for information management require human intervention to locate necessary patient data. Approximately 70% of health care transactions today are paper-based, resulting in administrative costs of up to 20 cents per dollar spent.² Ever-growing patient complexity, reimbursement pressures, and liability concerns have dramatically increased reporting and documentation requirements. This conspires to consume the time nurses would otherwise spend taking care of patients—and during record staffing shortages, no less.

As an obvious solution to enhance information flow, many hospitals adopt electronic medical records, making vital patient information available digitally to staff at the point of care. Clinical information systems (CIS) allow staff to access patients' clinical information from intranet-linked PCs within the hospital or from secure remote locations, like affiliated physician offices, networked mobile PCs, and smart phones. Providers and payers access administrative information electronically through hospital information systems. Health care providers capture and retrieve radiologic images electronically through picture archival central storage systems.

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In critical care environments where patient conditions change rapidly, staff had to document pivotal patient events by printing copies of monitor tracings and ensuring that these became part of the patients' medical records, until recently. They can now be saved electronically into the medical record, and remote central patient monitoring can instantly notify nurses of critical events.

A push for portability

In recent years, improved vital signs monitoring technology has resulted in increased portability, centralized patient monitoring, and integrated data from real-time devices, such as monitors, I.V. pumps, and ventilators. Manufacturers have adopted a consistent communications platform that allows their equipment technology to interact with critical care monitoring stations, offering nurses a complete picture of a patient's status. While patient acuity and mobility change, patients keep the same monitor as they travel among units and departments, eliminating the need for nurses to continually disconnect and reconnect patient monitors. Further, continuous monitoring via centralized telemetry allows capture of critical events wherever they happen.

New software, which integrates patient monitoring with beeper-type devices or wireless devices such as personal digital assistants (PDAs) or smart cell phones, works with these centralized telemetry systems to notify nurses both of changes in physiological data and new entries or orders in the medical record. Manufacturers work with each client hospital to design workstations and software

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Tech update

that integrate with existing electronic CIS and incorporate devices already in place (such as ventilators, cardiac and vital signs monitors, infusion pumps, and patient-movement monitors). Many systems also include bedside electronic data entry through tablet PCs or PDAs.

Software vendors emphasize their products' abilities to integrate existing, often disparate, systems within an organization and extend accessibility to wherever clinicians need access to vital patient information. While the purchase of these integration packages represents a substantial capital investment for any institution, properly scaled and deployed, they'll deliver:

- ♦ large gains in staff productivity over paper-based systems, because staff won't have to track down paper-based records to assist in clinical decision-making.
- ♦ reduced lengths of stay, because clinicians will be able to intervene quickly when instantly alerted to changes in patient condition.
- ♦ enhanced compliance with Health Insurance Portability and Accountability Act privacy regulations, since system administrators can limit information access based on a staff member's role in patient care.
- ♦ improved communication and reduced redundancy among disciplines by allowing simultaneous review of new data by all services involved in a patient's care.
- ♦ decreased number of errors based on incomplete or difficult-to-decipher handwritten orders.
- ♦ faster communication with providers to verify orders that fall outside of preprogrammed parameters, as recommended by The Leapfrog Group for Patient Safety.⁴

Although clinical and administrative information systems integration is a complex new tool for most health care organizations, employing this technology ultimately will enable us to spend more time doing what we nurses do best—caring for patients.⁵ This translates into greater patient satisfaction and, as the nursing shortage peaks, improved staff retention. **MM**

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