Lewis Thomas, a prominent physician, has complimented nursing by noting that nurses are the glue that holds hospitals together. Many have interpreted Thomas's statement to mean that nurses coordinate and facilitate not only nursing care but also most patients' needs wherever they intersect with a healthcare delivery organization.

One consequence of this diffuse role is that nurses do not "own" many of the care processes in healthcare; rather they are critical participants in most processes.

**Outlining the Process**

The medication-use process, also known as the medication management process, exemplifies this issue. Most model this process as: provider orders medication —> (if paper, then clerk transcribes order —>) pharmacist verifies order/dispenses medication —> nurse administers medication. Nurse modelers often add two steps, one at each end of this process: provider assesses patient on the front end and nurses evaluate response to medication on the back end.

Any way this process is modeled, it is clearly multidisciplinary, yet if pushed to identify an owner of the medication use process, most would say that the physician or perhaps the pharmacist owns it. Ideally, most processes in healthcare should evolve to multidisciplinary ownership, but this goal may be a long way off.

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In recent years, barcode-assisted medication administration (BAMA) systems or these types of modules within electronic health record (EHR) systems have been introduced to improve the medication administration step. Most of these implementations enable nurses to document medication administration, not simply assure positive patient identification and positive medication identification at the point of care.

The evidence proving that BAMA helps produce positive patient outcomes is currently weak. In fact, at least one study found a decline in process indicators that the authors believed could result in more medication errors as a result of BAMA use (Patterson, Cook and Render, 2002). In general, studies have demonstrated that BAMA encourages positive patient outcomes, but those studies have significant design and methodological limitations that hamper their findings' generalizability (Johnson, et. al., 2002).

Our own BAMA research, with the same limitation in generalizing the findings as the above-mentioned studies, involved focus groups of...
six-to-eight nurse end-users of BAMA at two different sites (Gugerty et. al., 2002). One group, which had experienced a troubled BAMA implementation, was asked if they wanted to go back to the old way of doing things on paper, and they all answered with an emphatic, “No!”

Perhaps even more telling was that when asked to describe an instance where the use of BAMA prevented a significant error that clearly would have been committed with the old way of doing things, a long pause ensued, and was followed by a brave nurse simply, and clearly, saying “Yes.” It was a very poignant moment and, as a researcher, I wanted to ask several follow-up questions, but the positive head nods and body language of all of the other six nurses were enough to indicate concurrence. Further probing, in the context of this particular study, would not have gotten us any more data than that powerful “Yes.”

Promising Directions

While the research evidence showing that BAMA can affect positive patient outcomes is weak, the researchers mentioned earlier should be applauded for exploring the impact of this promising technology and process change, and more research is needed on this important topic.

There are promising indications that as BAMA technology matures and further penetrates the market, future research is likely to show significant improvement, especially in reducing adverse drug events. BAMA’s positive patient identification and positive medication identification features will clearly contribute to this, and improvements in documentation and workflow processes are also key parts of the picture that need management and evaluation attention. BAMA is a compelling example of how information technology, when combined with process improvement, can improve nursing documentation and patient outcomes.

“…vital sign documentation is a great candidate for the next BAMA-like success story.”

In terms of other low-hanging fruit that can be implemented to improve nursing documentation, vital sign documentation is a great candidate for the next BAMA-like success story. Like BAMA, the responsibility for getting vital signs into the electronic health record lies squarely on the nurse. Until the past few years, these tasks have not been done manually, with results documented on paper.

With the advent of reliable and inexpensive technology to collect vital signs and the growing use of EHRs, healthcare organizations are exploring ways to increase the effectiveness and efficiency of the routine and important tasks of vital sign collection and documentation. Furthermore, EHR decision support functionality—in the forms such as computerized practitioner order entry, alerts, and reminders—are beginning to make a difference in patient safety. Vital signs will be part of many rules that make up decision support in healthcare.

Current vital sign collection and documentation processes in most acute-care settings have significant room for improvement. Even if vital sign collection technology is in place to enable more reliable collection, the documentation of vital signs remains manual. Worse, that documentation often exists on multiple slips of paper before data are finally transferred onto a chart or EHR, greatly increasing the chance for errors of commission or omission.

There is also often a great deal of variability in when vital signs get to the chart after the data are gathered. It is not uncommon for hours to pass before the information is available for medical decision-making. The healthcare industry can expect significant improvement in both the accuracy and timeliness of availability after vital sign collection technology is implemented in combination with vital sign documentation technology.

More Difficult Challenges

After improving vital signs documentation in the EHR and similar processes for which nurses are responsible, opportunities for improving nursing documentation will be more difficult to accomplish, but the payoffs are greater. Information technology is being used to improve flowsheets, assessment forms, plans of care, and other documentation approaches that nurses use.

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and Challenges in Nursing Documentation Part II.”

About the Author
Brian Gugerty, DNS, MS, RN, has recently joined Siemens Medical Solutions in the clinical informatics group. His work includes modeling, prototyping, testing and evaluating nursing documentation solutions. Dr. Gugerty’s previous positions include assistant professor, University of Maryland, School of Nursing; product manager, GE-Marquette Medical Systems; and director of nursing informatics at Erie County Medical Center, Buffalo, NY.

References
