

# 'Digital Transformation' Is a Must

BY SUSAN BIRK

ROSEMONT, ILL. — Health care providers' ability to continue to improve patient safety and quality hinges on their embrace of digital technology, according to medical economist Jeffrey C. Bauer, Ph.D.

"We've reached the limits of the human mind to process all the information that's out there, and we have absolutely passed the limits of the paper trail. I cannot see progress without moving to a total digital transformation," Dr. Bauer said in a plenary session at the Joint Commission national conference on quality and patient safety.

He called diversification "the defining characteristic of U.S. health care in the foreseeable future" and predicted it would produce more change between 2005 and 2015 than between 1965 and 2005. "The only way we can deal with that complexi-

ty ... is with data systems. Without the technologies, we won't get there; with the technologies, we can do some really exciting things."

He noted the following trends as signs of health care diversification:

► The shift from "one size fits all" to personalized medicine based on the unparalleled pace of findings in molecular science, genetics, and other medical research.

As an example, Dr. Bauer cited the relatively new discovery that

breast cancer is not a single disease but a group of molecularly distinct neoplasms. "We can't give safe, quality care if we can't begin to use all of this information to match the right patient to the right drug," he said.

The growth of personalized medicine also brings the

recognition that many chronic diseases are latent in a person's genetic composition and must be "managed throughout our lifetime, not only when they appear in an acute state," said Dr. Bauer, who is a management consulting partner with Affiliated Computer Services, Inc., Dallas.

**Digital technology could help fill the shortages of physicians, nurses, and respiratory and occupational therapists by enabling delivery of remote medical care.**

► The increasing viability of remote medicine could provide a workable answer to the growing shortage of health care professionals.

"We cannot produce physicians, nurses, respiratory therapists, and occupational therapists fast enough to meet the shortages we've

got in this country," he said. "What we need is the informatics and the digital transformation work processes that very much have to be tied to safe and appropriate care."

► Demographic changes, including the potential for about half the U.S. population by 2040 to be made up of people born in other countries, could be accompanied by a "host of new genetic conditions and different cultural practices." Rather than breaking down medical data merely by race, researchers and providers will need to understand the complex demographics of disease patterns within races (for example, differences in cancer incidence among Asian-American subgroups, such as Filipino, Chinese, Japanese, Korean, and Vietnamese populations).

"We need technology to keep up with that information," he said. ■

## 'Drill Down' to Ensure Inpatient Safety During a Communications Blackout

BY SUSAN BIRK

CHICAGO — In the fall of 2006, a vendor accidentally cut the wrong cable in the computer room at Children's Specialized Hospital, New Brunswick, N.J., leaving the large pediatric rehabilitation provider's eight facilities without computers or phones for 3 days.

Staff continued to care for patients with the semimanual systems that were still in place, and no adverse events occurred as a result of the extended power loss. But the sobering experience sparked a comprehensive overhaul of the organization's communications downtime policies and procedures using a Six Sigma risk-reduction tool known as FMEA (Failure Modes and Effects Analysis). The tool, widely used in manufacturing, involves rating the risks associated with various components in a process on a numerical scale and prioritizing corrective actions according to risk level. Six Sigma is a management system first created by Motorola Inc. that seeks to improve quality and efficiency.

A root cause analysis and a review of existing policies and procedures soon after the communications failure quickly revealed serious shortcomings, including gaps between the administrative policy and the emergency operations plan, inconsistencies across some departments, no policies and procedures at all in other departments, and critical

steps that were missing, including a formal process for communicating to staff that systems were down.

"The staff was completely out of the loop," said Lorraine Quatrone, medical administrator at Children's Specialized Hospital. "We thought we had a plan in place," but "we were operating in silos," she said at the Joint Commission national conference on quality and patient safety.

The hospital made some quick fixes, after which "we could've sat back and said we're prepared," said Ms. Quatrone. Instead, the hospital decided to "drill down and look behind doors" using FMEA methodology.

The major shortcoming was evident when the staff needed to be alerted of a communications failure, and they needed to know what to do to ensure patient safety once they were informed.

To make that happen, the hospital developed a standard template for downtime policies and procedures for completion by every department. In addition to asking directors and managers what their departments needed in order to continue to function in the absence of computers and telephones, the hospital also asked them to look at their departments as suppliers of information to the organization and to indicate how they could help other departments. "We wanted to make this an organizationwide commitment to help-

ing each other," Ms. Quatrone said.

Facilities management, for example, is now responsible for immediately distributing two-way radios to patient areas, making hourly rounds to check for emergency issues, and monitoring the energy management system. All nursing units are required to immediately begin recording the administration of all medications on a written worksheet.

The hospital also covered procedures for how each department would continue to function after systems were working again, including how information from the interim paper process would get entered into the electronic system. Once the system is operational, for example, pharmacy staff are required to enter all new medication orders electronically.

Following the revision of policies and procedures, department directors and managers were asked to educate their staff and to decide with them which electronic forms would be needed in paper form and where information should be kept. Information on the emergency plan became an integral part of new employee orientations as well.

The hospital conducted a series of simulated downtime drills. Awareness "seemed pretty low at the beginning, but as time went on and we did drills to reinforce our commitment to the process, we started to see the results edge up," Ms. Quatrone says. ■

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