



Champions of Change: The Ohio State University Health System Improves Patient Safety With Physician Order Entry

With 4 hospitals, 850 beds, 500 residents in 50 training programs, and over 800 medical students annually, the Ohio State University Health System (OSUHS) is a large and complex institution. Finding a way to enhance workflow while simplifying and streamlining the delivery of care, improving its quality, and reducing its cost are imperatives. According to Asif Ahmad, CIO of OSUHS, "Healthcare systems as large as ours are becoming interested in getting away from hand-written orders. The recent

Institute of Medicine report* has heightened public awareness of medication problems such as those resulting from illegible handwriting."

The solution: implementing a paperless system across the enterprise, based on the institution's best practices.

Improving Efficiency Without Paper

At OSUHS, physicians used to order everything manually, which took considerable time, especially when co-signatures were required.

Add to that the variation in handwriting, and it's easy to see how errors could occur. With Siemens' Physician Order Entry (POE), physicians enter all orders electronically and automatically transmit them throughout the enterprise. Hagop S. Mekhjian, MD, Associate Vice President, Health Services, Chief Medical Officer, noted, "Quick and timely communication can now be accomplished. This has positive impacts, such as fewer delays in medication administration and delivery of care, which ultimately improve healthcare."

Streamlining Processes to Improve Workflow

Siemens developed the basic architecture for POE and the IT staff at OSUHS integrated it with its other applications. To achieve

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Hagop S. Mekhjian, MD, Associate Vice President, Health Services, Chief Medical Officer

PHYSICIAN ORDER ENTRY

*Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academy Press; 2001.

success, best practices needed to be identified so that the essential ingredients of practice guidelines could be integrated into physician order sets. The order sets consist of individual orders handling medications, laboratory tests, and radiology requests, as well as nursing, dietary, and other specialties. Over the course of two years, OSUHS reengineered its workflow processes, implementing the computerized order sets throughout the entire system.

"The order set is just a filtered-down product of the best practices and guidelines of the health system," continued Dr. Mekhjian. "The goal of implementing order sets is to reduce variation in care, promote best practices, and improve patient outcomes."

Change—even under the most ideal of circumstances—is difficult. However, change becomes much easier if a health

enterprise engages physicians right from the beginning in the design and implementation of a program. "When they are involved in this way, physicians become champions of change and a critical success factor in designing and implementing the system," concluded Dr. Mekhjian.

Increased Efficiency. Better Workflow.

The results of implementing POE were nothing short of successful. In terms of workflow performance, OSUHS has experienced a 64% reduction in the time to order, fill, and administer prescriptions. Radiology turnaround has realized a 43% reduction. Lab results reporting time has accelerated by 25%. In addition, OSUHS is the nation's first POE site to show cycle-time reductions in every major aspect of clinical care in which the system was used.

Today, OSUHS processes more than 6,000 physician-entered orders each day,

with 75% of inpatient orders managed by POE. By 2003, OSUHS will integrate the system throughout the enterprise.

"The Siemens systems," said Ahmad, "are now well interfaced with other OSUHS areas such as the hospital pharmacy, lab systems, and radiology. For each disease pathway, the rules engine can compare a given order to standard practice guidelines and alert the physician if the order is out of range."

OSUHS's pioneering work in POE has been honored by the Computer-based Patient Record Institute and Healthcare Open Systems and Trials (CPRI-Host), a non-profit organization established by the Institute of Medicine, with its prestigious Nicholas E. Davies CPR Recognition Award of Excellence for 2001. The award recognizes OSUHS's successful implementation of Siemens' POE health-care information system in challenging clinical areas.

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