Improving patient continuity of care in hospitals linked with reduction in medical errors

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Implementation of a multifaceted program to improve patient handoffs (change in staff caring for a patient) among physicians-in-training residents at a children's hospital was associated with a reduction in medical errors and preventable adverse events, according to a study appearing in the December 4 issue of *JAMA*, a medical education theme issue.

Handoff miscommunications are a leading cause of medical errors. "The Agency for Healthcare Research and Quality (AHRQ) and the Accreditation Council for Graduate Medical Education (ACGME) have identified improving handoffs as a priority in U.S. nationwide efforts to improve patient safety. The ACGME now requires residency programs to provide formal instruction in handoffs. Despite these new requirements and the increasing frequency of handoffs as a result of reductions in resident-physician work hours, many institutions do not have robust procedures for training residents or ensuring high-quality handoffs," according to background information in the article.

Amy J. Starmer, M.D., M.P.H., of Boston Children's Hospital and Harvard Medical School, Boston, and colleagues examined whether introduction of a multifaceted handoff program was associated with a reduction in medical errors and preventable adverse events, fewer omissions of key data in written handoffs, improved verbal handoffs, and changes in resident-physician workflow. The study included 1,255

patient admissions (642 before and 613 after the intervention) involving 84 resident physicians (42 before and 42 after the intervention) on 2 inpatient units at Boston Children's Hospital.

The intervention consisted of a 2-hour communication training session that included interactive discussion regarding best practices for verbal and written handoffs; the introduction of a mnemonic (a memory aid) to standardize verbal handoffs; the restructuring of verbal handoffs to include integration of interns' and senior residents' separate handoffs into a unified team handoff; relocation of handoff to a private and quiet space; and introduction of periodic handoff oversight by a chief resident or attending physician. In addition, for one unit, a computerized handoff tool was created that was integrated into the electronic medical record.

Following implementation of the intervention, medical errors decreased from 33.8 per 100 admissions to 18.3 per 100 admissions, and preventable adverse events decreased from 3.3 per 100 admissions to 1.5 per 100 admissions. The researchers found that there were fewer omissions of key handoff elements on printed handoff documents, especially on the unit that received the computerized handoff tool. Verbal handoffs were more likely to occur in a quiet and private location after the intervention.

"Implementation of the intervention was not associated with adverse effects on resident workflow: time spent on verbal handoffs did not change, and time spent at the computer did not increase; residents spent more time in the post-intervention period in direct contact with patients," the authors write.

"Given the increasing frequency of handoffs in hospitals following resident work-hour reductions and the high frequency with which miscommunications lead to serious medical errors, disseminating high-quality handoff improvement programs has the potential for benefit.

Further work to improve and standardize handoffs across specialties and settings may lead to improvement in the safety of patients in teaching hospitals nationwide."

Leora Horwitz, M.D., M.H.S., of the Yale School of Medicine, New Haven, Conn., comments on this study in an accompanying editorial.

"As hospitals and residency programs seek to manage increasing complexity and fragmentation without reverting to an archaic model of round-the-clock care, the focus will be on safe handoffs and mitigating discontinuity. The study by Starmer et al presents tantalizing evidence that improving handoffs can actually reduce harm to patients. In the meantime, while awaiting results from larger multi-institutional studies, it is reasonable to ensure that at least basic elements of safe handoffs are in place."

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