

DATA CORNER

Using Data Collection to Improve Electronic Medication Reconciliation

Medication reconciliation is a challenging process for all types of health care organizations, requiring investments of both time and labor. However, the importance of the process cannot be overrated in terms of preventing medication errors and ensuring patient safety. In their efforts to make reconciliation activities more efficient and integrate them into regular workflow, many organizations have begun using automated methods. This shift seems natural, given the general move toward electronic medical records (EMRs), computerized prescriber order entry (CPOE), bar codes, and similar technology.

Although automated methods can be helpful, particularly when all of an organization's systems are linked, staff

need to watch for common mistakes that can cause problems during implementation. Some of these mistakes, addressed in a Joint Commission *Sentinel Event Alert*, include inadequate planning that does not involve front-line clinicians, insufficient in-house training, and lack of software compatibility between different areas of the organization.¹ Whether an organization is in the planning stage or has already implemented a system, collecting and comparing data can help staff find existing or potential problems and measure success.

Automating Discharge Orders

Medication reconciliation is an important part of the discharge process

because vague or incomplete instructions can be a definite risk to patient safety. Nurses at Mercy Health Center in Oklahoma City wanted to find a way to provide an accurate medication list to patients at discharge. An interdisciplinary team developed an automated information system that compiled the home medications entered in a historical database by the nurse at admission, and the medications ordered by the physician during a patient's stay, into a worksheet that nurses posted in the chart and physicians reviewed before or at the time of discharge. Pre- and postimplementation audits of medical records revealed that physician review and reconciliation of the worksheet reduced discrepancies

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Survey Findings Suspended on NPSG 8

The Joint Commission is committed to helping organizations prevent medication errors, as evidenced by our National Patient Safety Goal on medication reconciliation (Goal 8), which highlights a critical problem that poses significant risk to patients. However, since the Goal was instituted in 2005, many organizations have struggled to develop and implement effective and efficient processes to meet its intent.

The Joint Commission Accreditation Committee determined that, effective January 1, 2009, survey findings on National Patient Safety Goal 8 (accurately and completely reconcile medications across the continuum of care) will continue to be evaluated during the on-site survey. However, given the difficulties that many organizations are having in meeting the complex requirements of Goal 8, the Accreditation Committee agreed that The Joint Commission should evaluate and refine the expectations for accredited organizations. While this evaluation is being conducted, survey findings from Goal 8 will not be factored into the organization's accreditation decision. In addition, survey findings on Goal 8 will not generate Requirements for Improvement and will not appear on the accreditation report.

Recognizing that medication reconciliation problems continue to put patients at risk, The Joint Commission expects organizations to continue to address medication reconciliation within their organization. During the on-site survey, Joint Commission surveyors will evaluate the organization's medication reconciliation processes, discuss opportunities for improvement, and collect information on the progress organizations are making in meeting Goal 8.

In 2009, The Joint Commission will evaluate and further refine Goal 8. As part of this process, The Joint Commission will consult with health care organizations, physicians, pharmacists, nurses, surveyors, and other stakeholders. Through these discussions, an improved goal will be crafted that both supports quality and safety of care and can be more readily implemented by the field in 2010.

For more information, see The Joint Commission's Web site at <http://www.jointcommission.org>.

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in dosage, frequency, and drug duplication.²

Subsequent improvements have been made to the worksheet, now called the discharge home medication reconciliation orders. Instead of a new sheet being added daily to the chart, physicians are now asked to print out the list while they are writing their complete discharge instructions. According to Donna Poole, R.N., Mercy's nursing informatics coordinator, the system also includes a backup process to ensure that patients have an accurate list: "If the physician writes up discharge orders and leaves, but that form is not on the chart, the nurse prints it out, calls the physician, and goes through all the medications by phone." Within the next year, the hospital plans to implement new software to link its EMR, discharge orders, and CPOE system.

Shifting from Paper to Automation

Bellevue Hospital in New York City moved from a paper-based reconciliation process to an online application that could be incorporated into everyday workflow and address both inpatient and outpatient orders. Staff can input medications into the automated medication list at admission, and via a one-way interface, whenever a patient's prescriptions are updated in the EMR, corresponding changes are made to the list unless the prescription is filled outside of the system. This system was first implemented in Bellevue's outpatient clinics and then became the basis for medication reconciliation during inpatient admission. A two-month pilot study found only a 20% reconciliation compliance rate, primarily due to time

constraints. Six months later, reconciliation at admission became mandatory, and a blocking function in the EMR prevented any orders from being written if it had not been completed; compliance increased to 90%. When discharge reconciliation was also made mandatory, compliance grew to 95%.³



Plans to further improve the system and provide more training are ongoing. "We still have a problem with redundancies," notes Douglas Bails, M.D., associate director of medicine service. "The system only recognizes duplication if the name of the drug and dosage are exactly the same. We're working with physicians in the outpatient setting on proper updating and consistency. Problems in the outpatient medication list can carry over to the inpatient admission list." Staff are also working to make printouts of the lists available to patients in nonmedical language.

Finding the Trouble Spots

When staff at the Palo Alto Medical Clinic in California conducted a telephone study of patients with non-life-threatening conditions to calculate discrepancies between outpatient medication lists in EMRs and actual patient use, they found an average of 2.7 mistakes per list. Drugs that were erroneously omitted from the list accounted for 15.5% of the discrepancies,

whereas medications no longer taken by the patient but appearing on the list totaled 70.4%.⁴

One of the main causes of the latter problem was that expired orders for medications such as antibiotics were being left in the active files. "We did small presentations at department meetings to tell physicians how adding an order end date could improve the medication list's accuracy," recalls Kathleen Orrico, PharmD., B.C.P.S., clinical pharmacist for Palo Alto Medical Foundation. "Currently it is necessary to manually enter the end date for each order." End-date entry for short-course azithromycin was measured 30 days pre- and postpresentation, and compliance rose from 28% to 70%. The planned next step is to adjust the software so the end dates for common medications will auto-populate and negate the need for manual entry.

The common thread linking these various organizations seems to be that analyzing performance measurement data can help an organization decide what its greatest needs are in terms of making medication reconciliation more efficient and integrating it with other processes. Before-and-after studies are also necessary to evaluate effectiveness. **B**

References

1. The Joint Commission: Safely implementing health information and converging technologies. *Sentinel Event Alert* 42, Dec. 11, 2008. http://www.jointcommission.org/SentinelEvents/SentinelEventAlert/sea_42.htm?print+y (accessed Mar. 25, 2009).
2. Poole D.L., et al.: JHQ 177 medication reconciliation: A necessity in promoting a safe hospital discharge. *J Healthc Qual* 28, May-Jun. 2006. http://www.nahq.org/journal/ce/article.html?article_id=256 (accessed Mar. 25, 2009).
3. Bails D., et al.: Implementing online medication reconciliation at a large academic medical center. *Jt Comm J Qual Patient Saf* 34: 499-508, Sep. 2008.
4. Orrico K.B.: Sources and types of discrepancies between electronic medical records and actual outpatient medication use. *J Manag Care Pharm* 14: 626-631, Sep. 2008.