ISMP Medication Error Report Analysis

Reduce Readmissions With Pharmacy Programs

USP Updates Heparin Label

Insulin Concentration Rarely Needed on Orders

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These medication errors have occurred in health care facilities at least once. They will happen again—perhaps where you work. Through education and alertness of personnel and procedural safeguards, they can be avoided. You should consider publishing accounts of errors in your newsletters and/or presenting them at your inservice training programs.

Your assistance is required to continue this feature. The reports described here were received through the Institute for Safe Medication Practices (ISMP) Medication Errors Reporting Program. Any reports published by ISMP will be anonymous. Comments are also invited; the writers' names will be published if desired. ISMP may be contacted at the address shown below.

Errors, close calls, or hazardous conditions may be reported directly to ISMP through the ISMP Web site (www.ismp.org), by calling 800-FAIL-SAFE, or via e-mail at ismpinfo@ismp.org. ISMP guarantees the confidentiality and security of the information received and respects reporters' wishes as to the level of detail included in publications.

REDUCE READMISSIONS WITH PHARMACY PROGRAMS

As of October 2012, penalties enacted with the Affordable Care Act have been levied against hospitals with high readmission rates for 3 targeted conditions: heart failure, heart attack, and pneumonia. This may expand to additional conditions including joint replacement, cardiac stenting, heart bypass, and stroke treatment by 2015. The penalties are capped at 1% of Medicare reimbursements in 2013, 2% in 2014, and 3% in 2015. The government estimates that the penalties for fiscal year 2013 will total \$280 million,¹ which represents an average penalty of about \$125,000 from 2,217 hospitals.² Nearly 1 in 5 older adults is readmitted to a hospital within 30 days of discharge.³ Given that more than half of these readmissions are preventable,^{3,4} the new penalties are compelling hospitals to make the reduction of readmissions a priority.

Because penalties for readmissions are based on a 3-year rolling average – fiscal year 2013 payments are based on July 2008 through June 2011 readmission

data – efforts to reduce the readmission rate that are started today will not be fully realized for several years. Thus, the goal of many hospitals will be to get off the penalty list as soon as possible.

Patients at Risk for Readmission

Although the ability to predict which patients are at high risk for readmission is not an exact science, numerous studies have identified that adverse medication events are at the very core of the readmission problem.⁵⁻⁷ This includes patient nonadherence to prescribed drug therapy, which by itself leads to treatment failures and wasted resources costing \$150 billion annually.⁸ A recent study by Budnitz et al⁷ identified the drugs involved in 88.3% of emergency hospital admissions of older adults caused by adverse drug events: hematologic, endocrine, cardiovascular, central nervous system, and anti-infective agents. Nearly two-thirds of the hospitalizations were due to unintentional drug overdoses. Just 4 types of medications – warfarin,

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insulins, oral antiplatelet agents, and oral hypoglycemic agents – together accounted for 7 in 10 of the emergency hospitalizations. A review of 55 observational studies found that information related to medications was missing from hospital discharge summaries up to 40% of the time.⁹ Another study found that patients with medication discrepancies had a 30-day hospital readmission rate of 14.3% compared with 6.1% for patients without a medication discrepancy.¹⁰

Community Pharmacy Organizations Capitalize on Opportunity

Findings such as these, combined with the new penalties for hospitals with high readmission rates, have created a niche for external programs offered by community pharmacies. For example, Walgreens offers WellTransitions, which has community pharmacists working onsite in hospitals, in collaboration with hospital pharmacists and clinical health care team members, to align prescription therapy, deliver discharge medications to the bedside, counsel patients about their drug therapy, and follow-up with patients post discharge. The primary goals of the program are to reduce preventable hospital admissions and to improve patient satisfaction and health outcomes. Hospitals pay for the program either on a per-case basis or by sharing a portion of the savings from reduced readmissions with Walgreens.¹¹

Working primarily in the outpatient setting, CVS Caremark also offers an integrated readmission prevention program for its members in partnership with Dovetail Health, a care management company in Massachusetts. Using risk stratification and predictive modeling to identify high-risk patients, Dovetail provides high-risk patients with in-home consultation with a pharmacist shortly after discharge to help manage drug therapy for acute and chronic illnesses and to coordinate care for up to 90 days. Moderate-risk patients receive similar benefits for 90 days via telephone support. However, the program is limited to patients who are CVS Caremark members.

Hospital-Run Community Liaison Programs

The Walgreens and CVS community liaison programs are 2 examples of external resources available to hospitals. However, it may be more desirable and profitable for hospitals to invest in their internal pharmacies to develop similar readmission prevention programs staffed with one or more hospital-employed community liaison pharmacists and coordinated with discharge planning and home care nurses. Hospital-run community liaison programs have been in existence for

more than a decade in countries such as Australia¹² and have become more prevalent in the United States in recent years. These programs provide assistance with medication management and pharmaceutical care to promote safe and quality drug use in the community. The community liaison pharmacist provides the missing link between hospital care and the home, as well as between different health care providers, thereby minimizing admission to the hospital due to medication mismanagement and promoting appropriate allocation of health care resources.¹²

An abundance of literature supports the success of hospital-run programs, citing measurable reductions in hospital readmission rates, prescribing errors, drug-related discrepancies, drug administration errors, and overall morbidity and mortality for certain conditions.¹²⁻¹⁴ The studies also document improvements in patient satisfaction and health outcomes, including with elderly patients, disadvantaged patients with limited access to care, patients with low health literacy, and patients with vulnerable chronic illnesses.

The Society of Hospital Pharmacists of Australia, which established standards of practice for community liaison pharmacists as early as 1996, suggests that there are advantages to having the community liaison pharmacist be part of the hospital's pharmacy department, including access to continuing education, staff development, and training programs; enhanced familiarity and communication with hospital staff pharmacists, medical staff, and other care team members; and facilitation of training of other pharmacists and students.¹² These and other potential advantages of a hospital-run program should lead hospitals to investigate whether an internal community liaison program is feasible.

The combination of incentives, penalties, and funding opportunities for the problem of hospital readmissions has resulted in numerous studies and demonstration projects on the state and national levels that hospitals can join or from which they can learn, including the Institute for Healthcare Improvement's STAAR (State Action on Avoidable Rehospitalizations) initiative; the BOOST (Better Outcomes for Older Adults through Safe Transitions) project led by the Society of Hospital Medicine; the CMS HENs (Hospital Engagement Networks) project; and Project RED (Re-Engineered Discharge) at the Boston Medical Center, funded by the Agency for Healthcare Research and Quality (AHRQ). More and more stories of success are emerging from these and other hospital-run initiatives.

Generating Momentum to Establish a Community Liaison Program

Community liaison programs clearly help reduce hospital readmissions and other types of harm and wasted health care resources associated with preventable adverse drug events. Thus, hospitals should not be tentative in their pursuit of such a program, be it hospital driven or externally driven. Although the new financial penalties associated with readmissions alone may not stimulate all the desired improvements given their relative weight compared to the total hospitals' revenue, media coverage of the issue suggests that the penalties are clearly causing enough distress to command attention. So if you don't currently have a community liaison program, now is an opportune time to garner interest and support from hospital leadership.

How ISMP Can Help

Because patient education about high-alert medications is at the very heart of any community liaison program, ISMP has developed and tested more than a dozen consumer leaflets that offer important safety tips for taking high-alert medications, including warfarin, enoxaparin, fentanyl patches, oral opioids with acetaminophen, oral methotrexate, and various insulins. These leaflets are readily available on the ISMP Web site (www.ismp.org/tools/highalertmedications/) at no cost to use in your hospital to educate patients. The top 10 list of safety tips on the front of each leaflet is intended to help patients detect and prevent medication errors and other adverse drug events. The safety tips were derived from reports of actual adverse events with these medications that were submitted to various national and state reporting programs. For example, one of the safety tips in the warfarin leaflet advises patients who have been told to stop taking warfarin until their next laboratory test to call their doctor if they don't hear anything within 24 hours of the test to find out the next steps. This tip is included because there have been numerous reports involving patients who developed a thrombus because they never resumed taking warfarin after it was on hold until the next international normalized ratio (INR).

Through a grant from AHRQ, ISMP tested the readability, usability, and perceived value of the leaflets. Ninety-four percent of patients felt the leaflets provided great information or good information to know. Ninety-seven percent felt that the information in the leaflets was provided in a way they could understand. Eighty-two percent of patients taking the drug for the first time and 48% of patients who had previously taken the medication reported learning something new. Overall, 85%

of the patients felt that they were less likely to make a mistake with the medication because they had read the leaflet. Pharmacists who handed out the leaflets also reported that they were highly useful in guiding the educational sessions with patients.

Given the very favorable response to the leaflets during the study, ISMP hopes that any health care professional caring for patients who take one of these high-alert medications will download the leaflets from the Web site, use them as a resource when educating patients about the medications, and provide them to patients to read and refer back to as needed.

USP UPDATES HEPARIN LABEL

Until now, heparin vials only needed to be labeled with the strength expressed per mL, unless the product was a single-dose vial. For example, a 10 mL vial of heparin in 5,000 units/mL strength only lists 5,000 units/mL on the label, even though it contains 50,000 units of heparin. The labeling has led to errors in which the per mL strength of heparin has been mistaken as the total amount in the vial, leading to serious overdoses. For example, 10 mL (50,000 units) was given for a 5,000 units dose. The per mL labeling conflicts with the "Strength and Total Volume for Single- and Multiple-Dose Injectable Drug Products" section of *United States Pharmacopeia* (USP) General Chapter <1>. That section requires other drug labels to reflect the strength per total volume as the primary expression, followed closely by the strength per mL in parentheses. ISMP requested the labeling change after receiving numerous error reports. Heparin vials will now be labeled similar to other injectable medications (www.ismp.org/sc?id=136).

INSULIN CONCENTRATION RARELY NEEDED ON ORDERS

A pharmacist received a medication reconciliation form listing insulin for a newly admitted patient (see **Figure 1**). In a column identified on the form as "dosage," someone entered the U-100 strength for *Lantus* (insulin glargine) instead of the dose. At first this looked like an insulin dose of 100 units. However, because "100" is also the product's concentration, it served as a red flag for the pharmacist. He followed up and learned that the patient actually takes 44 units of U-100 *Lantus* each evening. Be suspicious of an insulin dose that is exactly 100 units. Remind others that the U-100 concentration should not be included with typical insulin orders, but the U-500 concentration should be included parenthetically along with doses of U-500 regular insulin.

Lantus	100 unit/mL	Sub-Q	nightly	Continue
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Figure 1. Medication reconciliation form listing insulin for a newly admitted patient.

Another lesson to be gleaned from the example in Figure 1 is that prescribers must take their responsibilities associated with medication reconciliation and admission medication orders seriously. In this case, the prescriber simply circled “Continue” even though the *Lantus* dose was missing, and it is unlikely that the prescriber thought the patient’s dose was actually 100 units.

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