Measuring up to Medication Safety In Hospitals

Matthew Grissinger, RPh, FASCP

Mr. Grissinger is Director of Error Reporting Programs at the Institute for Safe Medication Practices in Horsham, PA (www.ismp.org).

INTRODUCTION

Medications are among the most frequently used interventions to improve patient health. So it should come as no surprise that adverse drug events (ADEs)—injuries caused by the use of medications—are a common cause of preventable harm to hospitalized patients. Gauging the degree of a drug's safety is fundamental to improvements in patient outcomes, yet this task has long been a challenge.

Historically, efforts have focused on increasing the reporting of medication errors by practitioners; at best, this step uncovers just a fraction of the errors, most of which are harmless. Still, measuring drug safety is the only way to answer these essential questions:

- Does a problem exist?
- What is the extent of the problem?
- Have improvement efforts been successful?
- How does one institution's safety record compare with others? in what way?

TYPES OF MEASUREMENTS

Four types of measures should be tracked in order to improve safety:

Process Measures

Process measures are used to aid in assessing how well the staff is performing core processes associated with medication use. Measuring core processes helps to determine whether variations exist in carrying them out (which might lead to undesirable outcomes) and whether avoidable risks are associated with processes (which could result in harm). Although process measures can be identified for all aspects of medication use, high-volume and high-risk processes or processes associated with high-alert medications should be targeted to maximize the safety of patients. A few examples include:

- the number of pharmacy profiles without patient allergy information for new admission orders.
- the percentage of medication orders with "error-prone" abbreviations prohibited by hospitals.
- the percentage of encounters in which two identifiers are not used to verify the patient's identity before a drug is administered.
- the time interval between prescribing and administering "stat" medications
- the number of pharmacy interventions per 100 hospital admissions.
- the percentage of chemotherapy orders that do not comply with standardized prescribing guidelines (e.g., do all chemotherapy orders include the mg/m^2 dose with the calculated dose, or are chemotherapy doses written for each daily dose, not the "total" course dose?)

Structure Measures

Unlike process measures, structure measures are not task-oriented; rather, they are foundational in nature. Structure measures are used to assess an organization's culture, values, and leadership. Examples include:

- the percentage of days on which pre-established nurse-to-patient staffing ratios are maintained.
- the percentage of hospital staff that has fulfilled its requirement with agency (temporary) staff.
- the number of error reports received (the reporting rate helps in measuring the culture).
- the percentage of staff members reporting a positive safety culture in the organization.

Outcome Measures

Outcome measures assess whether efforts to improve medication safety have succeeded. As such, many believe that medication errors are the most useful outcome measure for drug safety. However, harm is a much more reliable and powerful measure, especially if it makes personnel aware of the possibility that all harm is preventable.

If errors are used to measure medication safety, self-reporting is the typical data-gathering tool, which is highly inaccurate. Errors are the obvious focus, and any ADEs that are uncovered are quickly classified as "preventable" or "non-preventable." This classification, in turn, promotes the tacit acceptance of non-preventable harm as an inherent characteristic of the medication system, something for which no one has responsibility.

By contrast, if harm is used as a measure of medication safety, the measure is reliable, clear, and direct, and the focus is on *all* unintended results. This method keeps staff members intellectually engaged with the possibility of reducing all harm to patients, to admit that they can do better, and to raise the bar when it comes to patient safety.

For example, most hospitals collect data on patients who are readmitted. If bleeding episodes associated with warfarin (Coumadin, Bristol-Myers Squibb) result in some of the readmissions, these events might not be fully assessed if the focus is on errors alone. In these cases, an error might not be apparent, so the event would probably be tagged as a non-preventable ADE. But if the focus is only on preventing harm in patients who take warfarin, and not on the error, the hospital staff would be more likely to explore ways to reduce all occurrences of bleeding. Thus, the best outcome measure for medication safety is all ADEs regardless of causation.

Using a list of triggers is the best way to collect data on ADEs. Triggers are clues that an ADE might have occurred,

MEDICATION ERRORS

and a follow-up evaluation is needed to confirm them. Examples include:

- drugs: diphenhydramine (Benadryl, McNeil), vitamin K, flumazenil (Romazicon, Roche), glucagon.
- laboratory findings: elevated drug levels, aPTT, INR, serum creatinine.
- other: rash, lethargy, falls, abrupt stopping of medications, or transfer of the patient to a more critical level of care.

Balancing Measures

Balancing measures can be used to ensure that a change in one part of the system is not causing problems in another part of the system. By using balancing measures, one hospital quickly learned that instituting a change in an antiemetic agent to decrease the time a patient needed to spend in the oncology clinic actually resulted in reduced patient satisfaction because the patients felt rushed and unable to talk to staff about their diagnosis and therapy.

CONCLUSION

Measuring medication safety is not easy, but it must be a core component of improvement efforts. If an effective measurement plan is not in place, an interdisciplinary team should consider the examples listed earlier and identify a place to start. Each measure, its goals, and the data-collection plan should be clearly described.

Remember: traditional efforts to measure medication safety have not succeeded in bringing about improvement in reducing ADEs. Even if a measurement plan is already in place, it might be time to look at it again with fresh eyes and updated tools.

The reports described in this column were received through the ISMP Medication Errors Reporting Program (MERP). Errors, close calls, or hazardous conditions may be reported on the ISMP Web site (www.ismp.org) or communicated directly to ISMP by calling 1-800-FAILSAFE or via e-mail at ismpinfo@ismp.org. ■