Research Article

Towards a More Patient-Centered Approach to Medication Safety

Journal of Patient Experience
2018, Vol. 5(2) 83-87

DOI: 10.1177/2374373517727532
journals.sagepub.com/home/jpx
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Introduction

Maximizing medication safety is a key and increasingly important goal of high-quality health care. One study found that use of prescription medications in older adults increased significantly between 2005 and 2011, including use of high-risk drug classes, increasing the risk of significant drug–drug interactions (1). Most existing descriptions and evaluations of medication safety focus on health-care system-oriented measures including rates of potential interactions, medication discrepancies identified by providers, or readmissions. Although these measures are associated with potential patient harm, they may not align well with patient priorities (2); measures such as patient-reported adverse events or provider errors are frequently not included.

Measuring what matters to patients is important because patient engagement, or having patients take an active role in bringing their knowledge, concerns, perspectives, and agenda to their own health care, can improve the effectiveness of medication safety interventions (3,4). However, although patient-reported measurements of health status (that is, any report of the status of a patient's health condition that comes directly from the patient, without interpretation of the patient's response by a clinician or anyone else) (5) have become more commonly used, medication safety is rarely measured by asking patients directly. A patient-centered approach to evaluating interventions therefore calls for a broader perspective of medication safety that incorporates (1) patient-reported measures, such as medication-related symptoms and burdens and (2) a patient-centered approach to measurement, including addressing long-term issues and those that affect the quality of life.

In this perspective, we focus our discussion on a patient-centered approach to measurement and describe commonly used health system–oriented medication safety measures for evaluating interventions and discuss how they can be reframed to better reflect the patient perspective. We contrast these with newer, more patient-centered measure concepts that have not yet been developed into measures to evaluate interventions for improving medication safety and how these might be better incorporated into medication safety initiatives. Finally, we discuss measures that reflect patient-centeredness in medication safety.

Health-Care System-Oriented Medication Safety Measures and More Patient-Reported Approaches

Medication errors generally are defined as errors of omission (not being prescribed a medication that is indicated by guidelines or not taking a medication that was appropriately prescribed) or commission (being prescribed or taking the wrong medication or dose). Errors may also be conceptualized as appropriateness of prescribing (eg, the Beers Criteria for the elderly), polypharmacy, complexity, or potential or actual medication interactions (6).

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Table 1. Health System–Oriented and Patient-Oriented Medication Safety Measurement Concepts.

Measures	Health-Care System-Centered Source of Data	Patient-Reported Source of Data	Approaches to Increase Patient-Centeredness
Health system–oriented medication safety measures			
Medication discrepancies	Medication lists, as listed in health records (reconciliation by providers)	Patients' own medication records or personal health records	Include patient reporting of importance of adherence to specific medications
Drug–drug interactions	Medical or pharmacy records or computer systems	Patient concerns, including interactions and side effects	Include patient reporting about drug–drug interactions with the risk of adverse events and side effects; notation of patient preferences
Medication errors (commission and omission)	Medical records documentation; provider reporting	Patient reporting of perceived errors; patient reporting of capacity to manage complex regimens	Include patient preferences for medication use, side effects, cost
Appropriateness	Comparison with best practice or guidelines using medical or pharmacy records, such as the Beers Criteria	Patient reporting of health priorities and treatment burden	Include patient reporting of treatment burden and medications patient want to take
Adverse drug events	Medical records (as documented by providers)	Patient reporting of adverse drug events	Include data on preferences, side effects, and long-term adverse effects in records
Nonadherence	Medical or pharmacy records	Patient reporting of medication adherence, including reasons for nonadherence, rationale for medications	Collect and include data on health priorities for patients, including preferences for medications and side effects in records
Patient-centered medication safety measures			
Quality of communication regarding medication management process	Medical record documentation of patient understanding or deficits in knowledge	Patient survey on knowledge about medication risks and comfort with taking medications	Collect and include data on patient preferences in communication with providers (eg, telephone or electronic, language of choice) in records
Engagement	Medical record documentation of providers' perceptions of engagement in their medication safety	Patient survey, patient use of medication safety tools	Ask patients about preferences in their engagement with providers, ask questions and discussing goals of medications
Medication safety-related quality of life	Medical records documentation of issues related to quality of life and medication safety	Patient reporting of relevant quality of life issues	Ask patients about health care and safety goals and medication approaches appropriate for achieving these goals
Patient concerns about safety	Patient concerns about safety documented in the medical record	Patient- and family-reported health-care concerns and priorities in the visit	Collect and report information outside of provider visits, relate information to patient goals
Patient-reported experience	Patient reporting of health-care satisfaction related to medication discharge management in existing hospital surveys	More detailed satisfaction survey with medication safety issues (eg, medication education or reconciliation process)	Include discussion or survey of patient goals, preferences, and medications they are willing to take

Most medication safety measures focus on the health-care system perspective (Table 1). Medication discrepancies are generally assessed through review of medication lists at transitions between settings (eg, hospital discharge and primary care) or comparing such lists to what patients report they are taking. Both adverse drug events and nonadherence are generally documented by providers in medical records or from pharmacy data. However, these measures can all become more patient-centered by using data that are patient-reported and by adapting the measure concepts to better reflect the patient perspective (Table 1). Over the past 3 decades, numerous patient-reported outcome measures have been developed, but they are generally limited to patient health status. Although they are patient reported, these outcomes have generally not been developed with a patient-centered approach (ie, one with the participation of patients to address patient values and priorities). We suggest a bridging of this gap between clinician and patient perspectives. For example, for medication errors, patient-reported data would include patient reports of perceived errors or

concerns about errors or appropriateness; adverse events would include patient-reported significant side effects that impact the quality of life.

Patient-Centered Medication Safety Measure Concepts

For a patient-centered approach, new measurement concepts need to reconceptualize medication safety and incorporate what is of value to patients. Table 1 presents these concepts and information sources that are representative of where the field is headed based on the available literature on patient preferences. For example, for adherence, a patient-reported approach would collect data from patients; a patient-centered approach could potentially collect detailed data on how patients are taking (or want to take) medications in order to best understand potential issues with medication use, including how a patient best understands medication information (eg, written or verbal) and how taking the medication works (or does not work) for the patient (7). This could also include mutual understanding on the rationale for medications, priorities (including patient concerns about polypharmacy), and information on reasons why medications are not being taken consistently or as prescribed (8). Newer patient-centered medication safety measurement concepts could also incorporate patient experience in areas such as the quality of communication regarding medications, patient burden, patient-reported adverse effects, and concerns about adverse effects (including long-term effects); satisfaction with medication-related processes and outcomes; and patient engagement and activation in medication decision-making processes.

Health system centric measures and patient-centered sources of information provide different perspectives that may complement, as well as conflict, with one another. Medication list discrepancies between the patient's electronic health record and what medications the patient has, for example, may present patients with conflicting information about the recommended medication regimen. Health care–centered and patient-centered sources of information provide different perspectives that may complement each other. Patient-reported concerns regarding adverse effects, for example, may explain system-oriented measures like patient nonadherence and enable reconciliation to meet patient goals and improve medication management. Yet not all patient-centered notions may be neatly grafted onto the system-centered approach. For instance, tensions may arise when health system measures and a patient-centered perspective disagree regarding the cost of medication safety-related harms. A patient may have significant concerns about the safety of a medication while a provider assesses that benefits exceed harms or the patient perceives that an error is significant but a provider considers that it was not harmful. Patients and providers would need to communicate about these different perspectives on medication use, efficacy, safety, and quality of life concerns to determine the most appropriate approach.

Measure Concepts That Reflect Patient-Centeredness in Medication Safety

Although patient-centered care has long been recognized as a key quality of care domain (10), measurement programs have only recently started to consider concepts that reflect patient-centered care. Building upon existing patient-centered medication safety measures, we propose concepts that could further reflect patient-centeredness in medication safety. One concept is measurement of patients' perceptions of benefits, risks, and burdens of each medication. Measures reflecting this concept could assess the patient-centeredness of medication lists (9), such as how well the medication list addresses patient goals. Another concept addresses the patient-centeredness of each step of the medication process. This starts with how well discussions occur with the patient regarding his or her health objectives and what the patient values, as well as how clinicians and patients discuss how medications can best achieve patient goals.

The concepts described above have not yet been developed into measures or widely incorporated into the designing or implementation of interventions. Evidence to support the validity of these measures and how best to implement them is not yet established, and enacting approaches may vary significantly among patients. Unlike health-care system-oriented medication safety measurement concepts whose adoption and success are often based on process measures and protocols, the concepts advocated in this perspective focus more on the patient- and family–provider relationships and may vary among patients. Not every patient, for example, will need a discussion regarding goals of medications, if the purpose of the medication is clear. The resources needed to measure these concepts will also differ by patients and providers.

Future Directions

To address these challenges and move toward building an evidence base for these measures and creating a culture of patient-centeredness, we propose 2 key future directions in research and practice to increase patient-centeredness of interventions to improve medication safety: (1) adapting and evaluating existing health-care system-oriented measures to be more patient-centered, such as prioritizing medication discrepancies for what matters to patients, and (2) including patient-centered measures in designing and evaluating medication safety interventions. Both these directions require incorporating patient perspectives into clinical care and research, including acknowledging patient burdens of care and rights to shared decision-making (11). The patient perspective could be solicited on an ad-hoc basis, in conversations that vary by patient circumstances, or collected more systematically through standardized surveys assessing

patient goals and concerns. Adapting and evaluating existing measures of intervention implementation to be more patient-centered could involve adding a patient discussion component to key steps of the medication prescription and counseling process so that patient views are heard, patients understand what medication regimens entail, and patients and providers come to agreement about the treatment plan. Likewise, prioritizing the burden of a medication regimen for a patient and family incorporates patient-centeredness into medication safety while improving the appropriateness of the interventions to patients (12). These issues all require involving patients in future measure development.

Conclusion

Assessing interventions in improving medication safety should include both health system–oriented and patient-reported, and patient-centered measurement concepts. Using such concepts can enhance the impact of intervention evaluations for patients and help design more effective interventions to improve patient benefits (13). This is particularly relevant to medication safety, where interventions need to be meaningful and personalized to patient needs in order to be most effective. Further research should address how to effectively and efficiently measure patient-centered medication safety, including innovative methods for collecting data without significant patient or system burden, and incorporate health system-centered measures to evaluate and improve interventions for patients.

Authors' Note

The content is solely the responsibility of the authors and does not necessarily represent the official views of the Agency for Healthcare Research and Quality.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This article was funded in part by grant R01HS024436 from the Agency for Healthcare Research and Quality and a grant from the Mitre Corporation. Dr Yan Xiao is supported in part by a grant from the Agency for Healthcare Research and Quality (R01HS024436) and Dr Julia M. Kim is supported in part by a grant from the Mitre Corporation.

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