Making Inpatient Medication Reconciliation Patient Centered, Clinically Relevant and Implementable: A Consensus Statement on Key Principles and Necessary First Steps

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Executive Summary: Medication errors and adverse events caused by them are common during and after a hospitalization. The impact of these events on patient welfare and the financial burden, both to the patient and the healthcare system, are significant. In 2005, The Joint Commission put forth medication reconciliation as National Patient Safety Goal (NPSG) No. 8 in an effort to minimize adverse events caused during these types of care transitions. However, the meaningful and systematic implementation of medication reconciliation, as expressed through NPSG No. 8, proved to be extraordinarily difficult for healthcare institutions around the country.

Given the importance of accurate and complete medication reconciliation for patient safety occurring across the continuum of care, the Society of Hospital Medicine convened a stakeholder conference in 2009 to begin to identify and address: (1) barriers to implementation; (2) opportunities to identify best practices surrounding medication reconciliation; (3) the role of partnerships among traditional healthcare sites and nonclinical and other community-based organizations; and (4) metrics for measuring the processes involved in medication reconciliation and their impact on preventing harm to patients. The focus of the conference was oriented toward medication reconciliation for a hospitalized patient population; however, many of the themes and concepts derived would also apply to other care settings. This paper highlights the key domains needing to be addressed and suggests first steps toward doing so.

An overarching principle derived at the conference is that medication reconciliation should not be viewed as an accreditation function. It must, first and foremost, be recognized as an important element of patient safety. From this principle, the participants identified ten key areas requiring further attention in order to move medication reconciliation toward this focus.

1. There is need for a uniformly acceptable and accepted definition of what constitutes a medication and what processes are encompassed by reconciliation. Clarifying these terms is critical to ensuring more uniform impact of medication reconciliation.
2. The varying roles of the multidisciplinary participants in the reconciliation process must be clearly defined. These role definitions should include those of the patient and family/caregiver and must occur locally, taking into account the need for flexibility in design given the varying structures and resources at healthcare sites.
3. Measures of the reconciliation processes must be clinically meaningful (i.e., of defined benefit to the patient) and derived through consultation with stakeholder groups. Those measures to be reported for national benchmarking and accreditation should be limited in number and clinically meaningful.
4. While a comprehensive reconciliation system is needed across the continuum of care, a phased approach to implementation, allowing it to start slowly and be tailored to local organizational structures and work flows, will increase the chances of successful organizational uptake.
5. Developing mechanisms for prospectively and proactively identifying patients at risk for medication-related adverse events and failed reconciliation is needed. Such an alert system would help maintain vigilance toward these patient safety issues and help focus additional resources on high risk patients.
6. Given the diversity in medication reconciliation practices, research aimed at identifying effective processes is important and should be funded with national resources. Funding should include varying sites of care (e.g., urban and rural, academic and nonacademic, etc.).
7. Strategies for medication reconciliation—both successes and key lessons learned from unsuccessful efforts—should be widely disseminated.
8. A personal health record that is integrated and easily transferable between sites of care is needed to facilitate successful medication reconciliation.
9. Partnerships between healthcare organizations and community-based organizations create opportunities to reinforce medication safety principles outside the traditional clinician-patient relationship. Leveraging the influence of these organizations and other social networking platforms may augment population-based understanding of their importance and role in medication safety.
10. Aligning healthcare payment structures with medication safety goals is critical to ensure allocation of adequate resources to design and implement effective medication reconciliation processes.

Medication reconciliation is complex and made more complicated by the disjointed nature of the American healthcare system. Addressing these ten points with an overarching goal of focusing on patient safety rather than accreditation should result in improvements in medication reconciliation and the health of patients. *Journal of Hospital Medicine* 2010;5:477–485. *© 2010 Society of Hospital Medicine.*

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Medication reconciliation is integral to reducing medication errors surrounding hospitalizations.[1,2] The practice of medication reconciliation requires a systematic and comprehensive review of all the medications a patient is currently taking to ensure that medications being added, changed, or discontinued are carefully evaluated with the goal of maintaining an accurate list; that this process is undertaken at every transition along the continuum of care; and that an accurate list of medications is available to the patient or family/caregiver and all providers involved in the patient's care, especially when a care handoff takes place. With regulators, payers and the public increasingly demanding action to reduce medication errors in hospitals, all health care providers must support efforts to achieve accurate medication reconciliation.[1,3]

While conceptually straightforward, implementing medication reconciliation has proved to be very difficult in the

> The Joint Commission's Definition of "Medication"
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> *Any prescription medications, sample medications, herbal remedies, vitamins, nutraceuticals, vaccines, or over-the-counter drugs; diagnostic and contrast agents used on or administered to persons to diagnose, treat, or prevent disease or other abnormal conditions; radioactive medications, respiratory therapy treatments, parenteral nutrition, blood derivatives, and intravenous solutions (plain, with electrolytes and/or drugs); and any product designated by the Food and Drug Administration (FDA) as a drug. This definition of medication does not include enteral nutrition solutions (which are considered food products), oxygen, and other medical gases.*
>
> 2010 Hospital Accreditation Standards,
> The Joint Commission, 2010, p. GL19.

myriad healthcare settings that exist. The disjointed nature of the American health care system and a conglomeration of paper and electronic systems for tracking medications synergize to thwart efforts to maintain an accurate, up-to-date medication list at every step along the care continuum. Although The Joint Commission defines "medication" for the purpose of its accreditation standards (see box), the healthcare community lacks a common understanding or agreement regarding what constitutes a medication. There is also confusion about who should ultimately be responsible for obtaining the patient's medication information, for performing the various steps in the reconciliation process, and for managing the multiple providers who alter the medication list but may not feel competent to perform reconciliation of medications outside their area of expertise safely. Importantly, there is also a lack of clarity around how patients and family/caregivers should be involved in the process.

Despite these challenges, medication reconciliation remains a critical patient safety activity that is supported by the organizations signing this consensus statement, (Table 1). Although medication reconciliation has an impact on medication safety in all care settings, this paper focuses on issues most germane to the continuum of care involving the hospital setting. The themes and issues discussed will likely apply to other care settings as well. In this paper, we also recommend several concrete steps that we believe should be initiated immediately to begin to reach the goal of optimizing the medication safety achievable through effective medication reconciliation.

Background

Medication reconciliation is intended to be a systematic extension of the medication history-taking process that has been used by health care providers for decades. Its recent iteration was developed to ensure that medications were not added, omitted, or changed inadvertently during care transitions. It became codified, refined, and tested over the past decade through the efforts of a number of groups focused on medication safety including the Institute for Healthcare Improvement (IHI) and the Institute for Safe Medication Practices (ISMP). With the reinforcing adoption of medication reconciliation as National Patient Safety Goal (NPSG) No. 8 in 2005 by The Joint Commission, efforts to implement it became widespread in both hospital-based and ambulatory settings.

Medication reconciliation has three steps, as described by IHI[4]:

- Verification (collection of the patient's medication history);
- Clarification (ensuring that the medications and doses are appropriate); and
- Reconciliation (documentation of changes in the orders).

The details of the process vary by setting and by the availability of paper or electronic medical records. However, the essential steps remain the same, as does the need to perform reconciliation each time the patient transfers to a new setting

TABLE 1. Endorsing Organizations

American Academy of Pediatrics
American Association of Critical-Care Nurses
Consumers Advancing Patient Safety
Institute for Healthcare Improvement
Institute for Safe Medication Practices
The Joint Commission
Massachusetts Coalition for Prevention of Medical Errors
Microsoft Corporation
Northwestern Memorial Hospital and Northwestern University School of Medicine
Society of General Internal Medicine
Society of Hospital Medicine
University of California San Diego Medical Center

NOTE: The organizations above have formally endorsed this manuscript.

or level of care. Table 2 lists the most common points at which medication reconciliation occurs in hospitalized patients.

Because of their complexity, organizations must take care to design their medication reconciliation processes systematically. IHI lists elements of a well-designed medication reconciliation process as part of its 5 Million Lives Campaign How-to Guide.[4] Such a process:

- Uses a patient centered approach.
- Makes it easy to complete the process for all involved. Staff members recognize the "what's-in-it-for-me" aspect of the change.
- Minimizes the opportunity for drug interactions and therapeutic duplications by making the patient's list of current medications available when clinicians prescribe new medications.
- Provides the patient with an up-to-date list of medications.
- Ensures that other providers who need to know have information about changes in a patient's medication plan.

Research on how adverse drug events (ADE) occur supports the need for tight control of medication orders at transitions in care. For instance:

- In a study conducted at Mayo Health System in Wisconsin, poor communication of medical information at transition points was responsible for as many as 50% of all medication errors in the hospital and up to 20% of ADEs.[5]
- Variances between the medications patients were taking prior to admission and their admission orders ranged from 30% to 70% in 2 literature reviews.[1,6]
- The largest study of medication reconciliation errors and risk factors at hospital admission documented that 36% of patients had errors in their admission orders.[7]

When The Joint Commission adopted medication reconciliation as NPSG No. 8 in 2005 it had 2 parts: Requirement 8A—a process must exist for comparing the patient's current medications with those ordered for the patient while under the care of the organization; and requirement 8B—a complete list of the patient's medications must be

TABLE 2. Common Inpatient Transitions of Care Requiring Medication Reconciliation

Admission: When clinicians reconcile the patient's medications taken at home or at a prior care setting with any new prescription orders to be prescribed by an admitting clinician.

Transfer (intra- or inter-facility; with change of clinician or site of care): When clinicians review previous medication orders in light of the patient's clinical status, along with new orders or plans of care.

Discharge: When clinicians review all medications the patient was taking prior to being hospitalized, incorporating new prescriptions from the hospitalization and determining whether any medication should be added, discontinued, or modified while being mindful of therapeutic interchanges needed for formulary purposes.

TABLE 3. Represented Organizations

AACN American Association of Critical Care Nurses
AAFP American Academy of Family Physicians
AAP American Academy of Pediatrics
ACEP American College of Emergency Physicians
ACP American College of Physicians
AMA American Medical Association
AMSN Academy of Medical Surgical Nurses
ASHP American Society of Health-System Pharmacists
ASHP Foundation American Society of Health-System Pharmacists Foundation
CAPS Consumers Advancing Patient Safety
CMS Centers for Medicare and Medicaid Services
CMSA Case Management Society of America
HCI Hospitalist Consultants, Inc
IHI Institute for Healthcare Improvement
InCompass Health
ISMP Institute For Safe Medication Practice
JCR Joint Commission Resources
Massachusetts Coalition for Prevention of Medical Errors
Microsoft Corporation
Northwestern Memorial Hospital MATCH Program
NQF National Quality Forum
SGIM Society of General Internal Medicine
SHM Society of Hospital Medicine
The Joint Commission
UCSD Hospital Medicine
University of Oklahoma College of Pharmacy – Tulsa

communicated to the next provider of service on transfer within or outside the organization and a complete list of medications must be provided to the patient on discharge.[8]

However, many hospitals found it difficult to implement medication reconciliation in a systematic way. There was also confusion among hospital staff and administration about the exact definition of medication reconciliation in terms of what it should entail.[9] Given these difficulties, The Joint Commission announced that effective January 1, 2009, medication reconciliation would no longer be factored into an organization's accreditation decision or be considered for "Requirements for Improvement." Additionally, The Joint Commission stated it is reviewing and revising the NPSG so that it will be ready to be released in January 2011 for implementation later that year.[10]

Recognizing the difficulty hospitals were having with meaningfully implementing medication reconciliation, the Society of Hospital Medicine convened a 1-day conference on March 6, 2009, to obtain input from key stakeholders and focus on several critical domains relevant to the success of hospital-based medication reconciliation. The Agency for Healthcare Research and Quality provided funding support for this conference through grant 1R13HS017520-01.

An overarching theme emerged from the meeting: the need to *reorient the focus of medication reconciliation away from that of an accreditation mandate and toward a broader view of patient safety.* Forcing medication reconciliation via a requirement for accreditation tended to limit an organization's efforts to specific process measures. Addressing it as a more global patient safety issue takes into account the entire patient care experience and then opens the door to leverage nonclinical venues (e.g., medical home, family home, community, religious, and other social organizations, as well as social networking platforms) and engage the patient and family/caregivers to reinforce the importance of medication safety.

This white paper evolved from discussions at the March 2009 conference,[11] and subsequent structured communication among attendees. Formal endorsement of this document was obtained from the organizations listed in Table 1. In this document, we explore several key issues in implementing clinically meaningful and patient-centered medica-

tion reconciliation. We focus on building common language and understanding of the processes of and participants in medication reconciliation; consider issues of implementation and risk stratification; emphasize the need for research to identify best practices and discusses how to disseminate the findings; promote health information technology platforms that will support interoperable medication information exchange; support the formation of partnerships between patient care sites and nonclinical sites as well as utilizing social marketing opportunities to enhance opportunities for transmitting messages about medication safety; and reinforce the ongoing healthcare reform discussion which aims to align financial incentives with patient safety efforts. After each section, we offer concrete first steps to address the issues discussed.

Methods

The invitation-only meeting held on the Northwestern Medical Campus in Chicago, IL, brought together stakeholders representing professional, clinical, health care quality, consumer, and regulatory organizations (Table 3). The conference convened these participants with the goals of identifying barriers to meaningful implementation of medication reconciliation and developing a feasible plan toward its effective implementation in the hospital setting. At the meeting, all participants were divided into 1 of 4 groups, which held a facilitated discussion around 1 of 4 key relevant domains: (1) how to measure success in medication reconciliation; (2) key elements of successful strategies; (3)

leveraging partnerships outside the hospital setting to support medication reconciliation; and (4) the roles of the patient and family/caregivers and health literacy. Individual group discussions were cofacilitated by experts in the content area. After each discussion, the small group then rotated to a different discussion. Ultimately, each group participated in all four discussions, which built iteratively on the content derived from the prior groups' insights. Key comments were then shared with the large group for further discussion. To help build consensus, these large group discussions were directed by professional facilitators.

After the meeting, attendees participated in 2 follow-up conference calls to discuss issues raised at the conference and responses obtained from host organizations. They also subsequently participated in two focus groups with The Joint Commission, giving input on the revision of the medication reconciliation NPSG.

Results

Addressing Barriers to Medication Reconciliation

In order to implement successful medication reconciliation processes, one must build the steps with the patient and family/caregiver as the focus and demonstrate an understanding of the intent of these processes. At its roots, medication reconciliation was developed to ensure that clinicians do not inadvertently add, change, or omit medications and that changes made are communicated to all relevant caregivers.

A number of key issues with respect to successful medication reconciliation processes surfaced in discussions with stakeholders. We believe addressing these issues is necessary before meaningful and standardized implementation can be achieved. After each discussion below, we provide suggested first steps to address these issues.

1. Achieve Consensus on the Definition of ''Medication'' and ''Reconciliation''

Despite proposed definitions of these terms by various organizations, there was little agreement about them in the healthcare community. This ambiguity contributed to general confusion about what actually constitutes medication reconciliation. There needs to be a single, clear, and broadly accepted definition of what constitutes a medication. For the purposes of medication reconciliation, the term "medication" should be broadly inclusive of substances that may have an impact on the patient's care and treatments as well as those substances that may interact with other therapies potentially used during the medical care episode. Illicit or recreational substances may also have impact on therapies considered and therefore may influence this definition.[12] Concretely, this definition should encompass prescription and over-the-counter medications as well as herbal and dietary supplements.

The term "reconciliation" in its simplest form implies the process of verifying that a patient's current list of medications (including dose, route, and frequency) are correct and that the medications are currently medically necessary and safe. Reconciliation suggests a process which, by necessity, will vary based on clinical context and setting. Further defining this term—and the process of reconciliation itself—should be carried out using patient safety principles with a focus on patient- and family-centeredness.

Designing hospital-based medication reconciliation processes should:

- Employ a multidisciplinary approach that involves nurses, pharmacists, and other appropriate personnel from the inpatient setting as well as ambulatory and community/retail areas, both ambulatory and inpatient physicians, and a patient/family representative;
- Involve hospital leaders who support, provide guidance, and remove barriers for the multidisciplinary team working to implement the processes;
- Clearly define the roles of each participant in the processes developed;
- Include methods to assess and address any special needs due to the developmental stage, age, dependency, language or literacy levels of patients and their family/caregiver;
- Use clinically relevant process measures (e.g., adherence to procedural steps) and outcome measures (e.g., change in the number of ADEs, unnecessary hospitalizations, or emergency department visits) where appropriate to assess the impact of the process;
- Include feedback systems to allow for clinically significant process improvement.

Once a common understanding of the terms and intent of medication reconciliation is achieved, it will be important for accrediting organizations, medical societies, quality improvement organizations, and other interested parties to adopt the same language.

First Step

A consortium of clinical, quality, and regulatory stakeholders should work to achieve consensus on the definition for "medication" and the intent and expectations for the reconciliation process.

2. Clarify Roles and Responsibilities

Given the differences in organizational and practice structures in hospitals and the varying numbers of health professionals involved in a patient's care, no one process design will meet the needs of all sites. As it is clear that interdisciplinary teams are best suited to develop, implement, and carry out complex patient-centered processes like medication reconciliation, it is crucial that all involved parties have clearly defined roles and responsibilities, including patients and their families/caregivers. It is also important to recognize that these responsibilities may change depending on

the dependency or vulnerability of the patient (e.g., children or geriatric patients) or the transition of care being undertaken by the patient (i.e., admission, transfer, or discharge), thus requiring sites to develop clear policies about these roles and responsibilities and how they may change in various situations.

First Step
Individual sites must clearly define the roles and responsibilities of all parties directly involved in medication reconciliation as a part of designing local medication reconciliation processes.

3. Develop Measurement Tools
Ensuring that medication reconciliation processes result in clinically meaningful outcomes requires the development and standardization of a limited number of metrics that may be used by organizations and reported centrally for benchmarking. This core set of measures should be developed by clinical, quality, accreditation, and regulatory organizations (see #10 below) through a consensus building process utilizing multi-stakeholder input. The set should be supplemented by additional site-specific measures determined locally that focus on steps in the process itself and allow sites to perform continuous quality improvement. Sites should be encouraged to develop tools locally to support and facilitate organizational and professional adherence to medication reconciliation processes.

First Steps
Clinical, quality, accreditation, and regulatory organizations should develop reliable metrics to be assessed and reported.

The principles of patient-centeredness and family/caregiver-centeredness, the medical home, and clinical relevance must be central to the metrics chosen for quality and regulatory purposes.

4. Phased Implementation
Ultimately, comprehensive medication reconciliation processes need to be implemented in hospitals. However, to succeed in integrating complex processes like medication reconciliation into routine hospital practices, implementation may be facilitated by using a phased approach to allow for participants to adapt new processes and procedures to the local environment iteratively. While the most appropriate phased approach to implementation will vary by site and setting, options for phasing might include:

- Starting with one clinical area or service.
- Starting with either the admission or discharge reconciliation process.
- Starting with a patient population at high risk for adverse events.
- Starting with a focus on high-risk medications.[13,14]

Irrespective of the phasing strategy employed, development of a clear and pragmatic schedule for the entire imple-

mentation process should be established. Phasing decisions should be made based on organizational resources and the clinical needs of the patient population within each clinical setting. As noted, the ultimate goal is to develop comprehensive reconciliation processes occurring during all significant care transitions (i.e., admission, service or site-of-care transfers, and discharge) for all hospitalized patients and involving all of their medications. Flexibility in design should be encouraged to ensure the processes can work within local workflow as long as progress toward this primary goal is made.

First Steps
Clinical sites should establish local, pragmatic priorities for a phased approach to implementation.

Tie the phased approach to a timeline or blueprint for programmatic expansion with ultimate plans for comprehensive implementation.

5. Develop Risk Stratification Systems
Medication-related adverse events related to inadequate reconciliation are more likely to occur in hospitalized patients with certain identifiable risk factors. For example, the MATCH study documented that polypharmacy and age over 65 years were independently associated with increased risk for errors at the time of hospital admission.[7] Other factors that may increase the likelihood of medication-related adverse events at care transitions in the hospital might include: patients with multiple providers, developmental/cognitive impairment, dependency/vulnerability, multiple or high-risk medications, or poor health literacy or limited English proficiency. Research is needed to elucidate these risk factors further.

An "alert system" for key risk factors for complications related to incompletely, inappropriately, or inaccurately completed medication reconciliation due to patient, clinician, or system factors should be developed, tested, and broadly implemented. Additionally, an alert system would help maintain vigilance toward this patient safety issue and, potentially, help focus additional resources on high-risk patients. Such a tool has been tested in ambulatory settings.[15]

First Step
Additional research on inpatient predictors of failed medication reconciliation and ADE should be prioritized (see #6 below).

6. Study Interventions and Processes
Despite having been an NPSG since 2005, there is still a relative paucity of literature about broadly applicable and effective implementation strategies and demonstrated interventions that improve medication safety related to medication reconciliation. Some strategies that have shown to reduce medication errors at transitions include the involvement of pharmacist medication review on discharge[16,17] and

the usefulness of planning by multidisciplinary groups.[18] Other studies have outlined the continuing barriers to successful implementation of reconciliation, including the difficulty patients have in accurately recalling their current medications[19] and the high cost in nurse and pharmacist time of tracking down a patient's ongoing prescriptions.[20,21] Studies evaluating potential solutions to overcome these and other common barriers are still needed.

Future research should focus on a comprehensive review of implementation strategies, (specifically including the role of health information technology-based innovations) clinically relevant outcomes, and best practices, while being sensitive to the different needs of varying care settings (e.g., pediatric vs. adult centers, emergency departments vs. inpatient units, community hospital vs. academic medical center, etc.) as well as the resource requirements engendered in the interventions.

First Step

Funding agencies should explicitly prioritize outcomes-focused medication reconciliation-related projects (e.g., those which demonstrate a reduction in postdischarge ADE or reduced medication-related emergency department visits). Previously identified successful strategies should be further investigated. Funded projects should explicitly partner with patients and family/caregivers and also include pediatric and adult patients, rural and urban locations of care, as well as academic and nonacademic hospital settings, to promote more broadly applicable results.

7. Disseminate Success

Best practices and lessons learned, especially those rigorously tested and driven by data, stratified by patient type, care setting (emergency department, intensive care, surgical ward, etc.) and institutional type (community, teaching, safety net, critical access, etc.) need to be disseminated so others can adopt and adapt them effectively. High-quality case studies with clear explanations of successes, failures, and lessons learned may prove valuable sources of information. This knowledge should foster a learning community approach and accelerate implementation at new sites.

First Step

Hospitals, healthcare systems, as well as quality and regulatory agencies should develop mechanisms within reporting systems to track performance, identify notably successful sites, and publicly report and share methods and lessons learned from them.

8. Promote the Personal Health Record

A fully integrated and transferable personal health record should be accepted as the standard for health information storage and interoperability, giving both the patient (or family/caregiver) and clinical providers access and ownership. Both the HL7 Continuity of Care Document (CCD) and the Continuity of Care Record (CCR) meet these criteria. The CCR was endorsed by the American Society for Testing and Materials[22] and a coalition of other medical societies.[23] Notably, CCR and CCD were recently adopted as standards for structured electronic health record (EHR) exchange through the July 2010 publication of the Final Rule of the Health Information Technology for Economic and Clinical Health Act provision of the American Recovery and Reinvestment Act of 2009 (ARRA/HITECH) and is now part of the formal US Department of Health and Human Services certification criteria for EHR technologies.[24]

Mandating a content exchange standard such as the CCR or the CCD should also have the desired effect of ensuring that patients (and their caregivers) become increasingly involved in maintaining an accurate list of the medications they take. Additionally, systems must be sufficiently flexible to address the unique medication management needs of children and geriatric patients. An electronic version of a personal health record is a promising method for improving consistency across care platforms, but to be implemented effectively the record must be compatible across all settings, including, where possible, the patient's home. All health care organizations, pharmacy systems, and insurers, must make medication reconciliation-related interoperability and accessibility a priority as they pursue information technology strategies.

First Step

Stakeholder organizations must send a clear and convincing message to legislators under the current atmosphere of health care reform, urging them to mandate that health information technology standards include interoperability and support platforms that are consistent with standards put forth in the 2009 HITECH Act Interim Final Rule for EHR certification.

9. Promote Partnerships

At a broader health care system level, leveraging existing partnerships and creating new ones among health care, public/private sector-affiliated organizations (e.g., community and mail order pharmacies, pharmaceutical organizations and manufacturers, and insurers), and public health organizations are extremely important mechanisms for broader scale impact. This view recognizes the numerous opportunities to educate and influence patients about medication safety outside the dyadic relationship of the clinician and patient in traditional clinical settings. Partnerships between health care and public entities may capitalize on these opportunities to foster adoption of healthy medication practices (e.g., maintaining an accurate and updated medication list), thereby supporting medication reconciliation efforts when individuals encounter health care settings. Partnership and information sharing could be enhanced through the use of a central coordinating body or coalition. This body could

generate a shared common vision and contribute expertise to the myriad issues in medication reconciliation.

Partnerships should utilize the following:

- Social marketing techniques to engage the community. Included within this strategy must be a clear and compelling message that transmits the importance of safe medication practices. Current messages such as "keep a list" while important, do not offer enough of a sense of urgency or importance. A more powerful message could involve highly publicized medication errors or close calls that would resonate with a broad audience.
- Local and national champions. Such individuals should be trusted for their health knowledge (e.g., television health care reporters) or be prominent, influential, and trusted figures in other circles (e.g., clergy, politicians, movie celebrities). Indeed, taking advantage of popular media by weaving a theme into a movie or television program about medication safety may prove effective.

Relevant partnerships would include:

- Quality organizations partnering with other stakeholders to establish unambiguous and unified medication reconciliation standards across the care continuum.
- Health systems partnering with community pharmacy providers to ensure an uninterrupted communication link in both the inpatient and outpatient settings.
- Manufacturers and distributors of medications partnering with health care and public health organizations, the media, insurers and other constituents to promote the importance of maintaining and sharing an accurate list of medications.
- Public health systems partnering with community-based organizations to encourage and promote the established standards for medication safety through messaging and educational campaigns.

All partnerships must consider issues of patient language and literacy as well as the needs of vulnerable populations in the scope of their activities.

First Step

Public health agencies should partner with health care quality organizations and others to begin a national public campaign to increase the awareness of medication safety (the broader public health concept under which medication reconciliation would fall) and support the importance of the patient's role in maintaining an updated medication list at all times.

10. Align Financial Incentives With Newly Developed Regulatory and Accreditation Requirements

Implementing and performing medication reconciliation takes time, particularly at the outset of a new program. Time requirements and associated costs are major barriers to undertaking comprehensive medication reconciliation,

despite its recognized importance for reducing avoidable injury to patients. At present, systems that impede efficiency and slow hospital throughput may be discouraged due to their potential for having an adverse impact on access, finances, and other aspects of care delivery. Moreover, the changed economic climate with reduced hospital fiscal margins limits resources for new initiatives. Currently, failed medication reconciliation—and the related avoidable adverse events, culminating in readmission to the hospital or emergency department—yields additional revenue for hospitals and other providers in some reimbursement models.

Alignment of financial incentives that ensured adequate time and resources for appropriate medication reconciliation processes would facilitate implementation. Additionally, start-up funding to create and implement these processes needs to be made available.

One example illustrating efforts to align payment policy with medication safety efforts occurred when the Office of the National Coordinator (ONC), in publishing its Final Rule under the 2009 HITECH Act,[24] endorsed the importance of financially supporting proper medication reconciliation, particularly at first encounter and transitions in care, by requiring EHR systems seeking certification under the rule to support the care team in the task of reconciliation. For example, vendors will have to support the ability to compare 2 or more medication lists electronically, create medication lists, drug allergy lists, perform drug formulary look-ups, drug-drug and drug-allergy checks, and support creating patient summaries after each visit or post discharge that include medication lists. The ONC, in defining "Meaningful Use" for eligible health care organizations, included in that definition the goal of exchanging meaningful clinical information among the professional health care teams. This goal is demonstrated through organizations reporting that they performed medication reconciliation for at least 50% of transitions of care in which the patient is transitioned into the care of the eligible professional or admitted to the eligible hospital's or Critical Access Hospital's inpatient or emergency department. Organizations able to demonstrate this level of compliance, along with other Meaningful Use requirements, will be eligible to receive stimulus funds through 2015 and avoid financial penalties that begin after that period.

First Step

Future health care reform must address the misalignment of financial policies and structures, and provide financial incentives to support the development and implementation of better medication management systems and prevent avoidable rehospitalizations and emergency department visits resulting from medication-related adverse events.

Conclusion

Medication reconciliation involves highly complex processes and is hampered by the disjointed nature of the American health care system. It is, however, a vital part of reducing

ADE. If employed more broadly, it has the added benefits of enhancing communication among all providers of care and engaging patients and families/caregivers more consistently and meaningfully in their overall care.

Despite the difficulty of maintaining an accurate medication record in real time across disparate settings, reconciliation is a goal to which our organizations are committed. Given the wide range of healthcare organizations involved in providing medications to patients and the many agencies evaluating those efforts, we believed it would be helpful to provide an overarching set of goals to move medication reconciliation forward.

Our main message is this: "Patient safety and patient/family-centered care must be the principal drivers in the development and implementation of medication reconciliation systems." Ultimately this process is about ensuring that patients are receiving the most appropriate medications no matter where they are treated. With this document, we hope to bring to light the importance of creating and implementing a medication reconciliation program, addressing some barriers to success, and identifying potential solutions that will ensure utility and sustainability of this critical patient safety issue.

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