Massachusetts Coalition for the Prevention of Medical Errors

MHA Massachusetts Hospital Association

Reconciling Medications

Safe Practice Recommendations and Implementation Tools

Reconciling medications is a process designed to prevent medication errors at patient transition points. It is a three-step process entailing 1) creating the most complete and accurate list possible of all home medications for each patient, 2) using that list when writing medication orders, and 3) comparing the list against the physician's admission, transfer, and/or discharge orders, identifying and bringing any discrepancies to the attention of the physician and, if appropriate, making changes to the orders. Any resulting changes in orders are documented.

Medication errors that can be prevented by adopting the reconciling process include inadvertent omission of needed home medications, failure to restart home medications following transfer and discharge, duplicate therapy at discharge (the result of brand/generic combinations or formulary substitutions), as well as errors associated with orders with incorrect doses or dosage forms.

Massachusetts hospitals have collaborated in a statewide patient safety initiative to reduce medication errors by having hospitals throughout the state adopt safety practices to reconcile medications. This topic was selected by a multi-stakeholder advisory group convened by the Massachusetts Coalition for the Prevention of Medical Errors and the Massachusetts Hospital Association in March 2002. The topic resonated with caregivers, addressing medication safety issues they recognized as significant hazards encountered in everyday practice, and tangible evidence of reduced interface errors at several institutions implementing effective safety practices. Solutions required addressing fundamental issues of communication and teamwork at the interfaces of care.

Need: Medication errors are one of the leading causes of injury to hospital patients, and chart reviews reveal that over half of all hospital medication errors occur at the interfaces of care [Rozich, Resar 2001]. Variances between the medications patients were taking prior to admission and their admission orders ranged from 30-70% in two recent literature reviews [Cornish 2005; Gleason 2004]. Inadvertent omission of a home medication the most common discrepancy cited, and many of the variances were linked with potentially serious harm to patients. Similarly, the vulnerability of patients post-discharge is highlighted by data indicating that over 12% of patients experience an adverse drug event (ADE) within 2 weeks of discharge [Forster 2003].

Potential for impact: The reconciling process has been demonstrated to be a powerful strategy to reduce these errors: *A series of interventions, introduced over a seven month period, successfully decreased the rate of medication errors by 70% and reduced adverse drug events by over 15%* [Rozich, Resar 2004, 2001]. In another study, the utilization of

pharmacy technicians to initiate the reconciling process by obtaining medication histories for the scheduled surgical population reduced potential adverse drug events by 80% within three months of implementation [Michels, Meisel 2003]. Several other case studies on the effectiveness of the reconciling process are also available. [see Pronovost 2003; Whittington J, Cohen H 2004]

A successful reconciling process also reduces work and re-work associated with the management of medication orders. After implementation, nursing time at admission was reduced by over 20 minutes per patient. Establishing a systematic approach to reconciling and then carrying it through the hospitalization also reduced pharmacist time at discharge by over 40 minutes [Rozich, Resar 2001].

Safe Practice Recommendations: The Coalition convened a Consensus Group to identify a set of safe practice recommendations and accompanying implementation strategies for reconciling medications. This multi-disciplinary group was led by Clark Fenn, Vice President of Management Services at Holyoke Hospital and Frank Federico from the Risk Management Foundation, supported by Gina Rogers from the Coalition. It included representation from physicians, nursing, pharmacy, and patient safety and quality departments from a cross-section of hospitals across the state, and benefited especially from the input of front-line caregivers.

The Consensus Group reviewed the literature and also implementation reports from hospitals with experience adopting the reconciling practices as a component to their medication safety initiatives, and identified a set of safe practices for reconciling medications that had been shown to promote patient safety. The practices include adopting a standardized form for reconciling and placing that form in a consistent, highly visible location within the patient chart; assigning responsibility for resolving variances in medication orders to someone with sufficient expertise; identifying timeframes for completing the reconciling process; improving access to complete medication lists at admission; and other recommendations addressing supporting policies and infrastructure.

The original recommendations were released in November, 2002 and the Coalition then convened a statewide **Reconciling Medications Collaborative** to promote their adoption. Hospitals working on the project met together four times (April and September 2003 and January and October 2004). Using rapid-cycle improvement strategies, participating teams tested implementation strategies, used common measures to monitor their progress, and shared successful strategies and lessons learned in team reports at the Collaborative meetings and over a list serve. Learnings from the Collaborative, as derived from the reports of participating teams and from an evaluation survey, were then used to refine the original safe practice recommendations.

Implementation Tools: A set of supporting materials was also collected to promote implementation of the safe practices. This includes sample reconciling forms, policies, staff education materials, examples of successful implementation strategies, implementation worksheets, guidelines for getting started, and references. In addition, a set of measurement protocols and accompanying excel spreadsheets for collecting data and generating graphs of the core evaluation measure – Percent Medications Unreconciled -- has been made available.

Reconciling Medications: Selected Reference Articles

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