Medication Reconciliation and MARQUIS Implementation: A Hospital and Care Transition Coalition Improvement Experience

Jeffrey L. Schnipper, MD, MPH, FHM, MARQUIS Principal Investigator
Laura Coryat, HealthAlliance of the Hudson Valley
Tinesha Schell, HealthAlliance of the Hudson Valley
Anne Myrka, IPRO, NYS Quality Improvement Organization

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#27FORUM

From Med Wreck to Med Rec: Results, Lessons Learned, and Implications from the Multi-Center Medication Reconciliation Quality Improvement Study (MARQUIS)

Jeffrey L. Schnipper, MD, MPH, FHM
Director of Clinical Research, BWH Hospitalist Service
Associate Physician, Division of General Medicine, Brigham and Women’s Hospital
Associate Professor, Harvard Medical School
Introduction

• Medication discrepancies are very common and can contribute to patient harm

• Discrepancies can be reduced by medication reconciliation, but effective implementation is challenging

• The goals of the Multi-Center Medication Reconciliation Quality Improvement Study (MARQUIS)
  – Operationalize best practices for inpatient medication reconciliation
  – Test their effect on potentially harmful medication discrepancies

MARQUIS Study Aims

1. Develop a toolkit of best practices for med reconciliation
2. Conduct a multi-site mentored quality improvement (QI) study
3. Assess effects of QI interventions on unintentional medication discrepancies with potential for patient harm
4. Conduct rigorous program evaluation to determine
   a. Most effective components of a med rec program
   b. How best to implement them
Medication Reconciliation

“A process of identifying the most accurate list of all medications a patient is taking… and using this list to provide correct medications for patients anywhere within the health system.”


What Does Med Rec Involve?

1. Taking a “Best Possible Medication History” (BPMH)
2. Writing orders based on medication history
3. Comparing regimens across transitions (e.g., preadmission, current inpatient, discharge)
4. Updating lists and orders as more information becomes available
5. Identifying and correcting discrepancies
6. Communicating with patient re: how new regimen is different from the old regimen (new, changed, stopped)
7. Communicating with next provider/site of care
<table>
<thead>
<tr>
<th></th>
<th>PHARMACIST</th>
<th>IT-RELATED</th>
<th>OTHER</th>
</tr>
</thead>
<tbody>
<tr>
<td>↓ Medication Discrepancies</td>
<td>10/10</td>
<td>3/3</td>
<td>4/4</td>
</tr>
<tr>
<td>↓ Potential Adverse Drug Events (PADE)</td>
<td>2/3</td>
<td>1/1</td>
<td>2/2</td>
</tr>
<tr>
<td>↓ Preventable Adverse Drug Events (ADE)</td>
<td>1/2</td>
<td>1/1</td>
<td>---</td>
</tr>
<tr>
<td>↓ Healthcare Utilization</td>
<td>2/7</td>
<td>0/1</td>
<td>---</td>
</tr>
</tbody>
</table>

Successful programs:
- Intensive pharmacy staff involvement
- Focus on high risk subset of patients

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**MARQUIS Intervention Components**

- **Medication Reconciliation Bundle**
  - “Best Possible Medication History”
  - Reconciliation at discharge
  - Patient counseling
  - Forwarding information to next provider

- **Risk Assessment**
  - Intense vs. Standard Bundle depending on patient risk

- **Training providers in taking a BPMH and in performing discharge counseling**

- **Improving access to preadmission medication sources**
  - Encouraging patient-owned medication lists
  - Facilitating access to other medication sources (e.g., pharmacies)

- **Other high-risk, high-reward interventions**
  - Implementing and improving HIT
  - Utilizing social marketing
  - Engaging community resources
MARQUIS Toolkit

A compilation of the “best practices” around medication reconciliation, with resources to support deployment of the intervention components

- MARQUIS Implementation Manual
- Best Possible Medication History (BPMH) Pocket Cards
- Taking a Good Medication History Video
- Good Discharge Counseling Video
- ROI Calculator

*All available for download at www.hospitalmedicine.org/marquis

MARQUIS Implementation Manual

- Summarizes best practices in medication reconciliation
- Many great tools and examples!
- Intended to be adapted for local use
- Explains QI fundamentals and how they can be applied to medication reconciliation efforts
BPMH Tri-Fold Pocket Cards

- Provides a step by step guide for eliciting the best possible medication history from your patient
- Provides prompts for clinicians to use while efficiently conducting patient interviews

Probing Questions:
- Ask about medications.
- Ask about pain medications.
- Ask about non-prescription medications (e.g., herbal, OTC, vitamins).
- What medications do you take on a regular basis?
- What do you take for your pain?
- Do you take any prescription medications that are not on your list?
- Do you take any over-the-counter medications?
- Do you take any herbal or alternative remedies?
- Do you take any vitamins or supplements?
- Are there any medications that you take for your allergies?
- Do you take any medications for your high blood pressure?
- Do you take any medications for your diabetes?
- Do you take any medications for your arthritis?
- Do you take any medications for your cholesterol?
- Do you take any medications for your asthma?
- Do you take any medications for your anxiety?
- Do you take any medications for your depression?
- Do you take any medications for your insomnia?
- Do you take any medications for your headaches?
- Do you take any medications for your pain?
- Do you take any medications for your constipation?
- Do you take any medications for your diarrhea?
- Do you take any medications for your cough?
- Do you take any medications for your colds?
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- Do you take any medications for your asthma?
Mentored Implementation

• Each site
  – Local champion / mentee
  – QI team

• Mentor
  – Physician with QI and medication safety experience

• Monthly calls together
• 2 mentor site visits
• Support from SHM headquarters
Unintentional medication discrepancies with potential for causing harm (potential ADEs)

- Study Pharmacist takes “Gold Standard” medication history using all available sources
- Pharmacist compares it to physician preadmission medication list, admission orders, and discharge orders
- If discrepancy with admission or discharge orders:
  - Determines if intentional or not based on medical record +/- clinician interview
- Report generated, presented to blinded physician adjudicator
  - Final decision on discrepancies, potential for harm, potential severity
Analyses

- Controlled pre-post analysis by site
  - 6-month baseline, up to 25 months intervention
- Interrupted time-series (multivariable Poisson regression)
  - Sudden improvement and/or change in temporal trend after intervention started
  - Adjusted for baseline temporal trends and baseline differences between intervention and any control units
  - Adjusted for patient factors, clustered by site
  - Multiple imputation to account for missing data

Analysis

- Component analysis
  - Restricted to post-intervention period, intervention units
  - All QI activities conducted by any site categorized by component, including dates of implementation
  - Poisson regression: sudden changes in outcomes temporally associated with each implementation of each intervention component across all sites
  - Adjusted for patient factors and site
### Potentially Harmful Discrepancies

<table>
<thead>
<tr>
<th>Potentially harmful discrepancies</th>
<th>Control floors</th>
<th>Intervention floors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-Intervention</td>
<td>Post-Intervention</td>
</tr>
<tr>
<td>N=310</td>
<td>N=243</td>
<td>N=303</td>
</tr>
<tr>
<td>Site 1</td>
<td>0.50</td>
<td>0.95</td>
</tr>
<tr>
<td>Site 2</td>
<td>0.98</td>
<td>1.32</td>
</tr>
<tr>
<td>Site 3</td>
<td>0.17</td>
<td>0.23</td>
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<tr>
<td>Site 4</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Site 5</td>
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<td>n/a</td>
</tr>
<tr>
<td>All sites</td>
<td>0.64</td>
<td>0.81</td>
</tr>
<tr>
<td>All sites except Site 4</td>
<td>0.64</td>
<td>0.81</td>
</tr>
</tbody>
</table>

What happened to Site 4?

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### Site 4

**EMR Results in Marked Increase in Medication Discrepancies**

- Start of MARQUIS
- New Electronic Medical Record

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**Potentially Harmful Discrepancies Diagram**

- Control Patients
- Intervention Patients
### Interrupted Time Series Analysis: Total Discrepancies

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Adjusted Incidence Rate Ratio (95% CI)*</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline temporal trend in control units</td>
<td>0.99 (0.99 to 0.99)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Sudden improvement in control units when start intervention</td>
<td>1.07 (0.77 to 1.49)</td>
<td>0.68</td>
</tr>
<tr>
<td>Change in temporal trend in control units when start intervention</td>
<td>1.01 (0.99 to 1.03)</td>
<td>0.39</td>
</tr>
<tr>
<td>Baseline difference between intervention and control units</td>
<td>1.56 (1.28 to 1.91)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Difference in baseline temporal trend between control and intervention units</td>
<td>1.08 (1.02 to 1.14)</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Adjusted for patient age, service, insurance, marital status, number of prior admissions, number of high-risk medications, Elixhauser comorbidity score, DRG weight, median income by zip code, and season; clustered by site, with number of meds as model offset.
Interrupted Time Series Analysis: Total Discrepancies

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<thead>
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<tr>
<td>Difference in baseline temporal trend between control and intervention units</td>
<td>1.08 (1.02 to 1.14)</td>
<td>0.01</td>
</tr>
<tr>
<td>Difference in sudden improvement between control and intervention units when intervention starts</td>
<td>0.84 (0.56 to 1.28)</td>
<td>0.42</td>
</tr>
<tr>
<td>Difference in temporal trend in intervention units over baseline and over change in control units when start intervention</td>
<td>0.92 (0.87 to 0.97)</td>
<td>0.002</td>
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</tbody>
</table>

Adjusted for patient age, service, insurance, marital status, number of prior admissions, number of high-risk medications, Elixhauser comorbidity score, DRG weight, median income by zip code, and season; clustered by site, with number of meds as model offset.

Component Analysis Results

<table>
<thead>
<tr>
<th>Intervention Component</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>Clearly defining roles and responsibilities and communicating this with clinical staff</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improving access to pre-admission medication sources</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training existing staff to take preadmission medication histories</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Hiring additional staff to take preadmission medication histories</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Training existing staff to perform discharge medication reconciliation and patient counseling</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hiring additional staff to perform discharge medication reconciliation and patient counseling</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performing high-intensity interventions on high-risk patients</td>
<td></td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Implementing a new electronic medical record</td>
<td>X</td>
<td></td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Making improvements to existing medication reconciliation health information technology</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

Implementation of Components by Site
## Results

### Potentially Harmful Discrepancies

<table>
<thead>
<tr>
<th>Intervention Component</th>
<th>Adjusted Incidence Rate Ratio (95% CI)*</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clearly defining roles and responsibilities and communicating this with clinical staff</td>
<td>0.53 (0.32 to 0.87)</td>
<td>0.01</td>
</tr>
<tr>
<td>Improving access to pre-admission medication sources</td>
<td>1.42 (0.46 to 4.38)</td>
<td>0.54</td>
</tr>
<tr>
<td>Training existing staff to take preadmission medication histories</td>
<td>1.38 (1.21 to 1.57)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Hiring additional staff to take preadmission medication histories</td>
<td>0.98 (0.58 to 1.65)</td>
<td>0.94</td>
</tr>
<tr>
<td>Training existing staff to perform discharge medication reconciliation and patient counseling</td>
<td>0.64 (0.46 to 0.89)</td>
<td>0.007</td>
</tr>
<tr>
<td>Hiring additional staff to perform discharge medication reconciliation and patient counseling</td>
<td>0.48 (0.31 to 0.77)</td>
<td>0.002</td>
</tr>
<tr>
<td>Performing high-intensity interventions on high-risk patients</td>
<td>1.28 (0.89 to 1.85)</td>
<td>0.18</td>
</tr>
<tr>
<td>Implementing a new electronic medical record</td>
<td>2.21 (1.64 to 2.97)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Making improvements to existing medication reconciliation health information technology</td>
<td>0.82 (0.51 to 1.30)</td>
<td>0.40</td>
</tr>
</tbody>
</table>

*Adjusted for patient age, service, insurance, marital status, number of prior admissions, number of high-risk meds, season, and study site

## Barriers and Facilitators

- **Degree of institutional support critical, associated with**
  - Perceived alignment of med rec QI efforts with institutional priorities (e.g., readmission reduction)
  - Stakeholders’ belief in potential of intervention to reduce costs, increase patient safety, etc.
- **Concurrent QI interventions**
  - Barrier if competed for time, attention, and resources
  - Facilitator if able to integrate and ride on coat-tails of existing efforts (e.g., post-discharge med education program for high-risk patients)
- **Political process took time and often could not be rushed**
  - Getting clinicians and leadership on board for substantial changes in policies, processes, and procedures
- **Sometimes it took a sentinel event to overcome resistance and convert agnostics and adversaries into advocates**
### Lessons Learned Regarding Intervention

- Insufficient to teach providers to perform a BPMH and assume competency
  - Sites needed to establish a certification process
- Decentralized vs. centralized pharmacists each have advantages and disadvantages
  - Decentralized: part of rounds, participation is organic and in real-time, already know the patients, easier to see them before discharge
  - Centralized: can deploy efficiently to highest risk patients on demand and depending on supply
- PR campaigns could be effective in changing attitudes about med rec (regulatory requirement vs. safety imperative)
- Important to makes roles/responsibilities explicit, hold stakeholders accountable
- HIT improvements are an iterative process

### Conclusions and Implications
Conclusions

• The MARQUIS intervention, including the toolkit and mentored implementation, is associated with a reduction in medication discrepancies over baseline temporal trends
  – Intervention components associated with significant reductions in potentially harmful discrepancy rates
    o Hiring additional staff (usually pharmacists) to assist with discharge medication reconciliation and patient counseling
    o Training existing staff to do the same
    o Clearly defining roles and responsibilities
  – Intervention components associated with significant increases in potentially harmful discrepancy rates
    o Training existing staff to take “best possible medication histories”
    o Implementing a new electronic medication record

Discussion

• Successful components not surprising
  – Other studies have shown benefits of pharmacist involvement

• Why was medication history training detrimental?
  – Training without certification of competency
  – Maybe the wrong personnel were trained (or in the wrong setting)
  – Possible diffusion of responsibility
  – Alternative to hiring more staff (delay tactic by least committed sites)
  – Effect of medication history training and hiring on discrepancies needs further study
    o Most successful study site expanded role of “medication reconciliation assistants” and used “measure-vention” to make sure most patients received a BPMH

• Why was EHR implementation detrimental?
  – Large effort pulled resources, time, and effort away from focus on medication safety
  – Large vendor EHRs have major design flaws in the design of their medication reconciliation modules
  – Problems with local implementation and use by providers
Implications for Hospital Leadership

• Site success & failure was directly related to institutional support
• Successful efforts had an executive sponsor from the “C Suite” who saw at least some of the following:
  – Financial ROI = $$ savings to spend on resources
  – Links to other initiatives
    o Readmissions, transitions of care, medication safety
  – Sentinel events from their own institutions
  – Baseline data on discrepancy rates
• Administrative support at the hospital level is required for:
  – Clinician training (BPMH, discharge med rec and counseling)
  – QI project management
  – Resources for ongoing, low-level data collection & focused intervention data
    o “Measure-vention” improves outcomes!

Implications for Hospital Leadership

• Effort will likely require support on several fronts
  – Management of political issues
  – Support for process redesign, clarification of roles and responsibilities, reducing redundancy, moving work to earlier in the process
  – Likely need for additional/different clinical resources
    o Some work required that has never been adequately resourced
  – Ongoing training & competency assessment
• Good Med Rec = Culture Change
Implications for Hospital Leadership

- Med Rec processes are interprofessional. Best improvement seen with:
  - Clinical champion(s)
    - Especially across disciplines involved with history taking, order writing & patient education
  - Pharmacy and/or nursing support, IT
    - Key stakeholders
  - An engaged interprofessional QI team
- Allows for:
  - Understanding of baseline practices & variations
  - Creating clear delineation of roles & responsibilities

Implications for Clinicians

- Be a Clinical Champion, Spread the Word
  - Med rec is not (just) a regulatory requirement: It is about medication safety
  - At the end of the day, you are responsible for making sure med lists & orders are correct
  - Know when to get help from other clinicians
  - Med rec errors can undo a lot of otherwise excellent care
  - You do not need to do every step yourself, but you are responsible for the overall quality of the process
- Help generate institutional support
- Help run your local med rec QI team
- Use the MARQUIS Toolkit
- Sign up for mentored implementation (MARQUIS II)
Implications for Existing QI Teams

• Think about interventions to start with based on your local data but also the evidence to date
  – Provider training in doing discharge medication reconciliation and patient counseling
  – Hiring (or re-allocating) personnel to help conduct discharge medication reconciliation and patient counseling
  – Clearly defining roles and responsibilities among clinical personnel

• Is your IT part of the problem, part of the solution or both?
  – Are there quick fixes?

HIT: A Mixed Blessing

• HIT can be counter-productive when it
  – Leads to diffusion of responsibility
  – Conflates the PAML with sources used to create it so that editing the PAML by non-ordering providers becomes a problem
  – No documentation of quality of med history
  – Does not support division of labor
  – Differences between PAML and discharge med list not clear

• Perceived IT limitations may be due to the software design, how its implemented, and/or how its used in practice
Next Steps

- Strategies for sustainability
  - Second round of mentored implementation funded by AHRQ: now recruiting 18 new sites
    - Applications due last month, but let me know if you’re interested
  - Teach pharmacy techs how to do a BPMH, complete with simulation training, verification of competency
    - Train the trainer workshop just completed at ASHP Leaders Conference
  - Develop a BPMH curriculum for medical students, using didactic materials, videos, simulation testing from MARQUIS
    - Macy Foundation proposal submitted
  - National roundtable discussions
    - NQF Measure
    - EHR Vendors

NQF Endorsed Measure
Number of Unintentional Medication Discrepancies per Patient

**Measure Description:**
This measure assesses the actual quality of the medication reconciliation process by identifying errors in admission and discharge medication orders due to problems with the medication reconciliation process. The target population is any hospitalized adult patient. The time frame is the hospitalization period.

At the time of admission, the admission orders are compared to the pre-admission medication list (PAML) compiled by the pharmacist (ie, the gold standard) to look for discrepancies and identify which discrepancies were unintentional using the medical record alone. This process is repeated at the time of discharge where the discharge medication list is compared to the inpatient and medications ordered during the hospitalization.

**Numerator Statement:**
For each sampled patient in the denominator, the total number of unintentional medication discrepancies in admission orders plus the total number of unintentional medication discrepancies in discharge orders.

**Denominator Statement:**
The patient denominator includes a random sample of all potential adults admitted to the hospital. Our recommendation is that 20 patients are sampled per month, or approximately 1 patient per weekday.

**Exclusions:**
Patients that are discharged or expire before a gold standard medication list can be obtained.

**Risk Adjustment:**
No
Implementing a Proven Program to Take the
Best Possible Medication History:
How to Run “Medication Reconciliation
Practitioner (MRP) University” at Your Institution

ASHP Leadership Conference
October 19-20, 2015

Jeffrey L. Schnipper, M.D., M.P.H.
Stephanie Labonville, Pharm.D.
Becky Largen, Pharm.D.
Amy Aylor, Pharm.D.

Coming Soon: MARQUIS2!
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Thank you!
The Society of Hospital Medicine Annual Meeting March 2014

DAY-AT-A-GLANCE | TUESDAY, MARCH 25, 2014

7:00 - 8:00 a.m. | Breakfast - Mandalay Bay Foyer
8:00 - 8:15 a.m. | Opening and Welcome - Daniel Brozman, MD, FACP, SFHM and Eric Howell, MD, SFHM - Mandalay Bay G-L
8:10 - 8:45 a.m. | “Obamacare is Here: What Does It Mean for You and Your Hospital?” - Patrick M. Choung, MD, MSc, FACP, SFHM, Patrick Cashley, MD, FACP, SFHM, Patrick Cosmeya, MD, Scott Gottlieb, MD - Mandalay Bay G-L
9:30 - 10:15 a.m. | Break in EXHIBIT HALL - Exhibit A
First step: Get your idea heard by someone important
The HAHV Medication Reconciliation Quality Improvement Project
Laura Coryat NP-C, Hospitalist

Background:
Unintentional medication discrepancies during transitions in care (such as hospitalization and subsequent discharge) are very common and represent a major threat to patient safety. One solution to this problem is medication reconciliation. In response to Joint Commission requirements, most hospitals have developed medication reconciliation processes, but some have been more successful than others, and there are reports of pro forma compliance without substantial improvements in patient safety. The Society for Hospital Medicine (SHM) awarded the Agency for Healthcare Research and Quality (AHRQ) a $1.5 million grant for a three-year MARQUIS (Multi-center Medication Reconciliation Quality Improvement Study). The goal of MARQUIS is to develop better ways to mediate medications to be prescribed, documented, and reconciled accurately and safely at times of care transitions when patients enter and leave the hospital.

Proposed: To form and assemble a MARQUIS Medication Reconciliation Task Force Team.

Goals:
• To eliminate emergency, acute care, and readmissions due to medication reconciliation errors for patients discharged from our hospital and to reduce costs associated with readmissions.
• To streamline and standardize medication reconciliation practice throughout all campuses.
• To improve care to our patients.

Plan:
To implement the national MARQUIS best-practice bundle for medication reconciliation at our hospitals.

Objectives:
2. Standardize the process of taking medication histories at time of hospital admission and measure performance.
4. Standardize process of educating patients in a literacy sensitive fashion about changed, discontinued, and new medications at the time of discharge and measure performance.
5. Standardize process of communicating with responsible post-discharge providers regarding the final discharge medication list and measure performance.
6. Spend additional time and expert personnel on the medication reconciliation process for patients identified as high risk for medication reconciliation errors.

Get approval from the Medical Executive Committee and the Board of Directors

Get to work on the project. Set up teams and divide the work.

Present your findings and your wish list to the Medical Executive Committee and the Board of Directors.
How did we get here?

Regulatory Requirements
Meaningful Use
Implementation of an EMR

Paper Charting - Medication Reconciliation Form
Work item ID 175624 (12.0.995/12.1.1.x/12.1.2)

Issue

Previously, when a home medication was added, then deferred or continued during Admission reconciliation, and finally prescribed during Discharge reconciliation, the original Admission Reconciliation Report was updated with the “Prescribed by” information that was performed during discharge. The Admission Reconciliation Report should be static and should not be updated by actions performed during Discharge reconciliation. This issue has been corrected.

Implement a Six Sigma Project

Kaizen Event Charter: Medication Reconciliation

<table>
<thead>
<tr>
<th>Name</th>
<th>Role</th>
<th>Department</th>
<th>Issue</th>
<th>Team Members</th>
<th>Department</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>Erin Wood</td>
<td>RN</td>
<td>Nursing</td>
<td>Issue</td>
<td>Diane Metzger</td>
<td>Nursing</td>
<td>RN</td>
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<tr>
<td>Dr. Frank Ehrlich</td>
<td>3R</td>
<td>Radiology</td>
<td>Issue</td>
<td>Lisa Reeder</td>
<td>Radiology</td>
<td>Radiologist</td>
</tr>
<tr>
<td>Patricia Husted</td>
<td>Orthopedic Coordinator</td>
<td>Orthopedic Coordinator</td>
<td>Issue</td>
<td>Jennifer Shah</td>
<td>Orthopedic Coordinator</td>
<td>Orthopedic Coordinator</td>
</tr>
<tr>
<td>Laura Coryat, NP</td>
<td>NP</td>
<td>Primary Care</td>
<td>Issue</td>
<td>Priti Shah</td>
<td>Nursing</td>
<td>Nurse Practitioner</td>
</tr>
<tr>
<td>Tine Schell</td>
<td>Quality Director</td>
<td>Logistics</td>
<td>Issue</td>
<td>Sherie Ashdown</td>
<td>Nursing</td>
<td>Nurse Practitioner</td>
</tr>
<tr>
<td>Llobet</td>
<td>Dialysis Director</td>
<td>Dialysis</td>
<td>Issue</td>
<td>Stacey Malligan</td>
<td>Nursing</td>
<td>Nurse Practitioner</td>
</tr>
<tr>
<td>Barbara Naccarato</td>
<td>Acting COO Executive Sponsor</td>
<td>Nursing</td>
<td>Issue</td>
<td>Jim Curran</td>
<td>Nursing</td>
<td>Nurse Practitioner</td>
</tr>
<tr>
<td>PM&amp;R Frontline staff</td>
<td>Nursing</td>
<td>Nursing</td>
<td>Issue</td>
<td>Erin Wood</td>
<td>Nursing</td>
<td>Nurse Practitioner</td>
</tr>
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</table>

The scope of the project is to improve the completeness and accuracy of the medication reconciliation process prior to the patient’s point of entry, throughout the continuum of care and through discharge in order to reduce potential 30-day re-admissions and improve the quality of care.
Define

- Our current medication reconciliation practice is:
  - Inconsistent
  - Inaccurate
  - Incomplete
  - Cumbersome and time consuming
  - Not standardized
  - Not fully compliant with meaningful use criteria

Define

- The medication reconciliation process and issues begin before the patient arrives at our doorstep
  - Does the patient have a list?
  - Is the list complete and accurate?
  - Does the list include everything the patient is taking? (including OTC, or experimental drugs)
  - Does it include information such as dose, frequency and purpose
  - Does the patient see different providers and use multiple pharmacies?
  - Does the patients’ provider have the most current list?
Analyze– Cause and Effect: Admission

Measure – Percentage of LIP’s using the EMR
Improve

Pre-Admission
- Developed an educational brochure
- Bring this message via a manned booth to all HAHV health fair activities
- Develop trifold medication cards
- Engage SNF’s to provide HAHV and all healthcare facilities with a complete and accurate medication list
- Created a web page on hospital website containing links for trifold medication cards and brochure
  http://www.hahv.org/service/medication-reconciliation

Improve

Admission
- The Emergency Department created dedicated resources called “Clinical Data Specialist”.
- Two sources must be utilized to reconcile the list of home medications, for example:
  - The patient’s list
  - Call pharmacy
  - Calling the patient’s MD
  - Reviewing the list from the ER EMR
- Working on establishing criteria for stratifying high risk patients
- Implement for staff, Marquis educational tools and videos
<table>
<thead>
<tr>
<th>Drug Name</th>
<th>Dose</th>
<th>How you take it</th>
<th>Why you take it</th>
<th>Date started</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

Name: ____________________________  Address: ____________________________

Phone #: _________________________  Date of Birth: __________  Allergies: ____________________________

Doctor Name & Phone #: ____________________________  Pharmacy Name & Phone #: ____________________________

Date: ____________________________
HealthAlliance Patient Portal

Jane Doe - Clinical Data

Keep your medical information up-to-date by periodically adding or updating information in your health history. Use your HealthAlliance Login to get started.

Medications

<table>
<thead>
<tr>
<th>Drug</th>
<th>Prescription</th>
<th>Review Medication</th>
<th>Current Taking?</th>
<th>Source</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desloratadine</td>
<td>Oral Tablet 100 mg</td>
<td>Review</td>
<td>Yes</td>
<td>Patient</td>
<td>Exit</td>
</tr>
</tbody>
</table>

Control

Physicians Utilizing the EMR to complete Medication Reconciliation

<table>
<thead>
<tr>
<th>Month</th>
<th>Admit</th>
<th>New</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>10</td>
<td>64</td>
</tr>
<tr>
<td>Feb</td>
<td>64</td>
<td>77</td>
</tr>
<tr>
<td>Mar</td>
<td>84</td>
<td>68</td>
</tr>
<tr>
<td>Apr</td>
<td>25</td>
<td>71</td>
</tr>
<tr>
<td>May</td>
<td>81</td>
<td>61</td>
</tr>
<tr>
<td>Jun</td>
<td>75</td>
<td>63</td>
</tr>
</tbody>
</table>
Where are we now?

July 2015 - Admission Med Rec Completed in EMR
- 91.49% Y
- 8.51% N

July 2015 - Discharge Med Rec Completed in EMR
- 78.65% Y
- 21.35% N

August 2015 - Admission Med Rec Completed in EMR
- 92.08% Y
- 7.92% N

August 2015 - Discharge Med Rec Completed in EMR
- 81.77% Y
- 18.23% N

September 2015 - Admission Med Rec Completed in EMR
- 96.99% Y
- 3.01% N

September 2015 - Discharge Med Rec Completed in EMR
- 83.30% Y
- 16.70% N

Analyze – Cause and Effect: Discharge

Transition of Care

People - Define next provider
- Home
- PC/hospital/home
- health/housecall/priory
- primary consult
- SNF
- Rehab

Processes
- What components to include?
- How to track sending
- Policy/procedure
- Use of IT tools
- documentation abilities/handoffs/Physicians
- staff education
- Communication
- Multiple steps to find information
- Inconsistent documentation
- Inconsistent location of information
- Different providers receive different information and when?
- Ad - PC Audit Findings

Exceptional Healthcare Close to Home
Fast forward to 2015

Is MARQUIS working?

1. The Emergency Department
2. The Nursing Staff
3. The Medical Staff
4. Discharge planning
5. The patient and community
Medication Safety: Preventing and Reducing Adverse Drug Events in Care Coordination Communities

Anne Myrka, RPh, MAT
Director, Drug Safety

IPRO

- The federally funded Medicare Quality Innovation Network – Quality Improvement Organization (QIN-QIO) for New York State.
- Under contract with the Centers for Medicare & Medicaid Services (CMS).
- Leading the Atlantic Quality Innovation Network (AQIN).
Coordination of Care Task Goals

Promote Effective Communication and Coordination of Care

- Reduce hospital readmission rates in the Medicare program by 20% by 2019
- Reduce hospital admissions rates in the Medicare program by 20% by 2019
- Increase community tenure, as evidenced by increased number of nights spent at home, for Medicare beneficiaries by 10% by 2019
- Reduce the prevalence of adverse drug events (ADEs) that contribute to significant patient harm, emergency department visits, observation stays, hospital admissions or readmissions occurring as a result of the care transitions process
  - Anticoagulants
  - Hypoglycemic Agents
  - Opioids

Medication Safety Task

- Work within C.3 Coordination of Care Task to establish relationships and collaborations in the community to coordinate provider communication and medication management across care settings with a patient centered focus
- Reduce the prevalence of adverse drug events (ADEs) due to anticoagulants, hypoglycemic agents and opioids that contribute to significant patient harm, emergency department visits, observation stays, or readmissions occurring as a result of the care transitions process
- Help providers utilize new or existing evidence-based tools and practices to improve the care of those prescribed high risk medications, specifically anticoagulants, diabetic agents and opioids
- Use health information technology to screen for and prevent ADEs in Medicare beneficiaries
Preventing and Reducing Adverse Drug Events (PARADE) Initiative

- Currently working with 6 Care Transition Coalitions in NYS comprised of hospitals, skilled nursing/rehab facilities, home healthcare agencies, pharmacies, other community based organizations
- Cross setting work achieved within each care transition coalition through Medication Management Committee monthly meetings

Bundled Audit Tools
HAHV Process Improvement Results: Med Rec on Admission

Ultra County Care Transitions Coalition (UCCCT) Medication Reconciliation on Admission Criteria Adherence

<table>
<thead>
<tr>
<th>Source: QIO Provider Data</th>
</tr>
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<tbody>
<tr>
<td>HAHV Process Improvement Results: Med Rec on Admission</td>
</tr>
</tbody>
</table>

Source: QIO Provider Data

HAHV Audit Tool Pilot Results: Med Rec on Discharge

Medication Reconciliation Audit Criteria - DISCHARGE:

<table>
<thead>
<tr>
<th>30 CHARTS REVIEWED</th>
</tr>
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<tbody>
<tr>
<td>BASELINE: Adherence rate</td>
</tr>
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</table>

Was the original home medication list (pre-admission list) reconciled with current order and discharge order? 90%

Was there a 1:1 match for every medication on the home medication list (pre-admission list) to the current orders and to the discharge orders? 50%

For medications without a 1:1 match, was a rationale for the discrepancy documented? 35%

If no, please complete the Medication Discrepancy Tool (MDT; see below) using one MDT for each applicable patient record.

Did the reconciled medication list include the medication name, dose, route and frequency for each medication? 100%

Did the reconciled medication list include the date and time of last dose given for each medication? 28%

Did the reconciled medication list include the date and time of the next dose due for each medication? 43%

Did the final reconciled medication list for discharge indicate whether medications should be stopped, started, or continued? 80%

Was patient/caregiver education provided? 57%

Was patient/caregiver understanding of medication assessed and documented? 33%

Was the final reconciled medication list communicated to subsequent providers within 24 hours of discharge? 70%
NYS Process Improvement Results: Medication Reconciliation

HAHV Process Improvement Results: Anticoagulation Discharge Communication
NYS Process Improvement Results: Anticoagulation Discharge Communication

Resources

Management of Anticoagulation in the Peri-Procedural Period:

Anticoagulation Discharge Communication (AC-DC) Audit Tool:
Questions and Discussion

Thank you!