Standardizing Electronic Medication Reconciliation in an Ambulatory Infectious Disease Practice

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Background

People are living longer and healthcare needs of patients in the United States (US) have become increasingly complex. Multiple medical comorbidities often correlate with extensive medication lists. Inaccurate capture of patient medications has the potential to contribute to significant financial, physical, and psychological distress.

Seven million patients in the US are impacted by medication errors annually at an approximate cost of $40 billion. Medication safety should be a priority for all healthcare professionals and is a top National Patient Safety Goal. Quality medication reconciliation (MR) is a process that is critical to achieving medication safety.

MR is particularly important in high-risk patients with complex medical diagnoses that frequently transition between carious specialists or care settings. Implementing an efficient MR process is often difficult. Processes are inconsistent and healthcare providers (HCP) often face challenges with time, resources, and patient engagement.

Patients with infectious diseases (ID) often fit this mold. Despite focused efforts, an ambulatory ID practice at the University of Pennsylvania Health System consistently failed to meet their MR completion goals.

PICOT Question

For Advanced Practice Providers (APPs) and Physicians in an ambulatory ID practice, how does implementing one standardized electronic health record (HER) MR process, compared with current variable practice, impact their completion rate of MR, over a period of six weeks?

P: APPs and Physicians in ambulatory ID practice

I: Single standardized EHR process

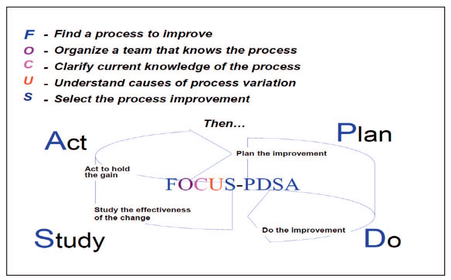
C: Current three variable EHR MR processes

O: Provider completion rate of MR in the EHR

T: 8-12 weeks

Theoretical Framework

FOCUS-PDSA Processes



Intervention

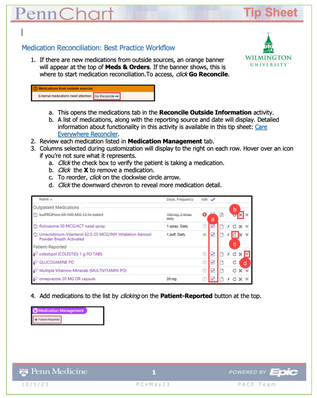
Setting: An urban, academic ID practice in Philadelphia, PA caring for a culturally diverse, medically complex population of patients. The practice has historically faced challenges in meeting its goals related to performing consistent medication reconciliation.

Participants:

- 9 healthcare providers- including 7 Physicians and 2 Nurse Practitioners with a baseline MR completion rate of < 90%.
- Must have clinic at least 1 full day/week and not have planned leave of >1 week schedule during project period

Methods:

- Collaborated with EPIC- Penn Chart experts to identify one best practice EHR MR workflow and created a tip sheet.


PennChart Tip Sheet

Medication Reconciliation: Best Practice Workflow

1. If there are new medications from outside sources, an orange banner will appear at the top of **Meds & Orders**. If the banner shows, this is where to start medication reconciliation.To access, click **Go Reconcile**.

   a. This opens the medications tab in the **Reconcile Outside Information** activity.
   b. A list of medications, along with the reporting source and date will display. Detailed information about functionality in this activity is available in this tip sheet: Care Everywhere Reconciler.
2. Review each medication listed in **Medication Management** tab.
3. Columns selected during customization will display to the right on each row. Hover over an icon if you're not sure what it represents.
   a. *Click* the check box to verify the patient is taking a medication.
   b. *Click* the **X** to remove a medication.
   c. To reorder, *click* on the clockwise circle arrow.
   d. *Click* the downward chevron to reveal more medication detail.

4. Add medications to the list by *clicking* on the **Patient-Reported** button at the top.

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PennChart Tip Sheet

5. The final step in medication reconciliation is to click **Mark as Reviewed**. This confirms review was completed by the user and time stamps when it was performed. **This is how the department measures completion of medication reconciliation.**

- Observed provider workflows in-person or virtually during clinic hours to learn about current practice and challenges.
- Provided 1:1 virtual educational sessions for participants reviewing the tip sheet and demonstrating the recommended EHR workflow live in Penn Chart.
- Expectation set for providers to use best practice EHR MR workflow moving forward.

Measures:

- MR completion rates of each participant, captured by clicking the *Mark as Reviewed* button, obtained at baseline and then again at six weeks post-educational session and implementation of workflow change.
- Data pulled from Penn Chart and displayed on an internally built and validated Tableau dashboard easily accessible to participants and the DNP student.

Results & Data Analysis

Table 1

Participant Demographics

Sample Characteristics	*n*	%	Range	*M*
Provider Type				
APP	2	22		
Physician	7	78		
Race				
White	4	45		
Black or African American	1	11		
Hispanic or Latino	0	0		
American Indian or Alaskan Native	0	0		
Asian or Pacific Islander	2	22		
Other/Multiple	2	22		
Age			34-66	47
Gender				
Male	3	33		
Female	6	67		
Other	0	0		
Years of Provider Experience (YPE)			4-36	18
Years of EPIC Experience (YEE)			4-15	9

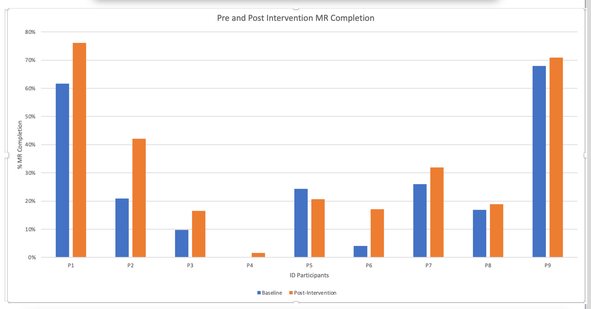


Table 2

Pre- and Post-intervention Provider MR Completion Percentages, YPE, and YEE

Participant	Baseline	Post-Intervention	YPE	YEE	Overall Change
1	62%	76%	8	8	Improved
2	21%	42%	30	7	Improved
3	10%	17%	36	15	Improved
4	0%	2%	9	9	Improved
5	24%	21%	18	5	Declined
6	4%	17%	15	11	Improved
7	26%	32%	14	9	Improved
8	17%	19%	4	4	Improved
9	68%	71%	31	9	Improved

- Paired *t*-test- observed difference of sample mean 7.15% pre and post.; *p*-value 0.02→ statistically significant.

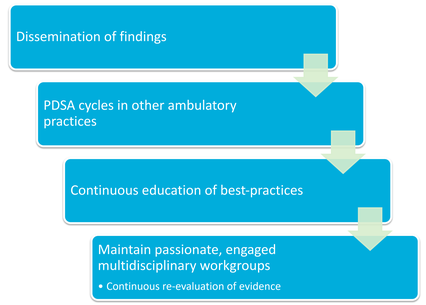
Limitations

- Observer bias and the Hawthorne effect may have had an impact on HCP behavior changes erroneously impacting MR completion rates.
- Time limitations of providers and DNP student.; variable provider engagement.
- Office staffing challenges and limited pharmacy resources.
- Limits to functionality of EHR
- No recognized standard best-practice guidelines for MR
- The selected measure, completion rate of MR, did not assess the quality of MR.

Clinical Significance

- Implementing a single, standardized approach to MR resulted supported by 1:1 provider education resulted in up to >20% improvement in MR completion rate in some providers.
- A consistent, technology-supported approach to MR is the most likely way to engage and get a positive response from HCPs
- Low cost and easily reproducible
- Efficient short-term solution that can have significant impact while working on long-term improved EHR functionality.
- Contributes positively to both patient safety and provider wellness.
- In alignment with current UPHS risk-reduction initiatives and National Patient Safety goals.
- Improved MR = less patient harm and lower healthcare costs!!

Sustainability of Project



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References & Contact Information

Scan for References

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