A Logistics Approach to Improve Medication Reconciliation in the Outpatient Clinic Setting

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Introduction

Medication reconciliation (MR) is the process of determining the most accurate account of medication the patient is taking. Although MR seems simple, research has shown that 25% of medical errors are related to lack of medication reconciliation.[1] In the community clinic setting, the task of medication reconciliation falls on the Medical Assistants (MAs).

A preliminary study of MR accuracy in an outpatient clinic found an average of 5.8 discrepancies in the chart medication list.[2] The most notable were incomplete directions, wrong directions, or wrong frequency of dosing.

Unoptimized medication use is estimated to result in 275,869 deaths per year in the United States.[3]

These are potentially avoidable deaths. A factor contributing to these poor outcomes is the 15-minute office visit and insufficient time to assess how patients are using their medications.[4] **Improved MR would help optimization of medication use.** Currently, a care team member dedicated to MR and medication management entirely does not exist due to lack of clear fiscal incentive.

1. Flanagan, N, Medication Reconciliation: A Necessary Process for Patient Safety, Caring for the Ages, (AMDA), August 2018. https://www.caringfortheages.com/action/showPdf?pii=S1526-4114%2818%2930351-3
2. Miller, J., McCoy, G., Antimisiaris, D. Evaluation of Electronic Health Record Accuracy Using Face to Face Assessment of Medication Reconciliation in a Geriatric Ambulatory Clinic. Poster presentation, American Society of Health System Pharmacist, December 2014.
3. Watanabe JH, McInnis T, Hirsch JD. Cost of Prescription Drug-Related Morbidity and Mortality. Ann Pharmacother. 2018 Sep;52(9):829-837.
4. Antimisiaris D, Cutler T. Managing Polypharmacy in the 15-Minute Office Visit. Prim Care. 2017 Sep;44(3):413-428.

Objective

The objective of this study: Identify interventions to improve MR without using much more than using existing resources.
- Study the current processes of MR in ambulatory care clinics.
- Identify the components, resources, and gaps to address for improvement.
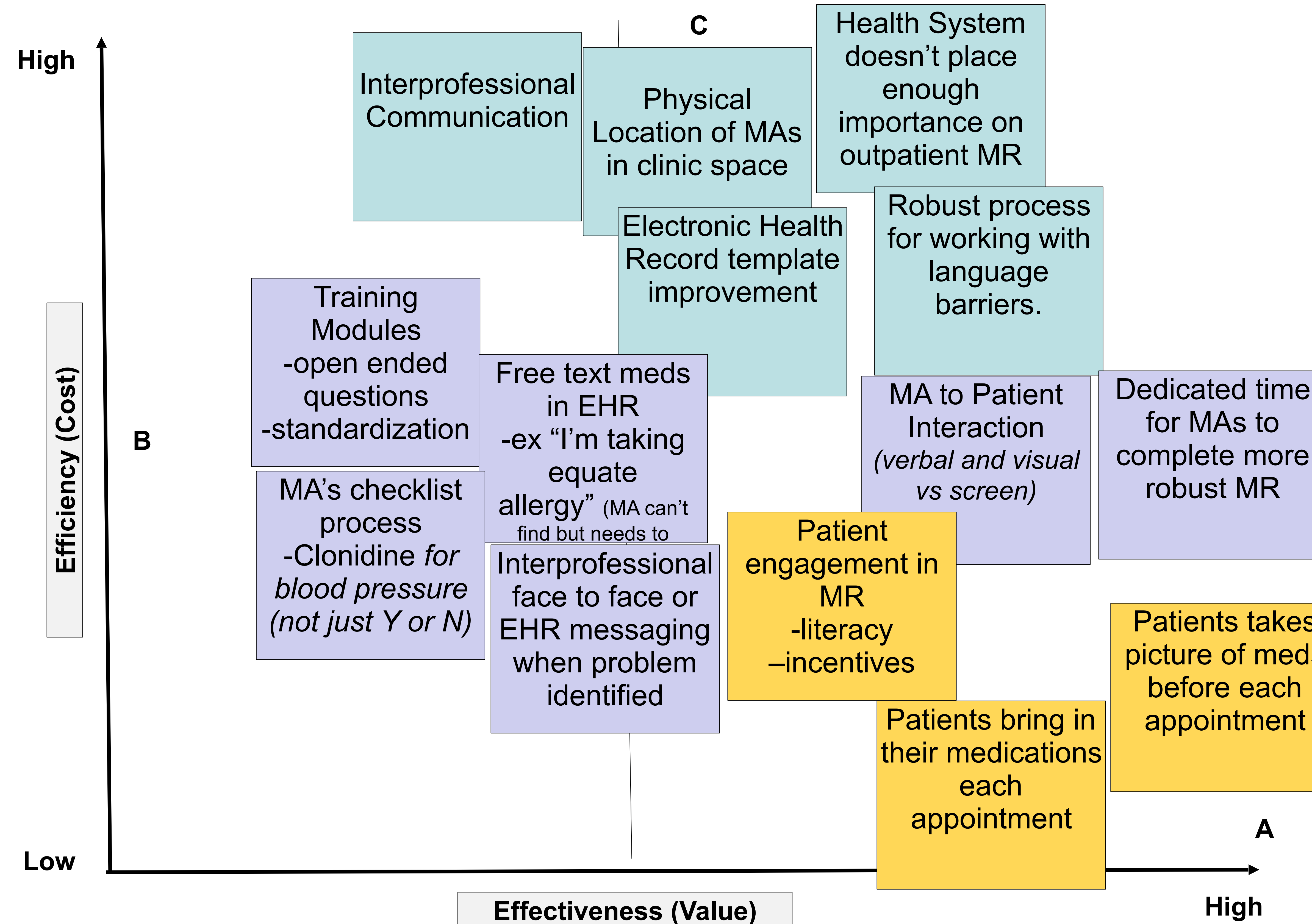- Identify interventions for potential improvement.

Methods

- Outpatient clinics were observed in the MR process to determine current processes in terms of responsibilities, tasks, documentation and communication.
- We identified gaps in current processes regarding skills, physical space, time, documentation and communication.
- A list of potential interventions was developed.
- Using a "cost (efficiency) and value (effectiveness)" analysis a list of interventions was prioritized.

Observations in Clinic

Case 1: Patient experiencing decreased kidney function due to immunotherapy. Potassium (K) levels were monitored and found to be fluctuating. Cause unknown. It was later discovered that the patient visited the ER due to nausea where liquid K was given. Patient continued to take liquid K, it was not caught in the MR. High K Levels are deadly for poor kidney function.

Case 2: 55 year old woman keeps getting blood clots. Instructed to stop taking Xarelto (blood thinner med) and start taking Coumadin (different blood thinner). However Coumadin takes 5-7 days to work, so in the meantime she was instructed to take Eliquis INR levels were fluctuating. Cause unknown. Later discovered that she was still taking Xarelto. This is a fatal combination. Staff interviewed believed proper MR would have caught this.
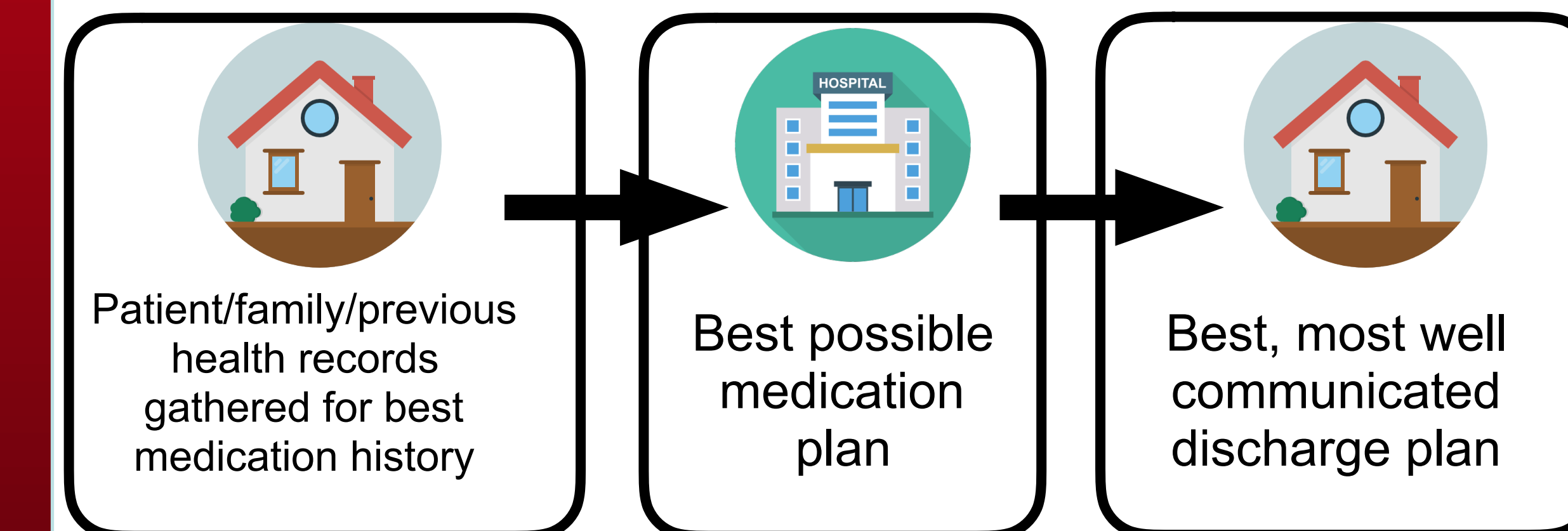
Results

Chart axes: Efficiency (Cost) (vertical, Low to High), Effectiveness (Value) (horizontal, Low to High)

- Interprofessional Communication
- Physical Location of MAs in clinic space
- Health System doesn't place enough importance on outpatient MR (C)
- Electronic Health Record template improvement
- Robust process for working with language barriers.
- Training Modules -open ended questions -standardization (B)
- Free text meds in EHR -ex "I'm taking equate allergy" (MA can't find but needs to
- MA to Patient Interaction *(verbal and visual vs screen)*
- Dedicated time for MAs to complete more robust MR
- MA's checklist process -Clonidine *for blood pressure (not just Y or N)*
- Interprofessional face to face or EHR messaging when problem identified
- Patient engagement in MR -literacy –incentives
- Patients takes picture of meds before each appointment
- Patients bring in their medications each appointment (A)

Prioritization of Potential Quality Improvement Interventions

A. **Empowering and involving patients** in the MR process was determined to be the least costly intervention with high value.
B. **Focus on Medical Assistant's** skills, standardization of process and support for MR
C. **Engage Health System to Support Quality Improvement in MR**

Conclusions

- Despite limited resources and complex systems of care, a logistics approach to care improvement may identify solutions by leveraging existing stake holders and structures.
- Complex health care delivery can be approached through trans disciplinary collaboration for novel care innovation.
- Identification of gaps in last mile delivery help determine potential interventions.
- In the case of medication reconciliation, the responsibility falls on a very busy care team member with lack of standardized training, barriers to communication with the team, and system constraints to improved MR.
- The patient is nearly entirely uninvolved in their own MR. Those who are assist the care team for improvement of MR.
- Engagement of the patient in the MR process has been identified as the most accessible intervention.
- Improvement of the MA's process and skills as well as standardization of MA's processes and skills requires more investment but has strong potential for investment return.
- Interventions that require health system level change are not a priority because of difficulty in implementation.

Patient/family/previous health records gathered for best medication history → Best possible medication plan → Best, most well communicated discharge plan

Future Study

- This study will serve as a pilot study for a primary care clinic based interventional research project.
- The intervention will start with patients and MA's MR processes.
- The study team includes health administration scholars, clinicians, as well as payers (Medicaid).
  - In collaboration with insurance payers, we will be able to track the overall impact on improved MR, including potential for less hospitalization, and improved quality measures (blood pressure, diabetes control and others)

Acknowledgements