Medication Reconciliation: An approach to ensure safe and effective medication management

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Objectives

- Illustrate the importance of complete and accurate medication lists
- Assess and reconcile patient medication lists for accuracy and completeness
- Engage patients, caregivers, pharmacies and other providers in MR

Anecdotes

"The medication lists are a mess! I go into the room…I have no idea what the patient is taking…it takes 20 minutes just to figure it out…I have no time to address the real reason they are here!"

– Provider

Anecdotes

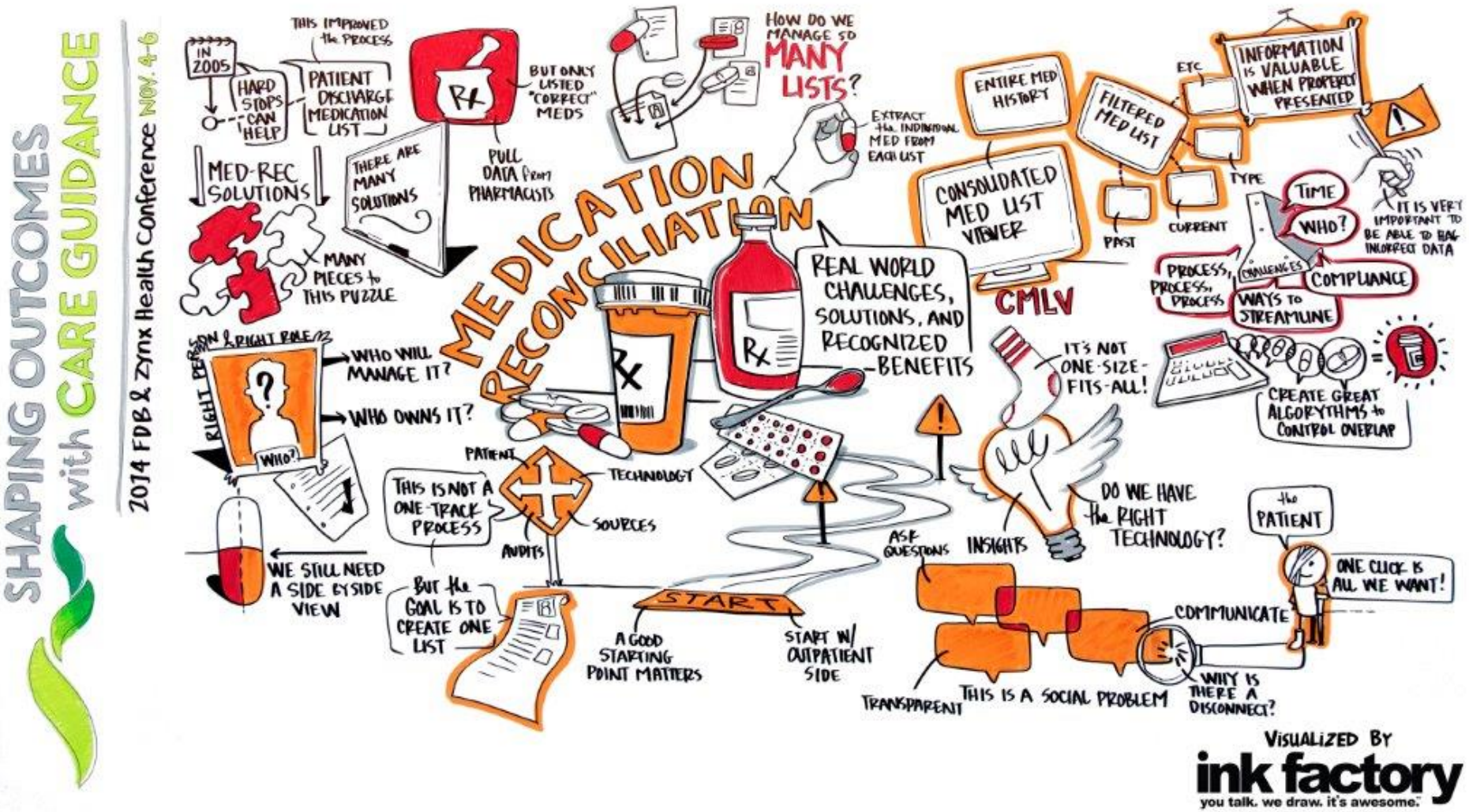
"I actually told a patient that I couldn't see them because I had no idea what medications they were taking. Sometimes there's no point. I think every patient just needs to see one of the pharmacists before they see me. Why can't we do that?"

– Provider

Anecdotes

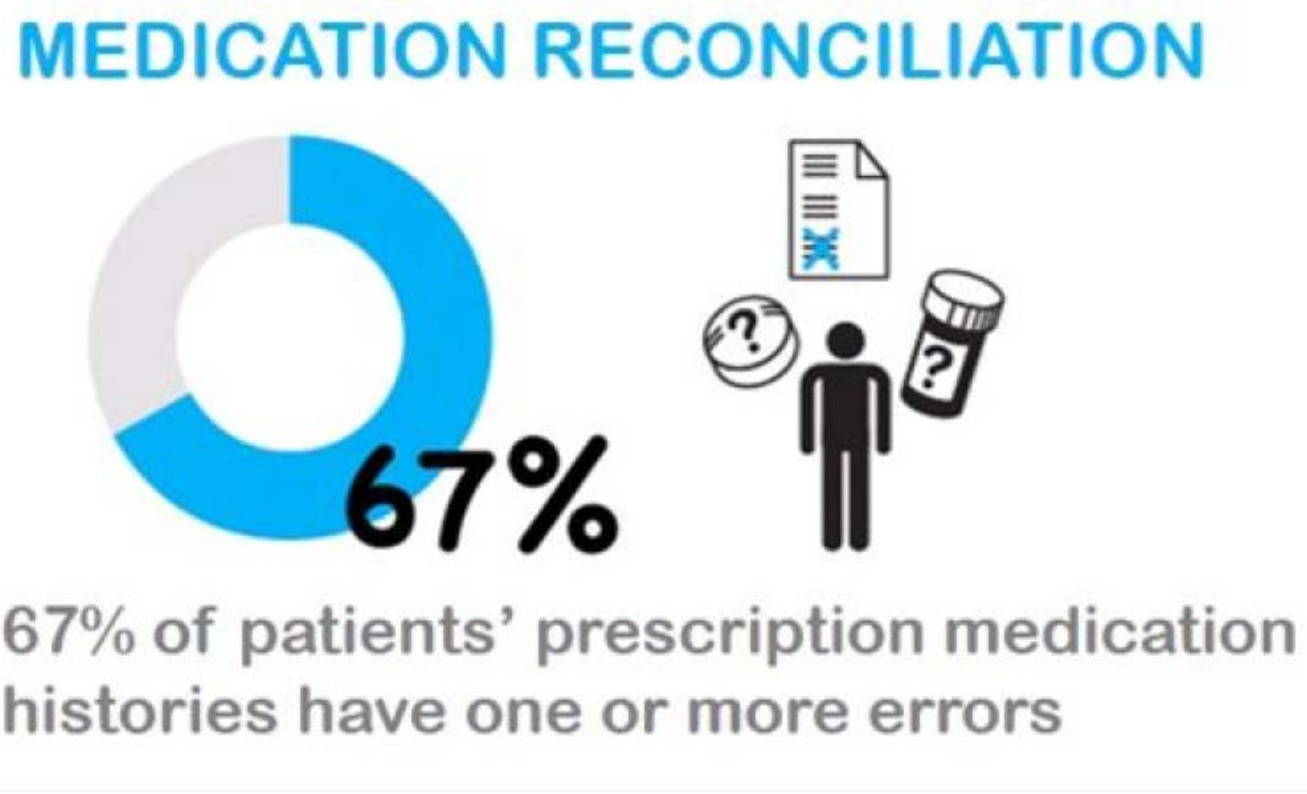
"Why do I have to bring my medications in? It's all in the computer. I don't know what I'm supposed to take."

– Patient



https://www.fdbhealth.com/solutions/medication-reconciliation/

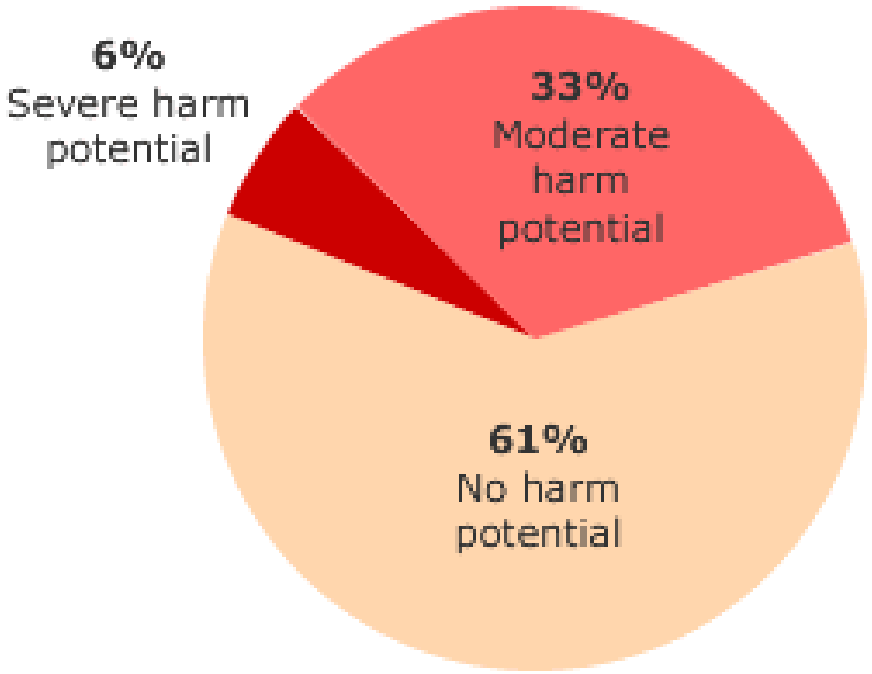
The Case for Medication Reconciliation



Tam VC, et al. CMAJ, 2005; 173:510-515.

The Case for Medication Reconciliation

More than half of patients have ≥ 1 unintended medication discrepancy at hospital admission



Cornish PL, et al. Arch Intern Med. 2005;165:424-429

Adverse Drug Events

- ~ 1.5 million preventable ADEs occur annually as a result of med errors at a cost of > $3 billion per year
- ADEs are a leading cause of injury and death
  - Polypharmacy
  - Poor communication
  - Transfers of care
- 27% of patients experience an ADE in outpatient setting
  - 39% preventable or ameliorable

Budnitz et al. *JAMA.* 2006;296:1858-66
Ghandi et al. *N Engl J Med.* 2003; 348:1556-1564.

Medications and Transition of Care

- **Largest cause of hospital readmission are medication related problems (MRPs)**
  - Account for ~ 40% of hospital readmissions
  - Prevalence of preventable medication-related readmission is 14%

- 19%-23% of patients suffer a post discharge adverse event within 2 weeks of hospital discharge

Jencks, et al. NEJM. 2009;360:1418-1428: Forster, et al. Ann Intern Med. 2003;138:161-167; Forster, et al. CMAJ. 2004;170(3):345-349; Bonnet-Zamponi, et al. JAGS. 2013;61:113-121; Winterstein, et al. Ann Pharmacotherapy. 2002;36:1238-48

" ... and, with the proper medication, they lived happily ever after."

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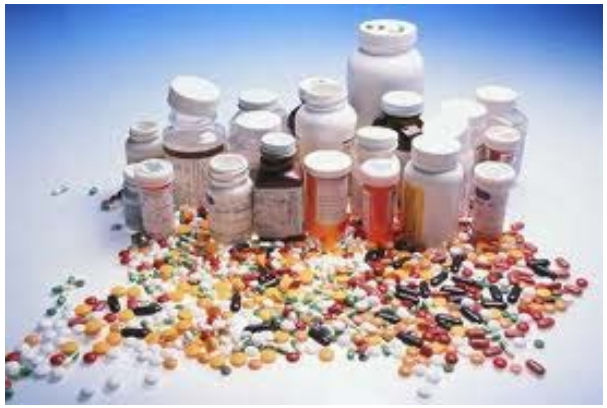
Medication Reconciliation

"Formal process in which health care professionals partner with patients to ensure accurate and complete medication information transfer at interfaces of care"



Medication Reconciliation

- Active and ongoing process that aims to ensure the patient is receiving the correct medication regimen at all times
- Review of the safety and appropriateness of the regimen and discontinuation of any unsuitable or needless medications
- Continuous process involving patient as an active member of healthcare team

Goal of MR

- Obtain and maintain accurate and complete medication information for a patient and use this information within and across the continuum of care to ensure safe and effective medication use

Medication reconciliation

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Medication history-taking

What are we are really looking for…

- Inadvertent duplications
- Omissions
- Unnecessary therapy
- Inappropriate doses
- Drug-drug interactions
- Drug-disease interactions
- Overall, simplify drug regimens

Medication Reconciliation

- MR reduces potential for medication discrepancies
  - Omissions
  - Duplications
  - Dosing errors
- MR improves:
  - Medication list accuracy, correctness and completeness
  - Patient engagement

Nassaralla CL, et al. Quality and Safety in Healthcare. 2009;18:402-407.

Ambulatory Care vs. Hospital

- Majority of research on benefits of MR conducted in hospital or institutional setting
- High prevalence of risk factors for ADEs in ambulatory care including inaccurate medication lists
- Unknown if MR in ambulatory care setting reduces ADEs
  - Few studies

Discussion

- Do you have any questions about the distinction between MR and medication history taking?

Medication Reconciliation Documentation in the EMR

Within the encounter, mark "Transition of Care-incoming" under *Quality of Care* to indicate that this was a new patient or a patient that was transitioned into your care from another provider or another setting. Confirm that your patient's medication list is up to date and select the *Medication Reconciliation* check-box. You can also use this time to select the *Documentation of current medications* check-box, which will give you credit for one of the Meaningful Use Clinical Quality measures.

MR Case

- 64 y/o male
- PMH
  - DM, type 2
  - Hyperlipidemia
  - Hypertension
  - Peripheral neuropathy
  - ED
  - Hx of acute kidney injury
  - Recent hx of hyperkalemia

Medications in Clinic EMR

- Aspirin 81mg daily
- Tramadol 50mg BID pain
- **Levemir 22 units every evening**
- **Hydrochlorothiazide 25mg daily**
- **Chlorthalidone 25mg daily**
- **Lisinopril 40mg daily**
- **Enalapril (unknown dose)**
- Furosemide 40mg daily
- **Klor-Con 20 mEq daily**
- Amlodipine 5mg daily
- Viagamox 0.5% as directed
- **Amaryl 4mg twice daily**

Medications in Endocrinology Note

- **Amaryl 4mg daily**
- Aspirin 81mg daily
- **Chlorthalidone 25mg daily**
- Furosemide 40mg daily
- Gabapentin 300mg at bedtime
- **Glucophage 500mg twice daily**
- **Hydrochlorothiazide 25mg daily**
- **Levemir 30 units at bedtime**
- **Lisinopril 40mg daily**
- Norvasc 5mg daily
- Tramadol 50mg twice daily
- Testing supplies

Medications in Nephrology Note

- Aspirin 81mg daily
- Furosemide 40mg daily
- **Levemir 30 units at bedtime**
- **Lantus 22 units at bedtime**
- **Glipizide 4mg daily**
- **Enalapril 20mg daily**
- **Lisinopril 40mg twice daily**
- **KCL 20 mEq daily**
- Lipitor 20mg daily

Medications in Endocrinology Note

- Aspirin 81mg daily
- Furosemide 40mg daily
- **Glipizide 4mg daily**
- **Lantus 22 units at bedtime**
- Lipitor 20mg daily
- Tramadol 50mg daily

- No mention thiazides
- At this visit he was instructed to remove all ACE-Is from house due to hyperkalemia

Pharmacy Records

- **Furosemide 40 mg daily**
- **KCL 20 mEq daily**
- Vigamox 0.5% one drop into left eye TID
- Lipitor 20mg every evening
- **Chlorthalidone 25mg daily**
- Amlodipine 5mg daily
- **Lantus 22 units at bedtime**
- **Glimepiride 4mg daily**
- Tramadol 50mg twice daily PRN

Resolution

This patient needs a visit solely focused on medication reconciliation

Discussion

- Have any of you had experiences like these?
- In your experience, how have you resolved medication discrepancies?

The High 5s Project
Standard Operating Protocol

Assuring Medication Accuracy at Transitions in Care: Medication Reconciliation

Guiding Principles of MR

- An up-to-date and accurate patient medication list is essential to ensure safe prescribing in any setting
- A formal structured process for reconciling medications should be in place across all interfaces of care
- MR on admission is the foundation for reconciliation throughout the episode of care

Guiding Principles of MR

- MR is integrated into existing processes for medication management and patient flow
- Shared accountability with staff aware of their roles and responsibilities
- Patient and families involved in MR
- Staff responsible for reconciling medicines trained to take a BPMH (best possible medication history) and reconcile medications

WHO Steps for MR

Step 1

- **Obtain a best possible medication history (BPMH)**
- Compile a comprehensive list of medicines the patient is currently taking from interviewing patients and/or carers, referral letters and other information sources

Step 2

- **Confirm the accuracy of the history**
- Verify with one or more sources

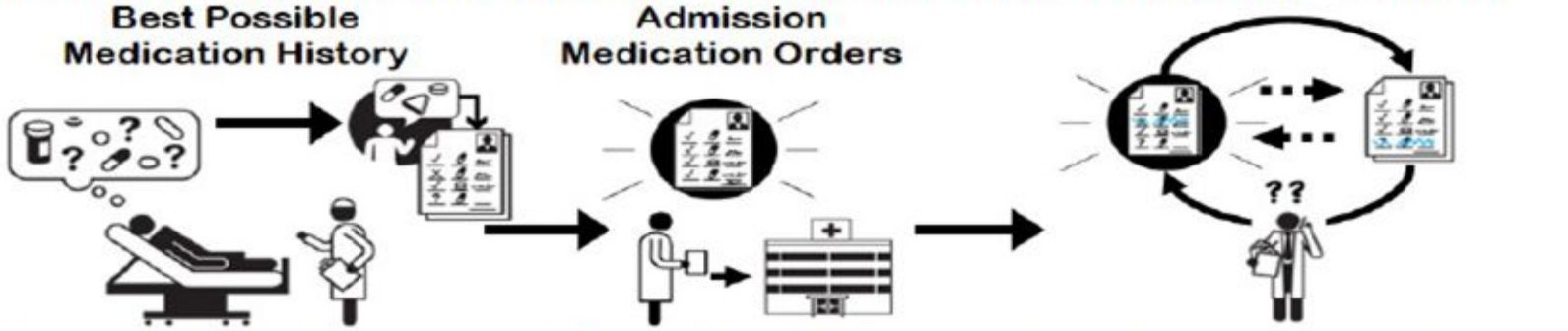
Step 3

- **Reconcile BPMH with prescribed medicines**
- Compare BPMH with medicines ordered
- Resolve discrepancies with prescriber and document changes

Step 4

- **Supply accurate medicines information**
- To receiving clinician, patient or carer when care is transferred
- Include list of current medicines, reasons for changes

PROACTIVE medication reconciliation model at admission

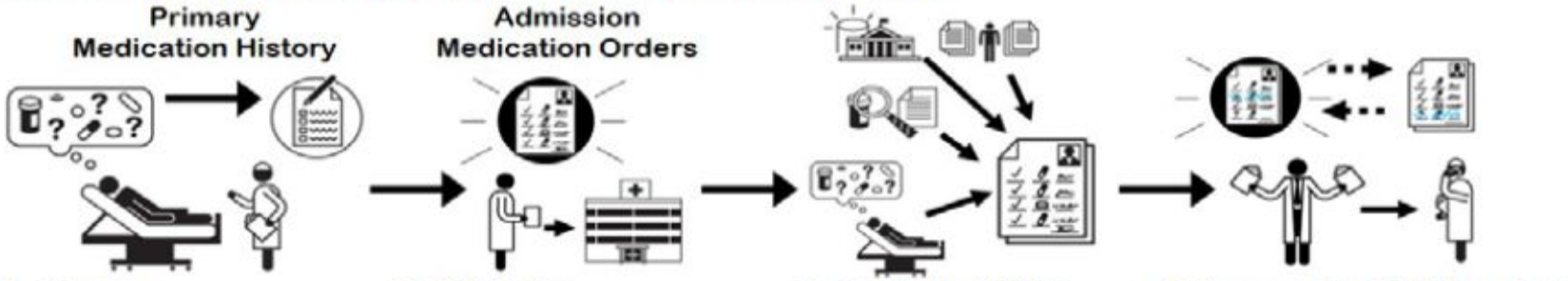


1 Create the best possible medication history (BPMH)

2 Using the BPMH, admission medication orders are written by the prescriber

3 Verify that the prescriber has assessed every medication on the BPMH, identifying and resolving any discrepancies with the prescriber, if any

RETROACTIVE medication reconciliation model



1 Primary medication history is taken

2 Admission medication orders are written by prescriber

3 Create the BPMH using a systematic process

4 Compare the BPMH against the patient's admission medication orders, identify and communicate any discrepancies to the prescriber within 24 hours of the decision to admit the patient

Medication Reconciliation

- Step 1: Verification
  - Systematic and comprehensive process for obtaining a thorough medication history
  - Verification with at least 2 reliable sources
- Step 2: Clarification
  - Ensure medications and doses are appropriate
  - Discrepancies must be explicitly resolved
- Step 3: Reconciliation
  - Documentation of changes
  - Entered into standardized form

Verification

- Systematic and comprehensive process for obtaining a thorough medication history
  - Structured patient interview with open-ended questions
    - What prescription and over the counter medications do you take and how?
    - What is your typical day?
    - Are you on any medications that are not taken by mouth?
    - When did you take your last dose?
    - How many doses have you missed in the last week?
    - Where do you obtain your medications (local pharmacy, mail order, VA)?
- Verification with at least 2 reliable sources
  - Government medication database, medication vials, patient's medication list, family members, refill history from community pharmacy, clinic records, etc.

Process of MR

- Other important steps:
  - Provide patient with an accurate up to date medication list
  - Convey the importance of adherence and of carrying med list to all medical appointments

Process of MR

- What should be included on medication list?
  - Prescription medications
  - Over the counter products
  - Illicit drugs
  - Herbals
  - Vitamins, supplements
  - IV medications
  - Blood products
  - Inhalers, patches, ointments, injections, eye drops, etc.

Things to Remember

- <u>Consider all potential sources of medication information</u>
  - Ideally the process of ROM involves integration of info from several sources (at minimum 2)
  - Patient & family members' recollections
  - Prescription lists
  - Medication bottles
  - Community pharmacy records
  - Mail-order pharmacy records
  - Samples
  - Mexico, Canada, etc.

Things to Remember

- Sound-alike, look-alike drugs
  - TriLipix® vs. TriLeptal®
  - Verify why patient takes a certain medication
- Use of unapproved abbreviations
  - QD vs. daily, QID vs. four times daily or 4 x daily
- List of medications written in everyday language
  - KCL vs. potassium vs. vitamin K
- Confusion between brand & generic medication names

Things to Remember

- Therapeutic indications for each medication
  - Gabapentin for diabetic neuropathy vs. seizure disorder
- Incorrect dosage or frequency
- Duplication errors
  - Taking multiple drugs with the same action without any rationale
- Omission errors
  - Most common error in the admission medication history

Things to Remember

- High risk medications
  - Seizure meds: phenytoin, valproic acid
  - Digoxin
  - Warfarin
  - Insulin
- Document
  - Name of the pharmacy
  - Date and name of person performing med reconciliation
  - Allergies and reactions

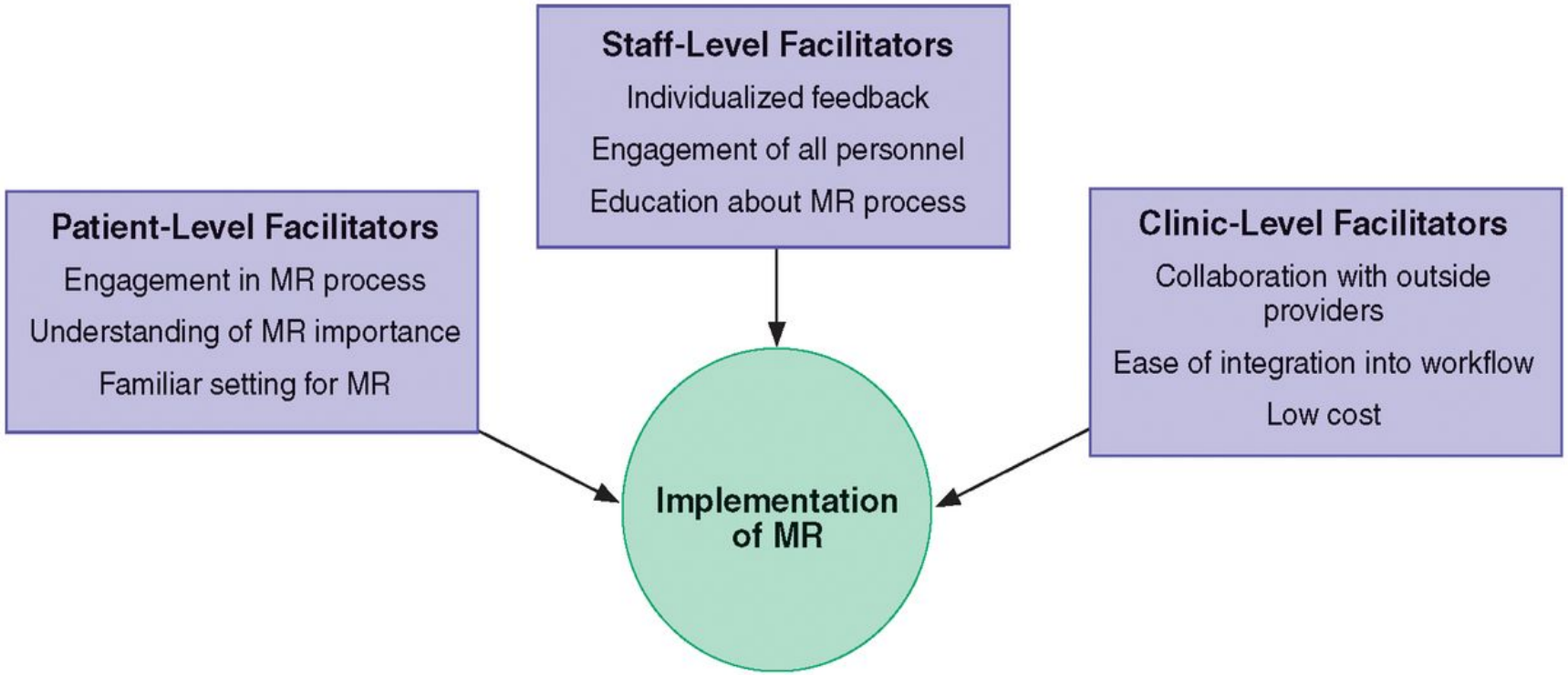
Medication List

- 13-14 font, 6th grade level
- Include brand and generic names (no abbreviations)
- Dose
- Frequency
- Duration
- Prescriber
- When initiated
- Last dose
- Indication
- Special instructions on how to take

Reconciled Medication List at Discharge

- New medications
  - Started during hospitalization that should continue after discharge
  - Provide reason for taking
  - Intended duration
- Continued medications without changes
  - Medications patient was taking before hospitalization that should be continued after discharge
- Continued medications with changes
  - Include medications with dose, route, or frequency changes
  - Include reason for change
- Discontinued medications
  - Medications used prior to hospitalization that should be stopped upon discharge
  - Include reason for discontinuation

Facilitators of MR in Ambulatory Care



Common Elements of MR in Ambulatory Care

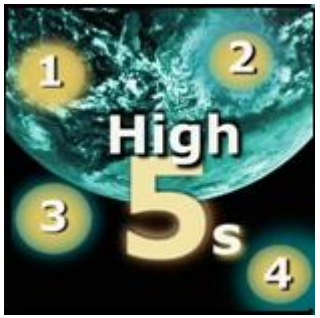
- Multiple interventions
- Patient engagement
  - Asked to bring medications or list to visits
  - Provided with bags to bring medications to clinic
  - Complete their own medication reconciliation
  - Personal medication lists
- Provider/Nurse engagement
  - Nurse asking open-ended questions
  - Clinic process redesign and standardized procedures
  - Audit and feedback to nurse/provider teams (benchmarking)

Common Barriers

- Insufficient standardization of data elements in medication list
- Sharing of appropriate information by patients and health care professionals
- Lack of established best practices
- Lack of training on MR

Medication Reconciliation

- Personal medication record
  - AARP
    - https://www.aarp.org/health/drugs-supplements/info-2007/my_personal_medication_record.html
  - FDA
    - https://www.fda.gov/downloads/aboutfda/reportsmanualsforms/forms/ucm095018.pdf
  - American Society of Health System Pharmacists



What You Need to Know about Medication Errors:
A Fact Sheet for Patients and Their Family Members

Be an Active Member of Your Health Care Team

My Medicine Record

DEPARTMENT OF HEALTH AND HUMAN SERVICES
Food and Drug Administration

FDA

Name *(Last, First, Middle Initial)*: _____ Birth Date *(mm/dd/yyyy)*: _____

	What I'm Using Rx – Brand & generic name; OTC – Name & active ingredients	**What It Looks Like** Color, shape, size, markings, etc.	**How Much**	**How to Use / When to Use**	**Start / Stop Dates**	**Why I'm Using / Notes**	**Who Told Me to Use / How to Contact**
— Enter ALL prescription (Rx) medicine (include samples), over-the-counter (OTC) medicine, and dietary supplements —							
Ex:	XXXX/xxxxxxxxxx	20 mg pill; small, white, round	40 mg; use two 20 mg pills	Take orally, 2 times a day, at 8:00 am & 8:00 pm	1-15-11	Lowers blood pressure; check blood pressure once a week; blood test on 4-15-11	Dr. X (800) 555-1212
1							
2							
3							
4							

	What I'm taking	Form (pill, injection, liquid, patch, etc.)	Dosage	How Much and When	Use (regularly or occasionally)	Start/Stop Dates (1/5/05 - 3/5/05) (1/5/05 - ongoing)	Notes, Directions, Reasons for Use
* Be sure to include ALL prescription drugs over-the-counter drugs, vitamins, and herbal supplements.							
1							
2							
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5							
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10							
11							
12							

Resources

- Medications at Transitions and Clinical Handoffs (MATCH) Toolkit
  - https://www.ahrq.gov/professionals/quality-patient-safety/patient-safety-resources/resources/match/index.html
- Institute for Healthcare Improvement How to Guide
  - http://www.ihi.org/resources/Pages/Tools/HowtoGuidePreventAdverseDrugEvents.aspx
- World Health Organization
  - http://www.who.int/patientsafety/implementation/solutions/high5s/h5s-sop.pdf