Reducing Burden – Medication Reconciliation

HL7 EHR Work Group –
Reducing Clinician Burden Project
Reed Gelzer MD PhD, Project Lead
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Basic Requirement

- **Required by the US-based Joint Commission for Accredited Healthcare Organizations**
  - During triage in the Emergency Room
  - During transitions of care
  - At discharge from an inpatient or other care facility
- **To prevent medication errors, omissions, duplications, dosing errors, drug interactions, adverse events...**
  - Including prescription and non-prescription medications – including over the counter and herbals
  - Comparing meds from multiple sources: patient, internal/external systems and devices...

Use Case Scenarios - Examples

- Establish scenarios for inpatient and outpatient care
  - Starting with narrative user stories
- Considering source and downstream flow
  - Point of reconciliation then flow to subsequent users and uses
- Identifying actors in roles
- Establishing actions (activities), steps and sequences
  - Patient flow, work flow, information flow
- Where's the burden? Safety concern? Errors?
- What are opportunities to reduce burden?
  - Patient preview/update of medication list, team work sharing/shifting, de-duplication, medication lists from external sources...

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Use Case Scenarios – Examples

- ## At least two scenarios:
  - Inpatient-1 with a single NPI Clinician Author
  - Outpatient-1 with multiple authors
    - NPI Clinician
    - Patient
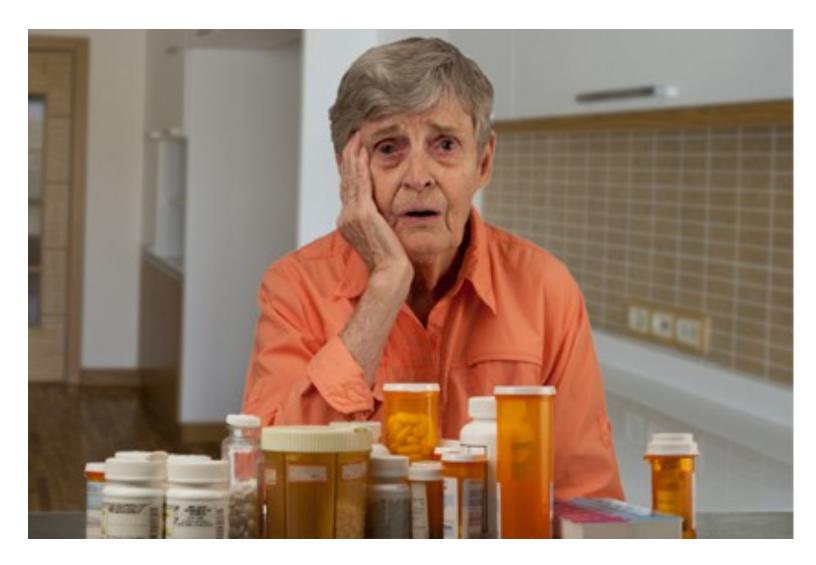   - Non-NPI Clinical Staffer (provisionally "Advocate" :: Medical Assistant or Social Worker)

Use Case Scenarios – Examples

- **Medication Inventory**
  - Many end-uses, therefore many varying end-use variants and requirements
  - In EHR Systems "generic Medication List" is usually
    - Pharmaceuticals prescribed in this instance of the EHR System
    - Not informed by what patient is actually using or going to be using
  - Comprehensive specifications can include:
    - Any substance ingested for purposes of health and wellness including prevention, enhancement, pharmacotherapeutics including OTC, "traditional" medicinal substances, food items, plus
    - Any substances ingested for recreational purposes or spiritual purposes, plus
    - Any substances ingested in the past that produced an undesirable (including no response) or harmful response, plus
    - Any substances recommended or prescribed for use but inaccessible or unobtainable (Transportation, funding, conflicts with conscience) plus
    - Any intake that compromises or otherwise interferes with the bio-availability of something else taken for health, well-being, enhancement, pharmacotherapeutics.

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SCENARIO: Sally Smith is a 61-year-old female with diabetes, hyperlipidemia, hypertension, and depression.

Patient Perspective
Sally tries to be an exemplary patient and looks at her patient portal at home. She carefully reviews her medication list. She notices that Macrobid, which she took 4 months ago for a urinary tract infection, is still listed. She also notes that her new diabetes medication, Januvia, is not listed. Her metformin is listed at 1000 mg twice a day, but her endocrinologist had decreased the metformin to 500mg once a day due to side effects. She struggles a bit with how to make these notations via the patient portal, but eventually does manage to find the correct fields to indicate "not taking", "new medication" and "taking differently".

Non-NPI Clinician Perspective
On the day of her appointment, the medical assistant prints the patient's current medication list from the EHR system and hands it to Sally to correct. Sally notices that none of her notations are there and that it is the old list. She is someone annoyed, but since she reviewed the list last night, it is relatively easy for her to correct.

The medical assistant spends time finding the fields to note the changes in the Electronic Health Record. Due to the design of the system, the changes are noted for the physician, but do not actually change the permanent list.

Primary NPI Clinician A Perspective
The physician comes into the exam room and, while she is already 45 minutes behind, Sally is there only for a quick 15 minute follow up visit and blood pressure check. The physician does review the medication list with Sally. Now Sally is a bit snappy, as she has to pick her grandson up from gymnastics. She grumbles: "I already told your assistant what I am taking."

The physician tries to make the changes quickly, but leaves the metformin on the list as she is still taking metformin and will need the prescription. She also does not remember what dose of Januvia Sally mentioned, so she enters Januvia PO without a dose.

Sally goes to pick up her medications, but does not have the Januvia filled because she cannot afford it. Her medicine chest has an old prescription container nearly full with glyburide…, should she take it?

Advocate/Social Work/Medical Assistant Non-NPI Perspective
Patient calls Primary Care office to convey that she cannot pay for the Januvia and the endocrinologist-prescribed dose of metformin is wrong.   The medication list-of-record isn't the actual medications taken by Sally, so the Advocate contacts the Primary Clinician to secure the correct dose of metformin.   The Advocate also notes the patient's report of the old prescription for glyburide and recommends not taking it until she hears from Primary Clinician, also noting follow-up by the Advocate is required, scheduled for 3 days later to make sure the patient's questions are all answered and the meds the Sally is actually taking are now correct in a compiled reconciled medication inventory.

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Work Flow - Initial

- Consider this construct for initial ugly "workflow":

- Presume the existence of a "Persistent RECONCILED Med List Specification" placeholder shorthand "RMLS", defining all attributes of a RECONCILED Med List (RML):

  - *Medications patient is actually taking (as defined in the Specification P&P, content) per the EHR-retained RML persisted from the last episode of care*

- On Date 1, July 31, 2020, an RMLS-conformant RML was originated, retained in the local EHR system.

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Work Flow

- ## On Date 2, November 4 2020
  Today's encounter: Invoking the origination of a new instance of an RML, the action presents to the user
  - Here is the prior Reconciled list (from Date 1)
  - Here is what the local system says it has changed
    - Meds on the Date 1 instance that have been stopped
      - Stopped by clinicians
      - Stopped by patient, family
        - ✓ Cannot acquire
        - ✓ Cannot tolerate
        - ✓ (Other?)
    - Meds that have been changed by prescribing actions
    - Meds that have added.

Work Flow

- Here is where the user can indicate changes (patient, non-NPI provider, NPI provider)
  - Computer renders "what's changed" in the background
  - Computer displays "what's different"
    - User compares the two
    - User "cleans it up"
    - User completes it (or PENDs it for review by another user?)
    - IF pended by a user, completed by another user.
    - The Date 2 RML is retained for recall for VIEW ONLY or for UPDATE on Date 3.

Medication Reconciliation
Work Flow

- Other thoughts: Reconciled Med List Specification inclusion of protocol P&P.
  - P&P includes definitions of "Medications" for that particular RMLS
  - There may be multiple RMLS subtypes with associated RML derivatives, variants
  - This current work will start with a "basic" or "minimum necessary" RML, perhaps creating a design framework for a primary RML and derivatives, variants.
- Burden Example: Clinician burden-simply finding the most recent source of truth.
- Consider "sort by diagnosis/reason" how possible?

- Discussion: Conclusion-This could be a next step/"parking lot" item.

- Perhaps a next step scenario? Bridge to Problem List
  - Perhaps a View option?
- Note: (Pending review from Social Work SME)

Medication Detail

- From local formulary or at large
- Brand or generic
- Strength or dosage: e.g., 10mg
- Dosage form: e.g., tablet
- Route or method of administration: e.g., oral
- Frequency: e.g., once a day
- Administration instructions

Use Case Analysis Worksheet

Columns
A. Event Step
B. Actor
C. Role
D. Event Description
E. Inputs – Data Needed to Take Action
F. Outputs – Data Resulting from Action Taken
G. Clinician Burden, Safety Concern or Error
H. Burden Offset Opportunity(ies)
I. Applicable Standard(s) – Data and Exchange
J. Applicable Standard(s) – System Functionality

HL7 Da Vinci Project
Data Exchange for Quality
Measures (DEQM) FHIR
Implementation Guide

Starts with Inpatient Medication
Reconciliation at Discharge

http://hl7.org/fhir/us/davinci-deqm/2020FEB/mrp.html

Medication Reconciliation Post-Discharge – Submit Data