MedRec in Ambulatory Care: Highlights from the literature and one hospital’s implementation efforts.

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To have something added to this map, please contact: medrec@ismp-canada.org
Doc Mike Evans discusses the importance of keeping a medication list

Hi! I'm Dr. Mike Evans... and today we're talking about Medication Safety.

Making a List

Prescription

Non-Prescription

Pathway to Better Health for You and Your Loved One!

http://www.youtube.com/watch?v=f2KCWMnXSt8&list=UUL-IWPkXQn3JYYYsPnpGllg

www.ismp-canada.org
Western e-Medication Management Conference Dec 1\textsuperscript{st}-2\textsuperscript{nd} Vancouver, BC

MedRec-related presentations include:

- Technology-Supported MedRec Processes: Current State In Canada And Beyond
- PANEL DISCUSSION: How Do We Fill The Communication Gaps In Medication Reconciliation?
- CASE STUDY: Medication reconciliation - the PROMIS of performance metrics

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- National MedRec Audit Month
- New MedRec publications
- MedRec related workshops

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Audience Poll

Click on the arrow icon and then click on the appropriate location on the slide in response to this question:

**Where are you in your Ambulatory MedRec journey?**

- Thinking and Planning
- Actively Implementing
- Implemented and Refining/Spreading
Medication Reconciliation in Ambulatory Care

Principles into Practice

Lisa McCarthy BScPhm PharmD MSc
Pharmacist, Clinician Scientist, Assistant Professor
Women’s College Hospital & University of Toronto

2014-10-14
Disclosures

• None
Session Objectives

1. Share findings from a recently conducted scoping review about medication reconciliation in ambulatory care settings

2. Describe how medication histories from community pharmacists can be used in institutional ambulatory clinics (MedIntegrate program)

3. Highlight lessons learned when developing processes for medication reconciliation that are applicable to all health systems
Introducing…

• Mr. T., 86 year old, widower
• Social History:
  • lives alone with hired companions
  • 3 children attend medical appointments with him
• PMH:
  • diabetes, hypertension, mild cognitive impairment
• Current Medications (from EMR)
  • Atorvastatin 40 mg hs
  • Insulin Mix 30/70 bid
  • Ramipril 2.5 mg daily
  • Vitamin D 1000 IU daily
| Day 1 (Saturday) | • Child 1: Call from caregiver reporting 2-day history of “severe hypoglycemia” mid morning  
• Child 1 brings Mr. T. to ER  
• ER Plan: lower morning dose of insulin by 3 units, note to family MD, Mr. T’s usual pharmacy not informed |
| Day 3 (Monday) | • Child 2: brings Mr. T. to long-standing endocrinologist appointment  
• On review of blood glucose logs, hypoglycemia mid-morning now 5 days  
• MD calls usual pharmacy to verify insulin dose  
• Endo Plan: Switch patient to long-acting insulin hs + DPP-IV inhibitor; Rx filled at pharmacy co-located with endo office, not Mr. T’s usual pharmacy |
<table>
<thead>
<tr>
<th>Day 10 (Monday)</th>
<th>HPI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• RN(EC) asks for team pharmacist consult, Mr. T. and Child 3 in office</td>
</tr>
<tr>
<td></td>
<td>• Mr. T continues hypoglycemia mid-morning but now first thing as well</td>
</tr>
<tr>
<td></td>
<td>• Attempts to retrieve ER note unsuccessful because fax was of a carbon copy that was then scanned to electronic medical record</td>
</tr>
<tr>
<td></td>
<td>• Call Endo but unavailable</td>
</tr>
<tr>
<td></td>
<td>• Call usual pharmacy, no idea about Endo Rx</td>
</tr>
</tbody>
</table>
Making the Case in Ambulatory Care
Importance

- Majority of prescriptions are written for non-hospitalized patients\(^1\)-\(^3\)
- Ambulatory patients have significant risk factors for drug-therapy problems (DTP), including adverse drug events (ADEs)
  - USA: \(n=5000\), 53% of patients > age 65 yrs had at least one DTP\(^4\)
  - Canada: \(n=900\), 90% had \(\geq 1\); 63% had \(\geq 3\) medication-related risks\(^5\)

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\(^1\) Sketris I, Optimal prescribing and medication use in Canada: Challenges and Opportunities. 2007
\(^2\) Canadian Diabetes Association Practice Guidelines 2008
\(^3\) 2009 CHEP recommendations for management of hypertension
\(^4\) Cipolle RJ, Pharmaceutical Care Practice, 2\(^{nd}\) ed. 2004
Importance

• Most ADEs are preventable
  • Samoy 2006¹
    • 24% hospitalizations medication-related; 72% were preventable
  • Zed 2008²
    • 12% of ER visits due to ADEs, 68% considered preventable
    • These visits associated with increased probability of hospital admission, increase median length of stay

¹Samoy LJ. Pharmacother 2006;26:1578-86
²Zed PJ. CMAJ 2008;178:1563-9
Importance

- MedRec is one strategy for potentially reducing preventable ADEs
  - Acute care:
    - Reduced discrepancies, actual and potential ADEs\(^1\); probably not 30-day post hospital discharge use\(^2\)
  - Long-term care
    - Reduced incidence of ADEs\(^3\)

\(^1\)Arch Intern Med 2012;172:1057-69
\(^2\)Ann Intern Med 2013;158:397-403
\(^3\)Am J Geriatr Pharmacother 2006;4:236-43
Outpatient Care

• MedRec likely more challenging than in other settings because:
  • Patients see multiple providers
  • Visits with providers are periodic
  • Patients have an increased responsibility for their safe use of their medications\textsuperscript{1}

MedRec in Primary Care

• Bayoumi I et al. Interventions to improve medication reconciliation in primary care.

• Systematic Review
  • Outcome: medication discrepancies
  • 893 citations, 53 full text assessed
  • n=4 included studies (1 RCTs + 3 pre/post designs)
    • Variable impact

Medication Reconciliation in Ambulatory Care: A Scoping Review

Investigators:
Lisa McCarthy (PI)
Jennifer Turple (Knowledge User Co-Applicant)
Chaim Bell
Paula Rochon
Thomas ER Brown
Natalie Crown

This project was supported by a Knowledge Synthesis Grant from the Canadian Institutes of Health Research www.cihr-irsc.gc.ca
Objectives

• Conduct a scoping review of studies of MedRec strategies in ambulatory care settings to:
  1. Identify target patient populations who would benefit
  2. Determine interventions studied to date and their associated barriers and facilitators
MedRec Interventions in Ambulatory Care: Preliminary Findings

Wendy Su BScPhm
Thomas ER Brown PharmD
Natalie Crown PharmD
Kate Walsh HBSc BScPhm
Lisa McCarthy PharmD MSc
Objectives

• To describe and categorize studies of MedRec interventions in ambulatory care settings:
  • Study designs
  • Elements of interventions
  • Outcomes examined
  • Implementation facilitators/barriers

• To identify gaps/opportunities for new strategies in research to inform future work
<table>
<thead>
<tr>
<th>Methods</th>
<th></th>
</tr>
</thead>
</table>
| SEARCH STRATEGY | • Developed by 2 librarians  
• Peer reviewed by 3rd  
• MEDLINE, PreMEDLINE, CINAHL, EMBASE, International Pharmaceutical Abstracts, reference lists  
• Inception to April 2014 |
| DATABASES |  |
| STUDY SELECTION | • English-language, MedRec interventions  
• Adults receiving care in ambulatory setting |
| SCREENING | • Level 1: title and abstract  
• Level 2: full-text |
| SYNTHESIS | • Interventions: Cochrane EPOC framework  
• Outcomes, facilitators/barriers: framework developed and tested by study team |
Results Cont’d

Records identified through database searching (n = 3055)

Duplicates removed (1252)
Records excluded after screening (n = 1657)

Full-text articles assessed for eligibility (n = 146)

Studies included in qualitative synthesis (n = 76)

Full-text articles excluded, with reasons (n = 70)
Not ambulatory care (n = 18)
Not Medication Reconciliation (n = 32)
Other (n = 20)

Additional Eligibility Criterion Added for Comparative studies qualitative synthesis (n = 14)
## Results

<table>
<thead>
<tr>
<th>Study Characteristics</th>
<th>n=14</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Study Design</strong></td>
<td></td>
</tr>
<tr>
<td>Before-and-after study</td>
<td>10</td>
</tr>
<tr>
<td>Cohort study</td>
<td>3</td>
</tr>
<tr>
<td>RCT</td>
<td>1</td>
</tr>
<tr>
<td><strong>Setting</strong></td>
<td></td>
</tr>
<tr>
<td>Primary Care</td>
<td>6</td>
</tr>
<tr>
<td>Internal Medicine</td>
<td>3</td>
</tr>
<tr>
<td>Geriatric</td>
<td>1</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
</tr>
<tr>
<td><strong>Country</strong></td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>14</td>
</tr>
</tbody>
</table>
Results Cont’d

Fig. Types of Interventions (n=40)

Professional Interventions 77%

Organizational Interventions 23%
Results Cont’d

Fig. Types of Outcomes (n=26)

Clinical Outcomes 35%

Process Outcomes 65%
Results Cont’d

Clinic-Level
- Collaboration with outside providers
- Ease of integration into workflow
  - Low cost

Staff-Level
- Individualized Feedback
- Engagement of all personnel
- Education about MR process

Patient-Level
- Engagement in MR process
- Understanding of MR importance
- Familiar setting for MR

Fig. Facilitators of Successful Interventions
Discussion

- Majority of interventions target professionals and outcomes are largely process focused

- Future studies:
  - Evaluate clinical significance of professional interventions
  - Consider organizational, financial and regulatory interventions and their impact
Medication Reconciliation In An Ambulatory Clinic: Integrating Community Pharmacist Services

Marko Tomas BScPhm
Natalie Crown BSc(Pharm) Pharm D
Debarot Borschel MD MSc
Lisa McCarthy PharmD MSc

Canadian Pharmacists Journal 2014; 147(5):300-306
WCH: What We Do

• Canada’s leading academic, ambulatory hospital

• What We Do:
  • Advance the health of women and improve healthcare options for all by delivering innovative models of ambulatory care
MedIntegrate

Recognized as an Accreditation Canada Leading Practice 2014

Goal

- Improve medication reconciliation process in Centre for Ambulatory Care Education Complex Care Clinic

Challenges

- Many patients, limited clinician resources
- Patients with multiple medical conditions and medications

Opportunity

- Leverage an existing community resource to address some of these challenges

http://www.accreditation.ca/node/7499
- Community-based medication review
  - 20-30 minute face-to-face meeting with a pharmacist
  - Patient is provided with a current medication list
  - Medication therapy issues identified (if any) are communicated to the prescriber

- Eligibility Criteria
  - Resident of Ontario with a valid health card
  - Taking ≥ 3 chronic medications OR diagnosed with diabetes
MedIntegrate Overview

- To develop, implement, and evaluate the feasibility of a program that integrates MedsCheck into an ambulatory clinic patient care process

**Figure 1 - Program Overview**
Methods: Feasibility Evaluation

- New patients referred to the Complex Care Clinic between January and May 2013 who were taking \( \geq 3 \) medications

<table>
<thead>
<tr>
<th>Program Statistics</th>
<th>Resident Survey</th>
<th>Patient Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Number of MedsChecks requested</td>
<td>- Number of residents who noticed addition of MedsCheck to chart</td>
<td>- Ease of booking MedsCheck appointment</td>
</tr>
<tr>
<td>- Number of replies received</td>
<td>- Change in time spent gathering history</td>
<td>- Experience with program</td>
</tr>
<tr>
<td>- Number of DTPs identified</td>
<td>- Support for program continuation</td>
<td>- Importance of accurate medication history</td>
</tr>
</tbody>
</table>
Results

FIGURE 2 Program uptake

- 86 patients contacted for initial appointment booking
  - 55 patients eligible for MedsCheck program (64%)
    - 1 patient declined to provide pharmacy information (2%)
      - 21 MedsCheck reviews received (39%)
        - 12 MedsCheck reviews identified at least one drug therapy problem (57%)
    - 31 patients ineligible for MedsCheck program (36%)
      - 54 letters faxed to community pharmacies (98%)
        - 5 pharmacy replies noting patients unwilling/unable to participate (9%)
      - 28 patients: No response received (52%)
**TABLE 3** Medical resident questionnaire results ($n = 15$)

<table>
<thead>
<tr>
<th>Statement</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saw MedsCheck documentation in charts, $n$ (%)</td>
<td>8 (53)</td>
</tr>
<tr>
<td>MedsCheck availability saved time gathering medication history, $n/8$ (%)</td>
<td>6 (75)</td>
</tr>
<tr>
<td>Support program continuation, $n$ (%)</td>
<td>14 (93)</td>
</tr>
<tr>
<td>Estimated number of minutes saved gathering medication history, mean (SD)</td>
<td>7.9 (2.4)</td>
</tr>
<tr>
<td>I consult the patient’s medication list (if available) when making treatment decisions, median (min, max)*</td>
<td>5 (4, 5)</td>
</tr>
<tr>
<td>Having an up-to-date list of medications allows me to provide better care to patients, median (min, max)*</td>
<td>5 (4, 5)</td>
</tr>
</tbody>
</table>

*Agreement was rated on a 5-point scale where 1 = strongly disagree and 5 = strongly agree.
### TABLE 1  Patient questionnaire results \((n = 32)\)

<table>
<thead>
<tr>
<th>Question</th>
<th>Median (min, max)</th>
</tr>
</thead>
<tbody>
<tr>
<td>During the MedsCheck, I learned something new about my medications that I did not know before.*</td>
<td>4 (2, 4)</td>
</tr>
<tr>
<td>Having an up-to-date list of medications is important to me.*</td>
<td>5 (2, 5)</td>
</tr>
<tr>
<td>Booking a MedsCheck appointment with my pharmacy was . . .†</td>
<td>4 (3, 5)</td>
</tr>
<tr>
<td>Finding time to attend a MedsCheck appointment was . . .†</td>
<td>4.5 (2, 5)</td>
</tr>
</tbody>
</table>

*Rated on a 5-point scale of 1 = strongly disagree and 5 = strongly agree.
†Rated on a 5-point scale where 1 = very hard and 5 = very easy.
Discussion

Comparison to previous literature\(^1\)

- Decreased response rate (73% vs. 38%)

Possible reasons

- Lower intensity of MedsCheck promotion
- 64% eligible but only 40% familiar with MedsCheck
- Short time interval between appointment booking and clinic visit

Commonalities

- Decreased workload duplication and time savings when obtaining a medication history

\(^1\)Leung et al. CPJ 2010;143(2):82-7.
Limitations

Smaller than anticipated number of participants

• Original intent: new & follow-up
• Differences in booking procedures led to focus on new patients only

Patients not familiar with MedsCheck

• Reception staff reported significant explanation required during booking beyond that provided in program script
Future Iterations

• Benefits
  – Time savings
  – Decreases duplication
  – Facilitates attainment of accreditation standards
  – Helps to identify patients who may benefit from clinic pharmacist involvement

• Resources Needed
  – Promotional tools
  – More administrative staff time
    • Appointment booking, fax send/receive, incorporation into patient chart
Conclusions

• MedIntegrate program well received by patients and providers
  • Relatively simple to implement with few resources required
  • May shorten amount of time spent gathering medication information
Food for Thought

• Reflecting on your setting
  • Consider:
    • Measuring your baseline
    • Small tweaks to workflow
    • Patients’ Role: “All meds every time” approach
    • Medication Review “Prescriptions”
      – Include a note asking pharmacist to please SHARE results with you
Final Thought

Acknowledgements:
Marko Tomas, Wendy Su, Co-Investigators,
Staff of the Complex Care Clinic

Contact: lisa.mccarthy@utoronto.ca
Thank you for attending
Our next MedRec webinar will take place in Nov 18th, 2014.

Topic: Alberta Health Services will describe their MedRec measurement strategy and their results!

Details to follow.
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Practitioner Reporting
https://www.ismp-canada.org/err_report.htm

Consumer Reporting
www.safemedicationuse.ca/
Medication Safety Self-Assessment®

- Hospitals (acute care) (2006) - free for Ontario*
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- Complex Continuing Care and Rehabilitation (2008) - free for Ontario*
- Community and Ambulatory Pharmacy (2007) - free for Ontario*
- Operating Room Medication Safety Checklist (2009) - free for Ontario*
- Oncology (2012)
- Anticoagulant Safety (VTE) - free for Ontario*
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* Supported by the Ontario MOHLTC

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