Patient-Completed Medication Histories Using a Patient-Specific Provincial Database Prescription History Form in an Urban Emergency Department

Heather J Paulson, Dr. Richard G Wanbon

Introduction

Accreditation Canada mandates that Emergency Departments (EDs) obtain best possible medication histories (BPMHs) for all admitted patients. Incomplete medication history rates are as high as 67% and lead to hospital prescribing errors in up to 27% of cases. Obtaining BPMHs in EDs is time-consuming and challenging due to high patient volumes and quick patient turnover rates.

Current Evidence:
Few studies have assessed the patient’s ability to independently complete a medication history; these studies did not utilize a BPMH process completed by a healthcare professional as a comparator and did not utilize a medication history form which identifies medications dispensed in the community.

Study Objectives

Objective 1: Determine if patients can complete a BPMH independently and precisely using a novel patient-specific medication history form

Outcome measures:
- Percentage of patients able to complete the form without creating a discrepancy compared to a standard BPMH process
- Types and number of discrepancies

Objective 2: Identify variables available at ED triage, which may predict the patient’s ability to complete a BPMH using a novel medication history form

Objective 3: Identify healthcare provider time savings with the intervention

Methods

Design:
- Prospective, self-controlled study

Study Population:
- Patients presenting to the Royal Jubilee Hospital (RJH) ED in Victoria, BC
- 19 years of age and older

Inclusion
- Patients presenting to the Royal Jubilee Hospital (RJH) ED in Victoria, BC
- 19 years of age and older
- Level of consciousness, confusion, delirium or dementia
- Study would disrupt care
- Unable to communicate
- High acuity illness
- Out of province patient
- BPMH already obtained

Exclusion
- Altered level of consciousness, confusion, delirium or dementia
- Study would disrupt care
- Unable to communicate
- High acuity illness
- Out of province patient
- BPMH already obtained

Intervention: Patient independently completes a novel medication history form that is pre-populated with medications dispensed in the community (based on the provincial prescription database PharmaNet).

Control: Pharmacist performed BPMH; patients serve as their own control

Patient Flow Chart & Baseline Demographics

Figure 1. Sample medication history form

Figure 2. Patient Flow Chart

Patient Flow Chart & Baseline Demographics

Table 1. Baseline demographics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>N = 75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average age (years)</td>
<td>61.7 (9-97)</td>
</tr>
<tr>
<td>Female</td>
<td>46 (62%)</td>
</tr>
<tr>
<td>Average CRA</td>
<td>2.88 (2-4)</td>
</tr>
<tr>
<td>Average number of current home meds*</td>
<td>8.24 (0-30)</td>
</tr>
<tr>
<td>Eliptor pack use</td>
<td>8 (11%)</td>
</tr>
<tr>
<td>Home med list brought in</td>
<td>17 (23%)</td>
</tr>
<tr>
<td>Home meds brought in</td>
<td>9 (12%)</td>
</tr>
<tr>
<td>Family helped with form</td>
<td>11 (15%)</td>
</tr>
<tr>
<td>Decision to admit</td>
<td>84 (11%)</td>
</tr>
</tbody>
</table>

CRA = Canadian Triage And Acuity Scale
* current home meds = regularly scheduled or have used within the past 2 weeks

Discussion

Findings:
- Given the rates of exclusion, withdrawal and declined consent, the expected number of patients that can complete their own BPMH in the RJH ED each day (out of 145 patients) is:
  - At least 33 (23%) patients for a full BPMH
  - At least 48 (33%) patients for PharmNet medications only
- Similar rates for admitted and non-admitted patients
- Benefits provided are conservative estimates; patients who were excluded or did not give consent may have been able to complete their own BPMH
- Potential cost savings: ≥$40,000 in pharmacy technician wages to obtain an additional 12,000 BPMHs per year at RJH ED
- Logistic regression analysis cannot reliably distinguish patients who are able to complete their own BPMH without a discrepancy
- Time for interview was short – form prepared prior to interview
- Consent bias minimized by extensive exclusion criteria
- Obtaining a BPMH for most patients still requires a healthcare provider

Results

Table 2. Predictive variables for patients with no discrepancies in the intervention process (logistic regression analysis)

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<tr>
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<th>Sensitivity (%)</th>
<th>Specificity (%)</th>
<th>R²</th>
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<tr>
<td>All meds</td>
<td>0.427</td>
<td>43.8</td>
<td>90.5</td>
<td>0.233</td>
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<td>PharmNet meds only</td>
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Time Savings:
Pharmacist time spent with patient to assist with the form versus conducting medication interview: 1.6min versus 6.7min (excluding patients with discrepancies)

Limitations

- Narrow patient population selection due to exclusion criteria
- Carryover bias due to study process sequence that favours control data
- All interactions with patients were conducted by the same pharmacist
- Blinding of the pharmacist was not possible
- Limited sample size
- Single study site
- Patients only recruited during daytime hours on weekdays
- Novel medication history form is not validated
- Does not represent an anticipated electronic BPMH format

Conclusion

The majority of patients included in this study could complete their own BPMH using the form; however, there was a high exclusion rate. The results of this study may still represent an opportunity for healthcare time and cost savings with the expansion of medication reconciliation services in the ED. Further research is required to identify a triage protocol to select patients who are able to complete their own BPMH using a patient-specific provincial database prescription history form.