Standardization of Pharmacists Involvement in Best Possible Medication History and Medication Reconciliation

N. Dewhurst PharmD[1,2], J. Proceviat BScPhm[1], E. Tom BScPhm[1]

[1]St. Michael's Hospital, Pharmacy Department [2]Leslie Dan Faculty of Pharmacy, University of Toronto, Toronto, Ontario, Canada

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BACKGROUND

- Medication reconciliation is an important safety initiative, but variation exists amongst pharmacists in selection of which patients are prioritized.
- In order to balance performance of medication reconciliation and other clinical duties, standard criteria for prioritization was necessary.

DESCRIPTION

- The process of best possible medication history (BPMH) initiation and medication reconciliation was standardized to allow all pharmacists to apply a consistent approach.

ACTION

- **Design** – Retrospective, quality improvement project from May 19-23, 2014
- **Setting** – A single site, university affiliated, tertiary-care centre in a large, urban centre; 2 medical units (general internal medicine [GIM] and cardiology) & 2 surgical units (general surgery and cardiovascular [CV] surgery)
- **Patients** – Patients were identified using the pharmacy distribution system.
- **Data** – Patients' electronic and paper charts were reviewed for: # medications prior to admission, presence of any high risk medication prior to admission, age, unit, date of admission, source of medication information, completion of BPMH form, date of BPMH completion, days elapsed between admission and BPMH completion, and who the BPMH was completed by. Data was collected using a standardized data collection form.
- **Patient and medication characteristics** – after characteristics were collected, 12 various permutations of the following occurred: i) ≥ 5 medications prior to admission, ii) high risk medication (any) prior to admission, iii) patient age ≥ 65. These permutations were trialed to determine projected frequency of criteria amongst all patient admissions. The identified characteristics were used as the basis for pharmacist selected patient prioritization.

Table 1. High Risk (HR) Medication List*†

Class	Examples of targeted medications
Anti-diabetic medications	insulin, hypoglycemic oral agents, metformin
Anticoagulation	warfarin, unfractionated heparin, low molecular weight heparins, fondaparinux, dabigatran, rivaroxaban, danaparoid
Opiates	opiates, meperidine, methadone, suboxone
Immunosuppressant agents	systemic corticosteroids, disease modifying anti-rheumatic drugs (DMARDS)
Anti-neoplastics	methotrexate, (excluding hormonal agents)
Antiretrovirals	lamivudine, efavirenz, raltegravir, ritonavir, combination antiretroviral products
Anti-seizure medications	carbamazepine
Other	total parenteral nutrition (TPN) propylthiouracil, epoprostenol, IV bosentan, isotretinoin, digoxin

*Adapted from i) St. Michael's Hospital "High-Alert Medications" policy, ii) ISMP's "List of High-Alert Medications", and iii) ISMP's "List of High-Alert Medications in Community/Ambulatory Healthcare.
†High Risk medications used to evaluate the BPMH and medication reconciliation performed.

EVALUATION

Table 2. BPMH completion rate of patients stratified by unit

Unit	BPMH completed	Charts audited	Completion rate
General Internal Medicine (GIM)	47	55	85%
Cardiology	13	16	81%
Medical	**60**	**71**	**85%**
General surgery	18	25	72%
CV surgery	28	30	93%
Surgical	**46**	**55**	**84%**
Total	**106**	**126**	**84%**

Table 3. BPMH completion rates with delineation between pharmacists and other professions

Unit	Pharmacist initiated & completed		Pharmacist verified		Pharmacist initiated & completed / verified		BPMH completed (all disciplines)	Total charts audited
GIM	24	(51%)	6	(13%)	29	(62%)	47	55
Cardiology	5	(38%)	0	(0%)	5	(38%)	13	16
Medical	**28**	**(46%)**	**6**	**(10%)**	**34**	**(57%)**	**60**	**71**
General surgery	11	(61%)	3	(17%)	13	(72%)	18	25
CV surgery	11	(39%)	13	(46%)	23	(82%)	28	30
Surgical	**20**	**(44%)**	**16**	**(35%)**	**36**	**(78%)**	**46**	**55**
Total	**51**	**(48%)**	**22**	**(20%)**	**70**	**(66%)**	**106**	**126**

Table 4. Baseline BPMH completion analyzed by the 3 criteria used in the permutations

Criteria	Pharmacists n (%) - /51	Others n (%) - /55	Δ n (%)
# medications ≥ 5 [prior to admission]	42 (82%)	37 (67%)	5 (15%)
High risk medication (any) [prior to admission]	36 (71%)	26 (47%)	10 (24%)
Patient age ≥ 65	36 (71%)	28 (51%)	8 (20%)

EVALUATION

Table 5. Frequency of patient and medication related characteristics from various permutations in patients with completed BPMHs

Criteria	Pharmacist completed n (%)	Other completed n (%)	Δ n (%)	# of patients fitting criteria, n = 126 (%)
HR (any) **or** # meds ≥ 5 **or** age ≥ 65	49 (46%)	43 (41%)	6 (5%)	106 (84%)
# meds ≥ 5 **or** age ≥ 65	45 (46%)	42 (43%)	3 (3%)	98 (78%)
HR (any) **or** age ≥ 65	44 (58%)	37 (39%)	7 (19%)	96 (76%)
# meds ≥ 5 **or** HR (any)	42 (45%)	38 (41%)	4 (4%)	93 (74%)
# meds ≥ 5	42 (50%)	37 (44%)	5 (6%)	84 (67%)
age ≥ 65	36 (50%)	28 (39%)	8 (11%)	72 (57%)
HR (any)	36 (55%)	26 (40%)	10 (15%)	65 (52%)
# meds ≥ 5 **+** age ≥ 65	30 (54%)	23 (41%)	7 (7%)	56 (44%)
HR (any) **+** age ≥ 65	21 (51%)	17 (42%)	4 (9%)	41 (33%)
HR (any) **+** age ≥ 65 **+** # meds ≥ 5	21 (53%)	17 (43%)	4 (10%)	40 (32%)
HR (any) **+** # meds ≥ 5	26 (46%)	25 (45%)	1 (1%)	56 (44%)

Goal: The optimal combination of above characteristics to capture at least half of all admissions
Selected criteria for pharmacist standardization of BPMH prioritization: High risk medications

IMPLICATIONS

- Patients on high risk medications were more likely to be selected by pharmacists for BPMH completion as compared to other disciplines (71% vs. 47%).
- The use of high risk medications as a patient selection criteria by pharmacists will enable capture of approximately half of all admissions.
- Prioritizing patients on high risk medications was identified as the best criteria to standardize pharmacist initiated BPMH, as medication errors are more likely to occur with high risk medications.
- Standardization enables the discipline to set minimum criteria for when BPMHs and medication reconciliation will be provided by pharmacists to enable a balance of clinical duties.
- Next step - Prospective evaluation of pharmacist initiated BPMH and adherence to the developed policy will occur.

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