Impact of Pharmacist Involvement on Polypharmacy and use of Potentially Inappropriate Medications in Elderly Hip Fracture Patients (IMPROVE-Hip)

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Introduction

Hip fractures in the elderly represent a significant burden to the healthcare system.

The Impact of Hip Fractures

- In 2011/12, 3885 patients were admitted to hospitals across BC with hip fracture, this number is projected to increase by 2% annually.
- 30% of patients with a hip fracture will die in the year following their fracture.
- 50% of patients will lose one level of mobility and independence, leading to increased care costs.

The BC Hip Fracture Redesign Project

- A project formed in 2013 to implement evidence-based clinical practices with the goal of improving clinical outcomes in hip fracture patients.
- In 2015, Pharmacy Services at Royal Jubilee Hospital (RJH), in collaboration with the BC Hip Fracture Redesign Project, began ensuring that new hip fracture patients receive formalized intensive clinical pharmacist involvement in an effort to determine if this could lead to an improvement in patient outcomes.

Uniqueness/Relevancy of Research

- The positive correlation between polypharmacy and fall/hip fracture risk has been well studied.
- In-hospital medication deprescribing and optimization by a clinical pharmacist could potentially improve outcomes in hew hip fracture patients.
- A thorough literature review failed to elicit evidence of any trials investigating intensive pharmacist intervention in recent hip fracture patients.

Study Objective

Objective: To evaluate the potential benefits of intensive clinical pharmacist intervention in hip fracture patients within 48 hours of hospital admission.

Primary Outcomes:

- Number of medications prior to admission versus at time of discharge and at 30, 60, and 90 days post-discharge
- Number of Potentially Inappropriate Medications (PIMs) prior to admission versus at time of discharge and at 30, 60 and 90 days post-discharge

Secondary Outcomes:

- Length of stay in-hospital
- 90-day hospital readmission rate (at any Island Health hospital)
- In-hospital mortality rate
- Proportion of patients discharged to an alternate level of care (ALC) from admission
- Perceived benefits of pharmacist interventions (via ward staff survey)

Intensive Clinical Pharmacist Intervention

Pharmacist involvement within 48 hours of admission, standardized to include:

- Obtaining a best possible medication history (BPMH)
- Performing admission medication reconciliation
- Performing a medication review focusing on polypharmacy and PIM reduction
  - PIMs: any medication appearing on the "Drugs and the Risk of Falling: Guidance Document" from the BC Falls and Injury Prevention Coalition
- When the patient is discharged, producing a best possible discharge medication list (BPDML)

The Reality of Research

- In February of 2016 we learned that the pharmanet data which we required to assess our primary outcomes was no longer able to be provided to us within our study's timeframe. Unfortunately this meant that our primary outcomes were no longer obtainable in time for residency research night.
- In the interim, we continued to investigate our secondary outcomes.

Methods

Survey:

Design: Prospective observational survey conducted by electronic questionnaire
Inclusion Criteria: All ward staff (RNs, LPNs, clerks, allied health) and orthopedic surgeons working on the orthopedic surgery ward at RJH during 2015
Exclusion Criteria:

- Any staff unable to complete the survey in English

Screening and Recruitment:

- Every staff member on the orthopedic ward was identified using RJH's "Microsoft Outlook" listserv and invited to participate via email
- No incentives were offered for completing the survey

Retrospective Review:

Pre-intervention group: all patients who meet our inclusion/exclusion criteria and were admitted to RJH in the 6 months prior to Feb 14, 2015
Post-intervention group: all patients who meet our inclusion/exclusion criteria and were admitted to RJH in the 6 months following Feb, 14, 2015

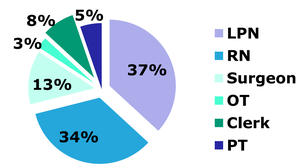
Study Population

Inclusion	Exclusion
• ≥65 years of age • Admitted to RJH with a radiographically confirmed hip fracture • Enrolled in the provincial hip fracture database	• <65 years of age • Patients with distal femur fractures, acetabular fractures, or periprosthetic fractures

Results (Survey)

Participants:

- Response rate: 44/88 possible participants (50% response rate)
- 43/44 respondents had treated hip fracture patients within the past year



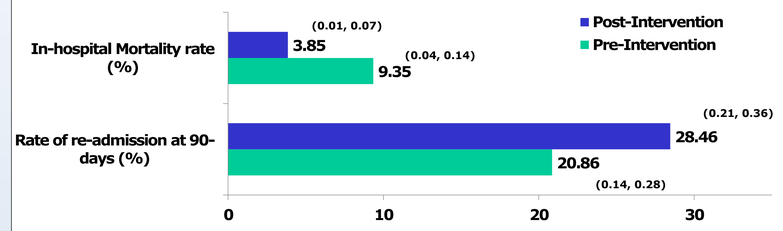
Question (check all that apply)

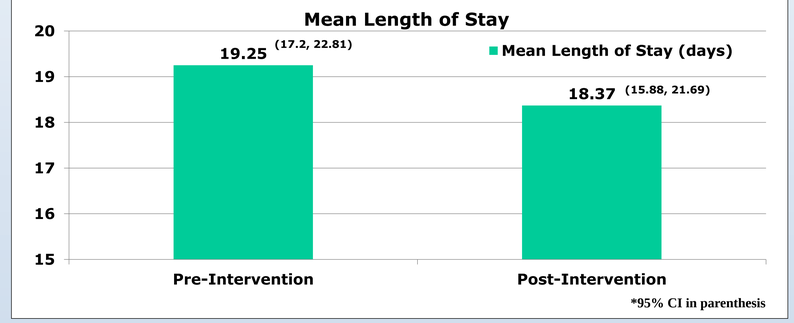
Which functions or roles of a pharmacist on the orthopedic unit do you feel are of (or would be of) the most benefit to:

	You		Your Patient	
	Ward Staff (39)	Surgeons (5)	Ward Staff (39)	Surgeons (5)
Attending interdisciplinary rounds	33	0	33	1
Med reconciliation	34	5	34	4
Med reviews	32	4	32	5
Assisting with reordering home meds	37	5	32	4
Performing consults to reduce polypharmacy	28	3	30	4
Performing consults to reduce falls risk	24	3	28	4
Assisting with optimal drug dosing	31	5	31	5
Monitoring drug therapy	36	5	32	5

Results (Retrospective Review)

Pre-Intervention Group	Post-Intervention Group
Seen by a clinical pharmacist? 73/152 – 48%	**Seen by a clinical pharmacist?** 92/135 – 68%





Discussion

- With the exception of attending interdisciplinary rounds, the majority of orthopedic ward staff and surgeons believed that all of our stated pharmacist interventions were beneficial to both themselves and their patients
- Due to the unavailability of data, we were unable to assess the number of medications and potentially inappropriate medications on admission, and at 30, 60 and 90 days post-discharge. We were also unable to assess the proportion of patients discharged to an alternate level of care (ALC) from admission
- In our post-intervention group we observed non-statistically significant reductions in length of stay (0.9 days) and in-hospital mortality rates (RRR 58%)
- In our post-intervention group we observed a non-statistically significant increase in hospital re-admission rate (RRI 8%)

Limitations

- Unable to assess primary outcomes due to lack of data
- Small sample size (n=284)
- Short duration
- Single center
- Retrospective
- Largely evaluating the work of a single pharmacist

Conclusion

- Orthopedic surgeons and orthopedic unit ward staff find a wide variety of pharmacist interventions to be beneficial both to themselves and their patients
- Intensive and formalized pharmacist intervention within 48 hours of admission decreased the mean length of stay in-hospital by 0.9 days (NSS) in hip fracture patients
- Larger and longer-term studies are required to assess clinical outcomes in this patient population
- Data for our primary outcomes is currently in the process of being collected and analyzed

References available on request