# Pharmacist Consult Service in Geriatric Trauma Patients

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## INTRODUCTION

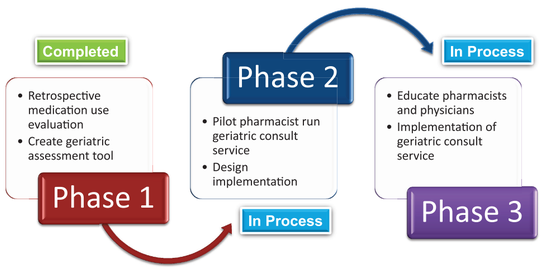
- Geriatric patients (> 65 years of age) have a 3-5% incremental increase in annual occurrence of trauma making it a top five leading cause of death in this population.
- The mortality rate ranges from 15-30%, which is 4-5 times higher than younger patients.
- In 2011, data from the Pennsylvania Trauma Systems Foundation (PTSF) demonstrated nearly 32% of injured patients statewide and nearly 50% of the trauma patients at Thomas Jefferson University Hospital (TJUH) were > 65 years.
- Most geriatric patients have comorbidities that are treated with many medications, which may predispose them for falls.
- Although there are many methods to assess safety of medication regimens in this population, the Screening Tool for Older Persons' Prescriptions (STOPP), Screening Tool to Alert doctors to Right Treatment (START), and American Geriatrics Society (AGS)-endorsed Beer's List 2012 are most utilized in current clinical practice.
- Both the STOPP and Beer's 2012 tool identify potentially inappropriate medications (PIMs) in this population.

### Geriatric Trauma Pharmacy Consult

**Pilot Program**
- Interprofessional consultative services (e.g. geriatric medicine, nutrition, PT/OT, respiratory)
- Pharmacy – evaluation for PIMs

**Purpose (Pharmacy)**
- Review PIMs at admission and discharge prior to and after implementation of the pilot program
- Identify key trends in medication-related problems (MRPs) predisposing or implicated in patients trauma
- Develop a process for consult as part of clinical pharmacy services

**Hypothesis**
- Pharmacist consultation and intervention will reduce the PIMs at discharge




### Methods - Process

**Identify**
- Inpatients ≥ 65 on trauma service
- Daily fax from internal trauma registry
- Order for pharmacy consult placed in electronic medical record (EMR)
- Pharmacy consult order also identified through pharmacy surveillance program Sentri7®

**Consult**

Inclusion:
- ≥ 5 medications or ≥ 6 changes to inpatient medications
- Hospitalization w/in 30 days
- History of falls

Work-flow:
- Review w/in 72 hrs
- PIMs identified using AGS Beer's 2012 & STOPP Criteria
- Provide trauma team w/ recommendations

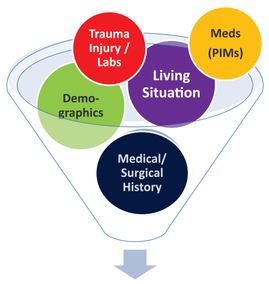
**Follow-up**

Documentation:
- Medication reconciliation
- Record interventions in pharmacy database

Follow-up
- Patient progress prior to discharge
- 30-day readmissions
- Acceptance of pharmacy interventions

2/15/2013 – 8/31/2014

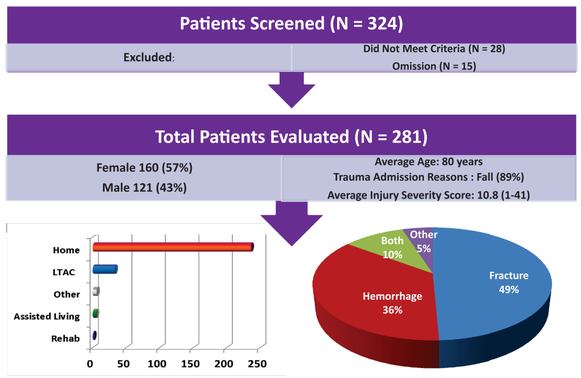
### Methods - Data



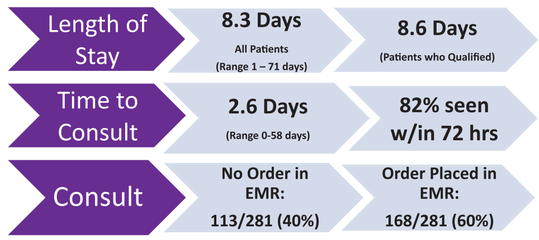

Data Analysis: patient's trauma was caused and/or exacerbated by medications

## RESULTS

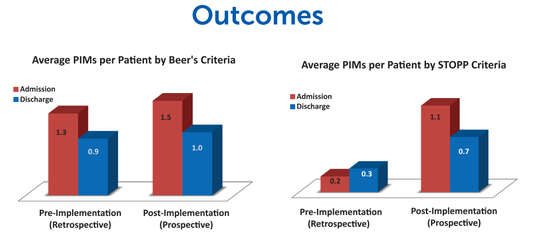
### Demographics

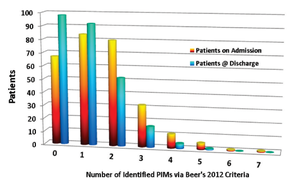



### Process Metrics

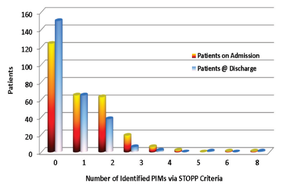



### Outcomes



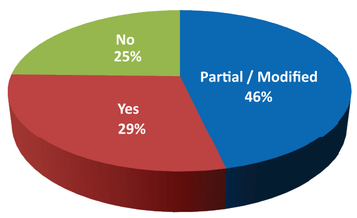




**PIMs Identified thru Beer's 2012 Criteria**
- PIM @ Admission 1.5 per Pt.
- PIM @ Discharge 1.0 per Pt.
- Reduction of 33%




**PIMs Identified thru STOPP Criteria**
- PIM @ Admission 1.1 per Pt.
- PIM @ Discharge 0.7 per Pt.
- Reduction of 36%

**Acceptance of Pharmacists' Recommendations on Identified PIMs**




### Commonly Found PIMs

| Common PIMs | Data | Medication Related Problems |
|---|---|---|
| Psychotropic | 208/281 (74%) patients screened had at least 1 psychotropic medication at admission | Increases risk of cognitive impairment, delirium, falls, fractures, and motor vehicle accidents in older adults |
| Antidepressants | 101/208 (48.6%) | Increased risk of falls/fractures |
| Antipsychotics | 29/208 (13.9%) | Increase risk of stroke and mortality in persons with dementia |
| Sedatives/Hypnotics Anxiolytics | 88/208 (42.3%) | Increased sensitivity slower metabolism of long-acting agents.<br>Increases risk of cognitive impairment, delirium, falls, fractures, and motor vehicle accidents<br>Avoid chronic use (> 90 days); minimal improvement in sleep latency and duration |

## DISCUSSION

- Daily fax of trauma registry helped identify patients in cases of consult orders not being placed in EMR
- Both Beer's 2012 and STOPP criteria were useful in identifying and reducing PIMs at discharge
  - However, medications not directly identified as PIMs may have contributed to admissions related to trauma
  - Antihypertensives: 68/281 (24%) patients had related falls
  - Proton Pump Inhibitors (PPIs): 26/281 (9%) had fractures
- Majority (82%) of patients were seen within 72 hrs
- 30-day readmissions: 7 patients, with only 1 patient readmitted back on trauma service; none medication related

## LIMITATIONS

- Pharmacy consult service currently limited to two clinical pharmacists
- No one tool is adequate in screening all patients
- Some medications not directly identified as PIMs may have contributed to admissions related to trauma
  - Antihypertensives: 68/281 (24%) patients had related falls
  - Proton Pump Inhibitors (PPIs): 26/281 (9%) had fractures
- Difficult to correlate impact of recommendations and interventions in the context of inpatient admission as well as probability of PIMs directly causing patient's traumatic injury
- Interventions partially or not accepted potentially due to MRPs that require participation of patients' primary care physicians

## FUTURE DIRECTIONS

- Improve adherence to screening > 90% of patients within 72 hours (even though a small amount of patients were missed)
- Inclusion of pharmacist recommendations in geriatric trauma patients on discharge instructions for patient to discuss with their primary care physicians
- Establish sustaining pharmacy-based medication evaluation & safety consult service in geriatric population
- Correlate congruence in utility of Beer's 2012 vs. STOPP criteria
- Determine linkage and impact on patient safety as a result of concomitant recommendations made by other interprofessional members of the Geriatric Trauma team

## ACKNOWLEDGEMENTS

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