The Impact of Pharmacist Counseling on Congestive Heart Failure (CHF) 30-day Readmissions at a Community Hospital

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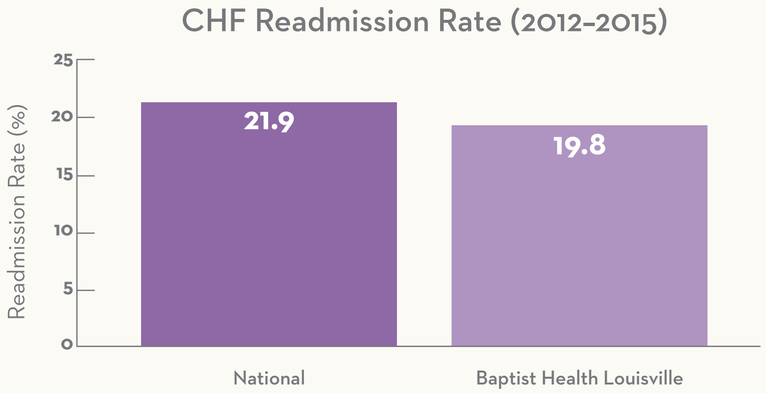
Background

- Congestive heart failure (CHF) is the leading cause of hospitalization and mortality in the United States
- CHF affects 5.7 million adults and is responsible for one in nine adult deaths
- 30-day hospital readmissions have a significant impact on the health care system with estimated annual cost of $15 billion
- 30-day hospital readmissions – important quality outcome measure for the Centers for Medicare & Medicaid Services (CMS)



- Several prospective studies evaluated the impact of implementation of pharmacy facilitated medication reconciliation, patient education, and discharge counseling on 30-day readmissions at academic medical centers or large teaching hospitals
- Previous studies reported decrease in medication errors and emergency department visits with the use of pharmacy facilitated patient education model
- Recent prospective, historical control study at academic medical center by Zemaitis et al., found 27% reduction in 30-day readmissions through pharmacists' services
- To date, no studies available that identify the effect of pharmacist inpatient counseling on rates of CHF patient readmission at a community hospital

Hypothesis

Pharmacist provided inpatient counseling for congestive heart failure patients will reduce 30-day hospital readmission rates

Objectives

Primary Objective:

To determine the incidence of 30-day readmission in CHF patients before and after implementation of inpatient pharmacist counseling

Secondary Objectives:

- To determine the amount of time required by a pharmacist to provide one patient counseling
- To determine the incidence of 30-day emergency department (ED) visits before and after implementation of inpatient pharmacist counseling
- To determine the factors associated with prevention of 30-day readmission rates

Methods

- Retrospective, single center, observational cohort study
- Patients will be identified using electronic health records generated daily report
- Chart review performed from April 2016 to December 2016

Intervention:

Full-time clinical outcomes pharmacist providing inpatient counseling with utilization of teach-back method

- Pre-implementation phase (3 months)
- Post-implementation phase (3 months)

Inclusion Criteria	Exclusion Criteria
Age ≥ 18 years	Prisoners
Admitted to hospital with a history of heart failure or admission diagnosis of heart failure	Pregnant women
	Patients with altered mental status
	Patients discharged to skilled nursing facilities or long-term care facilities

Methods cont.

Data Collection:

Age	LACE score	Number of medications at day of counseling and at discharge
Gender	Length of stay	Home medications list containing heart failure, cholesterol, and anticoagulation medications
Race	Ejection fraction	Pharmacist's time spent on counseling
Weight	Past medical history	Number and type of pharmacist interventions
Hospital readmissions and ED visits within 30-days of discharge		

Data Analysis and Statistics

- Continuous data will be analyzed using student's t test as appropriate
- Nominal or categorical data will be compared using Chi-square method as appropriate
- Univariate and multivariate logistic regression will be performed to determine factors associated with prevention of 30-day readmissions (with p-value < 0.2)
- A power analysis determined 396 (198 patients per group) need to be enrolled to achieve 80% power, with 5% alpha, a predicted 20% incidence of 30-day readmission in the pre-group and an estimated effect size of 10%

Ongoing Research

- Data collection is ongoing
- Study proposal approved through Baptist Health Louisville Research Oversight Committee (ROC) and Western Institutional Review Board (WIRB)
- Final results will be presented at Great Lakes Pharmacy Resident Conference

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Disclosures

Authors of this presentation have nothing to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation.

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The development of a tool for prevention of inpatient falls based on Beers Criteria and STOPP: a pilot study.

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Background

- Falls are the leading source of accidental death in people ≥ 65.
  - Medical cost of fall-related injuries was $34 billion in 2013 and projected to be as high as $44 billion by 2020.
  - On average, falls resulting in an injury can add up to 6.3 days of a hospital stay
  - Among hospitalized older adults, up to 78% of falls can be predicted based on factors such as the room layout or prescribed medications
- The Center for Disease Control and Prevention recommends that older adults should talk with their doctor or pharmacist to review their medications in order to identify ones that may potentially cause side effects or interactions leading to a higher fall risk
- *The BEERS' Criteria for Potentially Inappropriate Medication Use in Older Adults and the Screening Tool of Older Persons' Potentially Inappropriate Prescriptions Criteria (STOPP)* are validated tools for identifying potentially inappropriate medications in patients 65 and older.
  - Both lists contain a broad spectrum of agents, many of which may not be realistic targets for intervention in an inpatient setting.
- There are currently no studies evaluating the application of the Beer's or STOPP criteria in terms of clinical interventions within a large community hospital.

Objectives

The purpose of this study is to develop a tool based on the Beers criteria and STOPP to assist clinical pharmacists in making interventions to prevent inpatient falls.

- **Specific Aim 1:** Survey physicians at a large community hospital to identify the decision making process used when considering what interventions would be accepted regarding potentially inappropriate medications.
- **Specific Aim 2:** Implement the tool in an inpatient setting among patients older than 64.
- **Specific Aim 3:** Evaluate the pharmacist-recommendation acceptance rate as well as the overall number of falls in patients who were screened by the tool. This will be compared against patients who are not screened by any tool.

Methods

Phase 1:

An initial review of current evidence on the significance of medications on fall rate will be evaluated allowing for a baseline understanding of which medications to target for the most effect. (Table 1)

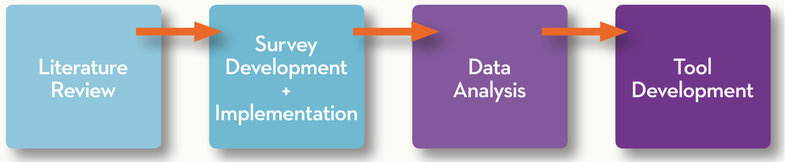


Table 1: The risk of falls per medication type from literature review

	Psychotropics	Antidepressants	Neuroleptics	Sedative	Benzodiazepines	TCAs	Thiazide Diuretics	Loop Diuretics	Digoxin	Nitrates	Beta-Blockers	Calcium Channel Blockers	Ace Inhibitors	Centrally Acting Antihypertensives
# of studies	11	11	10	9	8	8	12	11	17	14	18	13	10	11
Pooled OR	1.66 (1.40-1.97)	1.62 (1.23-2.14)	1.90 (1.35-2.67)	1.25 (0.98-1.60)	1.40 (1.11-1.76)	1.40 (0.96-2.02)	1.06 (0.97-1.16)	0.90 (0.73-1.12)	1.22 (1.05-1.42)	1.13 (0.95-1.36)	0.93 (0.77-1.11)	0.94 (0.77-1.14)	1.20 (0.92-1.58)	1.16 (0.87-1.55)

- A voluntary survey will be performed amongst physicians providing care at Baptist Health Louisville; emphasis is placed on admitting providers or consultants associated with medication classes on the Beers/STOPP criteria.
- Survey will be sent to 86 physicians with primary admitting or consulting privileges via SurveyMonkey®
- Survey to assess knowledge of and willingness to change medications based on falls risk (Figure 1 and 2)
- Results of survey will be combined with the data found from previous trials to create a monitoring tool to be used in an inpatient setting.

Figure 1. Of the following interventions for any medication that may potentially lead to falls, which are you likely to perform to reduce the risk of falls?

	Likely (>60%)	Sometimes (30–60%)	Rarely (<30%)	I do not do this
Discontinue home medications	❍	❍	❍	❍
Decrease dosage of home medications	❍	❍	❍	❍
Hold home medications while in hospital	❍	❍	❍	❍
Discontinue hospital medications	❍	❍	❍	❍
Decrease dosage of hospital medication	❍	❍	❍	❍
Contact attending physician to stop medication	❍	❍	❍	❍
Contact attending physician to reduce medication dose	❍	❍	❍	❍
Contact outpatient physician for any changes	❍	❍	❍	❍

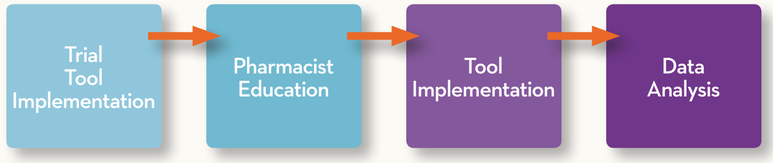
Methods cont.

Figure 2. When these medications are started in the hospital, what is your willingness to adjust the use of these agents to decrease fall risk?

	No adjustment	Decrease dose	Hold dose	Change medication to lower risk alternative	Discontinue medication with no alternative
Beta Blockers	❍	❍	❍	❍	❍
Calcium Channel Blockers	❍	❍	❍	❍	❍
ACE Inhibitors/ARBs	❍	❍	❍	❍	❍
Other Cardiovascular medications (Digoxin, nitrates, etc.)	❍	❍	❍	❍	❍
Antipsychotics	❍	❍	❍	❍	❍
Antidepressants	❍	❍	❍	❍	❍
Sedatives	❍	❍	❍	❍	❍
Pain medications	❍	❍	❍	❍	❍
Diuretics	❍	❍	❍	❍	❍

Phase 2:

- Pharmacists at Baptist Health Louisville will be trained in usage of the tool. A pilot study will evaluate the pharmacist-recommendation acceptance rate as well as the overall number of falls in patients who were screened by the tool. This will be compared against patients who are not screened by any tool.



Results

- Approved by Baptist Health Louisville Research Oversight Committee
- IRB approval pending – submission to Western IRB
- Physician participation secured – Survey ongoing through month of November and December
- Tool development planned for month of December

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