

Providence St. Joseph Health

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### Standardized pharmacist led medication review in patients with recent falls

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## Results\*

Figure 1. Subsequent injurious falls

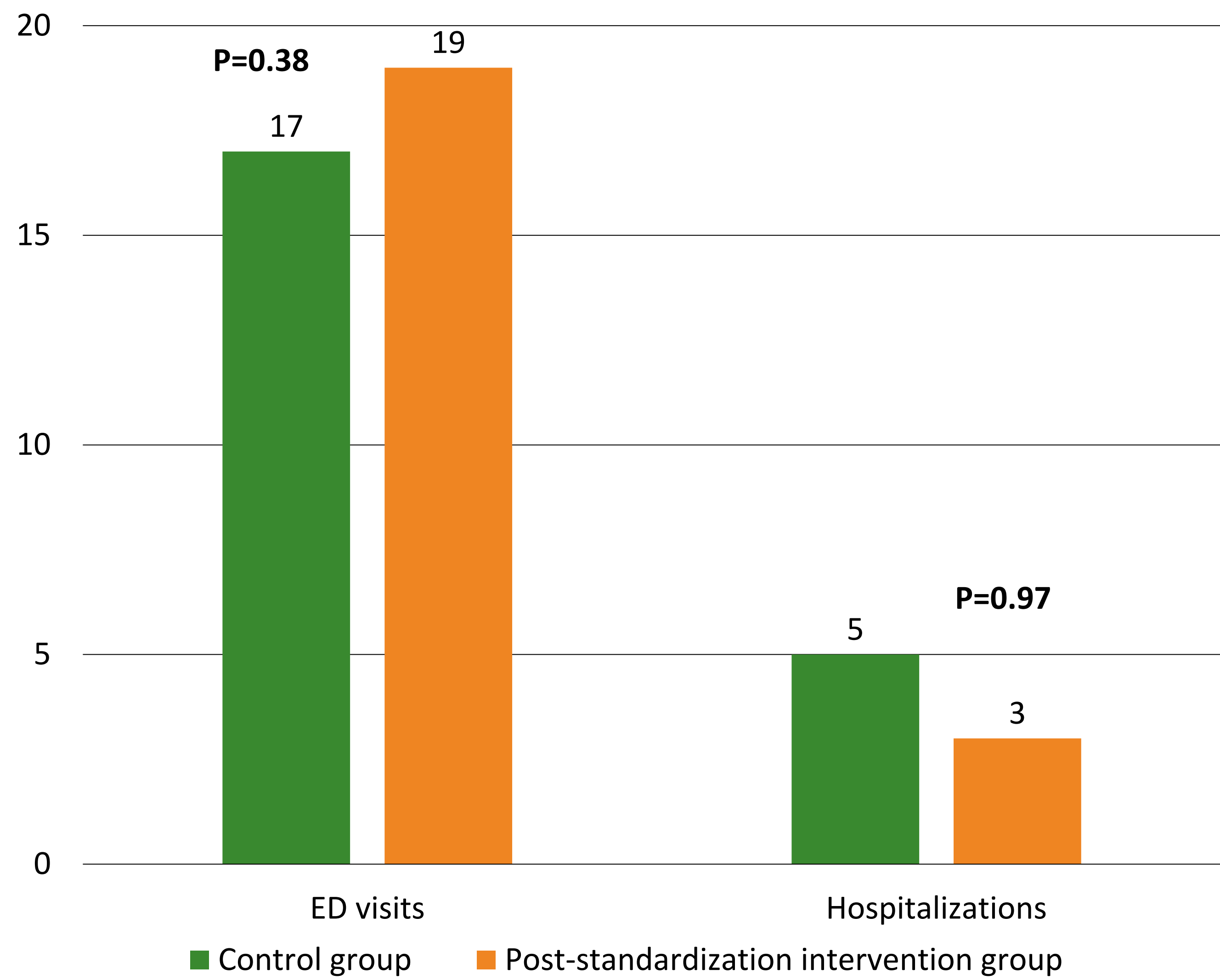
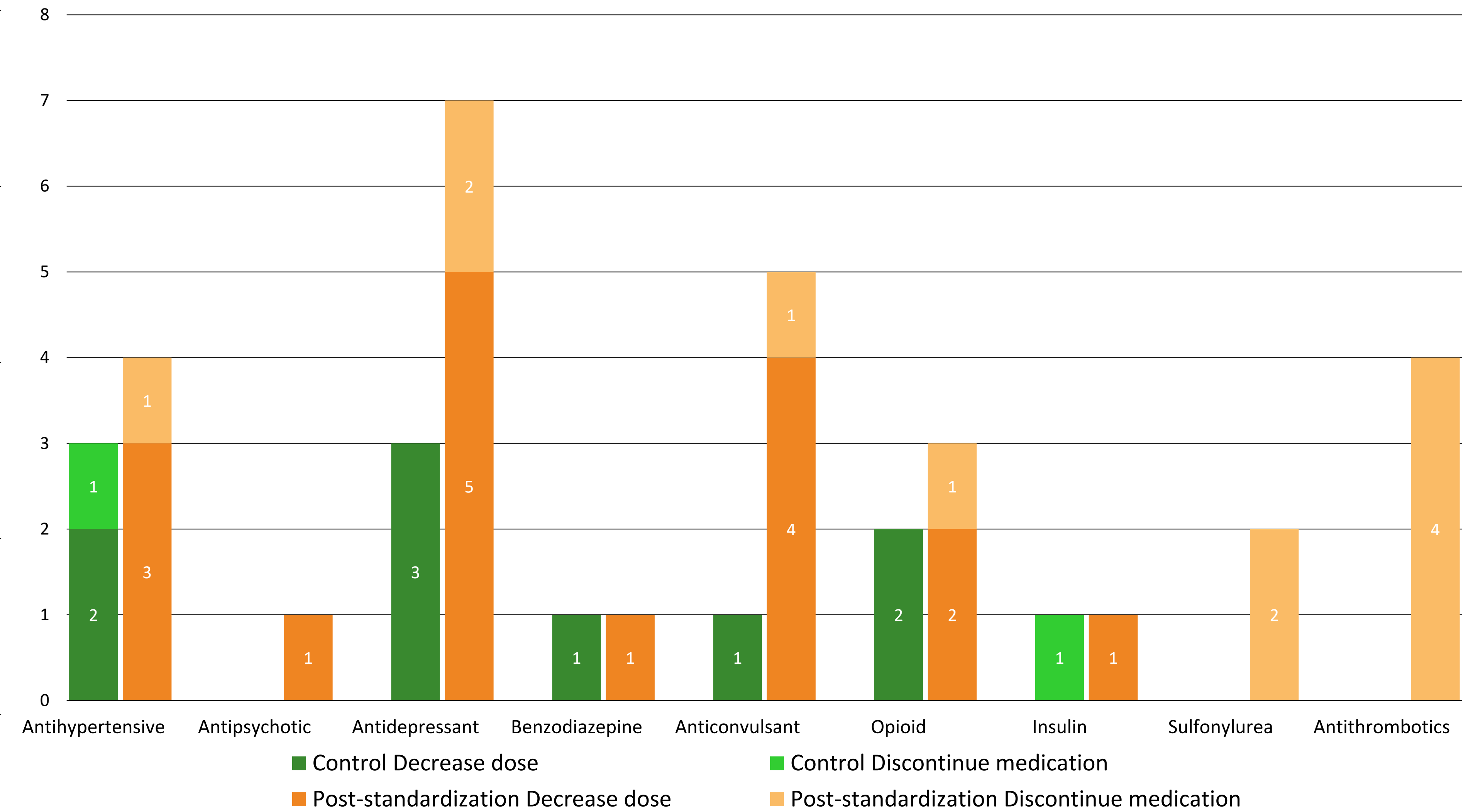


Figure 2. Pharmacists Medication Recommendations



## Background

- One in three adults over the age of 65 living in a community setting experience a fall each year.<sup>1</sup>
- There are approximately 3 million fall-related emergency department (ED) visits each year.<sup>2</sup>
  - Falls account for the largest percentage of deaths from unintentional injuries
- Medication factors, such as polypharmacy, were found to increase the risk of recurrent falls by 51%.<sup>3</sup>
- Providence ElderPlace PACE provides interdisciplinary care services to over 1,600 frail older adults
  - Among all Providence ElderPlace PACE participants, there are between 150-200 falls each month.
  - The presence of embedded clinical pharmacists at each ElderPlace PACE site present an opportunity to identify medication related causes to falls
- A standardized workflow and documentation was developed in October 2021 to aid pharmacists in identifying high risk medications to consider intervening upon and encourage more efficient medication reviews.

## Objectives

- Primary objective
  - To determine if a standardized pharmacist driven medication review following a fall can impact subsequent injurious falls requiring evaluation in the ED or hospitalization out to 6 months
- Secondary objectives
  - Number, type and acceptance of medication recommendations made by the clinical pharmacist
  - Number of individual patients experiencing an injurious fall out to six months
  - Total number of falls in the six months following the index event

## Methods

- Study design
  - Multicenter, retrospective chart review
- Inclusion criteria
  - Adult patients 18 years and older
  - Enrolled as participants at Providence ElderPlace
  - Fall documented between October 18- November 30, 2020, or October 17- November 30, 2021
- Exclusion criteria
  - Classified as palliative care level II or hospice care at time of index fall event
- Statistics
  - The primary outcome will be assessed using a Mann-Whitney U test
  - Acceptance of medication recommendations will be evaluated using a chi-squared test

Figure 3. Acceptance rate of pharmacist recommendations

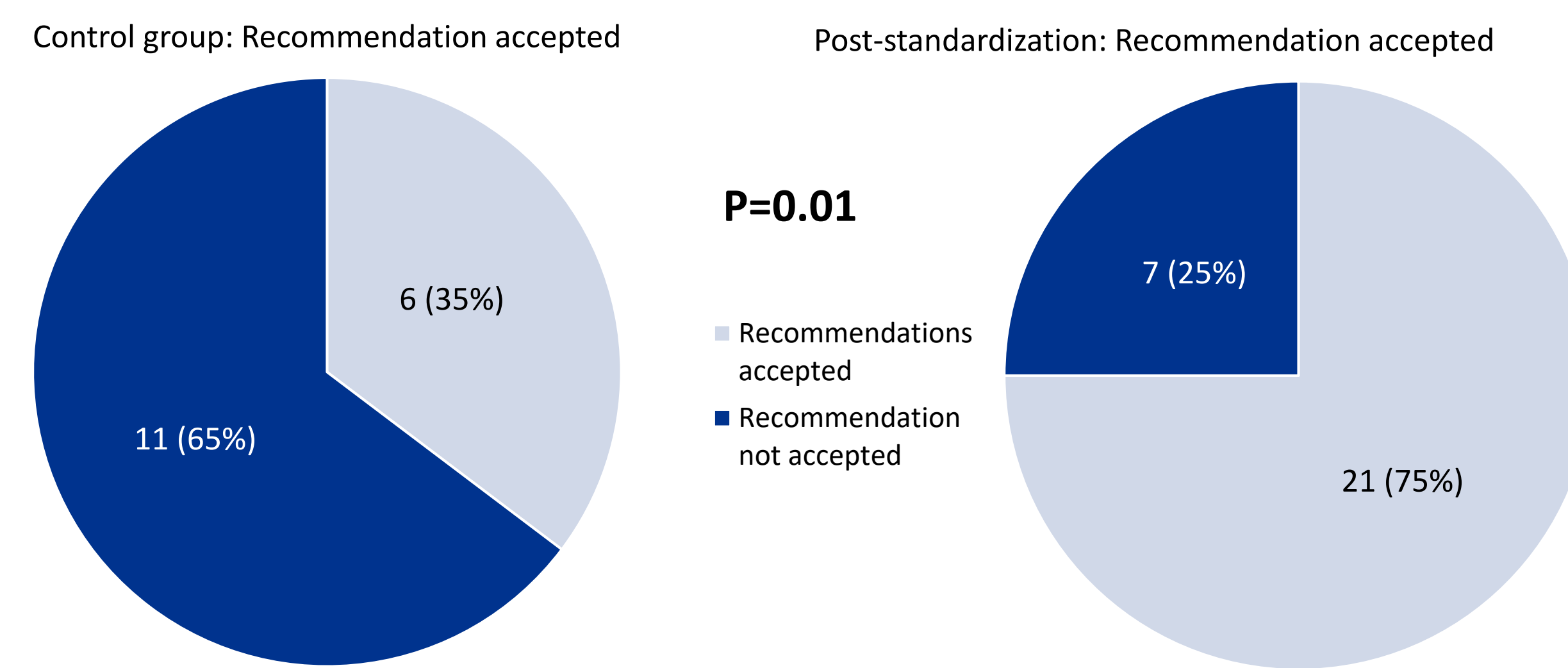


Table 1. Baseline Characteristics

	Pre-standardization control group (n=135)	Post-standardization intervention group (n=90)
Age (years)†	77 (58-102)	76 (58-99)
Female sex‡	87 (64)	64 (71)
Race‡		
White	115 (85)	73 (81)
Black	9 (7)	8 (9)
Asian	3 (2)	2 (2)
Hispanic/Latino	1 (1)	0 (0)
American Indian/Alaska Native	1 (1)	1 (1)
Other/unknown	6 (4)	6 (7)
Weight (kg)†	80.7 (37.6-189.6)	77.4 (40.8-163.3)
Frail‡	63 (47)	32 (36)
Place of residence at time of index fall‡		
Independent home	8 (6)	7 (8)
Adult care home	26 (19)	12 (13)
Adult living facility	44(33)	33 (37)
Residential care facility	28 (21)	24 (27)
Memory care unit	25 (19)	11 (12)
Skilled nursing facility	4 (3)	3 (3)
Any fall in the previous 6 months‡	84 (62)	54 (60)
Number of falls in the previous 6 months†	2 (1-18)	2 (1-14)
Diagnosis of dementia‡	85 (63)	55 (61)
Diagnosis of osteoporosis‡	39 (29)	28 (31)
Receiving antiresorptive or anabolic osteoporosis treatment	11 (28)	11 (39)
Number of high-risk medications prescribed†	3 (0-6)	3 (0-7)
High risk medications‡		
Antihypertensive	89 (66)	62 (69)
Antipsychotic	36 (27)	34 (38)
Antidepressant	85 (63)	56 (62)
Benzodiazepine (BZD)	22 (16)	12 (13)
Cholinesterase inhibitor	30 (22)	19 (21)
Non-BZD sedative and hypnotic	0 (0)	1 (1)
Anticonvulsant	53 (39)	39 (43)
Opioid	41 (30)	24 (27)
Skeletal muscle relaxant	12 (9)	5 (6)
Anticholinergic medications	11 (8)	8 (9)
Insulin	19 (14)	11 (12)
Sulfonylurea	6 (4)	7 (8)

\*All results presented as preliminary findings pending completion of data collection

†Data expressed as median (range); ‡Data expressed as n (%)

<sup>1</sup>PGY2 Geriatric Pharmacy Resident- Providence ElderPlace; <sup>2</sup>Clinical Pharmacist Specialist and Clinical Coordinator- Providence Medical Group at Home

## Discussion

### Injurious falls

- Similar rates of injurious falls were seen among both cohorts of patients
  - Fractures and SNF placement were similar between the two groups during the follow up period: 4 fractures and 4 SNF transfers in the control group compared to 3 and 2 in the post-standardization group
  - The small number of patients for which pharmacists performed medication reviews makes it difficult to determine the impact of the pharmacist's interventions
    - However, **no patient that the pharmacist reviewed in either group was subsequently hospitalized due to a fall**

### Pharmacist recommendations

- Pharmacists reviewed a similar number of falls pre- and post-standardized workflow, 26 patients vs. 29 patients respectively
  - Following standardization, pharmacists made more interventions, had more interventions accepted, and had fewer incidence where no medication changes were identified**
- Osteoporosis treatment remains an opportunity for pharmacists to provide recommendations as few patients with osteoporosis were appropriately treated

### Recurrent falls

- A total of 102 (76%) patients in the pre-standardization group and 52 (58%) in the post-standardization group experienced a recurrent fall

## Going Forward

- Completion of data collection:
  - All patients in the post-standardization group have 2-4 weeks remaining in their 6 month follow-up period
  - 43 patients in the post-standardization group have not yet been reviewed for data collection
- Statistical analysis of results
  - Evaluating if certain medications or patient characteristics increase the risk of recurrent falls that can guide more targeted medication reviews
- Examine current approaches to osteoporosis treatment given low percentage of patients with a diagnosis of osteoporosis receiving antiresorptive or anabolic treatment

## References

1. While AE. Falls and older people: understanding why people fall. Br J Community Nurs. 2020;25(4):173-177.
2. Burns E, Kakara R. Deaths from Falls Among Persons Aged ≥65 Years - United States, 2007-2016. MMWR Morb Mortal Wkly Rep. 2018;67(18):509-514.
3. Jehu DA, Davis JC, Falck RS, et al. Risk factors for recurrent falls in older adults: A systematic review with meta-analysis. Maturitas. 2021;144:23-28.