



POST-DISCHARGE ADVERSE EVENTS OF INDIVIDUALS AGE 65 AND OLDER

Hanna Lee, Medical Student, John Agens, M.D., Stephen Quintero M.D., and Dennis Tsilimingras, M.D., M.P.H.

This project was supported by grant number R01HS018694 from the Agency for Healthcare Research and Quality (R01 AHRQ). The content is solely the responsibility of the authors and does not necessarily represent the official views of the Agency for Healthcare Research

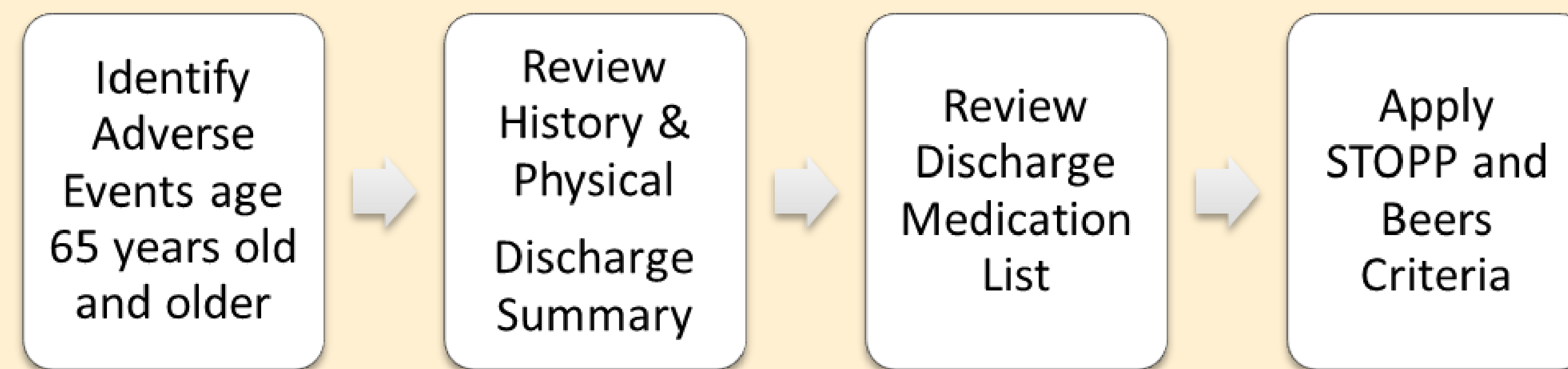
Background

Adverse events (AE) are injuries that may be the result of medical management. Adverse events injuries resulting from medications, procedures, diagnostic errors, therapeutic errors, nosocomial infections, pressure ulcers, and falls. Previous prospective studies have examined adverse events in the post-discharged hospitalized patients; however, few have included significant percentages of rural patients in a community hospital setting and older persons. For older persons, criteria have been developed both through expert panel and empirical evidence for potentially inappropriate medications. Prospective data on adverse events involving these medication is rare. This prospective study's research aims are as follows:

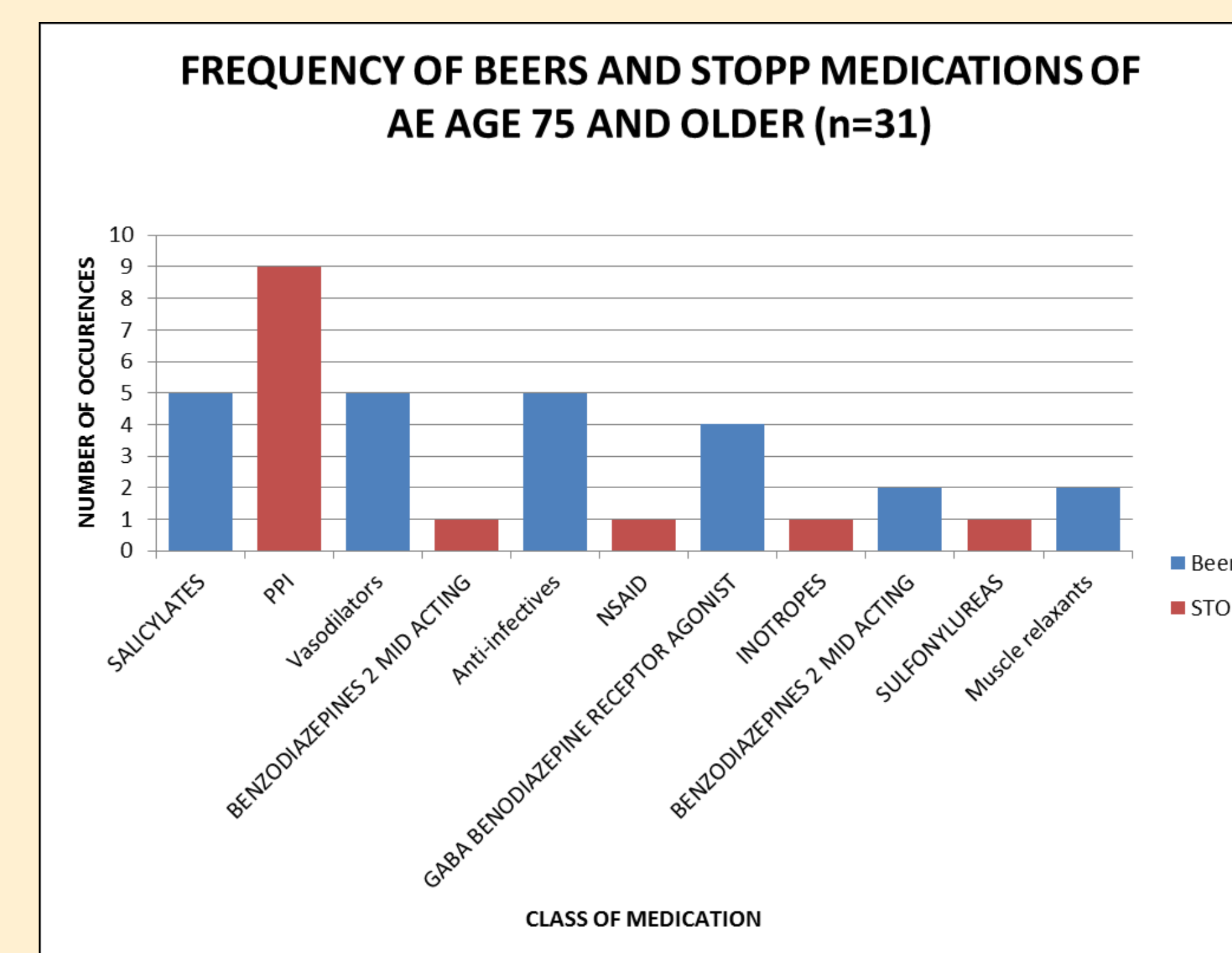
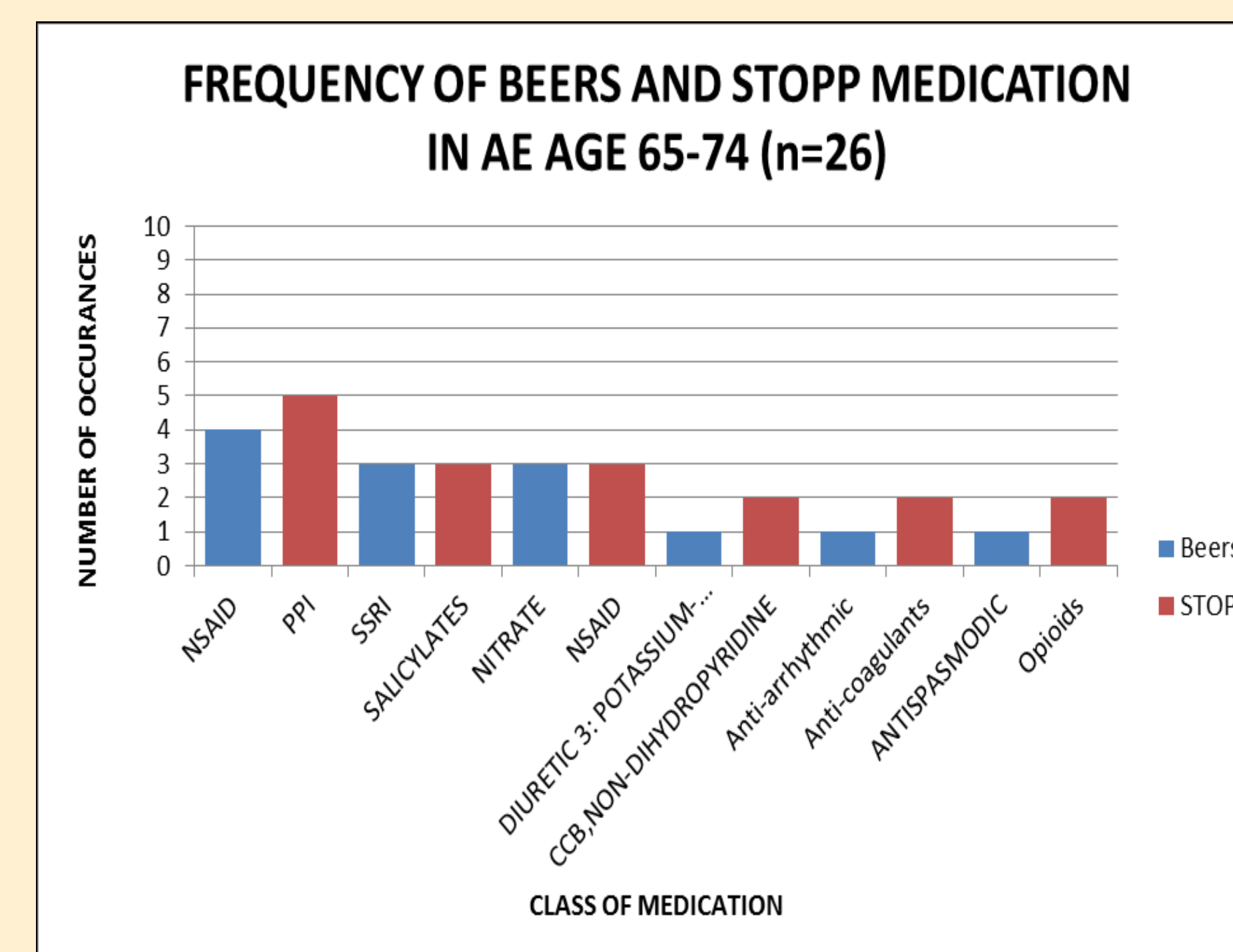
- 1.) Determine the characteristics of the elderly age groups, 65-74 and 75 and older who have experienced an AE.
- 2.) Determine the frequency of prescribed Beers and STOPP medications within those age groups who have experienced an adverse drug event (ADE).
- 3.) Determine how often the implicated drug for the ADE met the Beer's and STOPP criteria.

Methods

Adult patients in this prospective cohort study were selected by nurse interviewers from hospital discharges over 12 months. The Tallahassee Memorial Hospital (TMH) is a regional community hospital servicing both urban and rural patients. Exclusion criteria included a discharge to a skilled nursing facility. Study participants were screened by two study nurses using a structured telephone interview approximately 3-weeks after discharge from the hospital. Possible AEs were sent to two physician reviewers based on three explicit criteria: (1) new or exacerbated symptoms; (2) unplanned health services utilization; and (3) abnormal laboratory test. AEs were determined by performing an independent implicit health record review (both inpatient and outpatient). Physicians reviewed the records provided to determine AEs independently and which AEs resulted from drugs (ADEs) versus other causes. Disagreements were resolved by consensus. Subsequently, it was determined which drugs were STOPP Beers list drugs by medical record review in 57 patients 65 and older who experienced an AE.

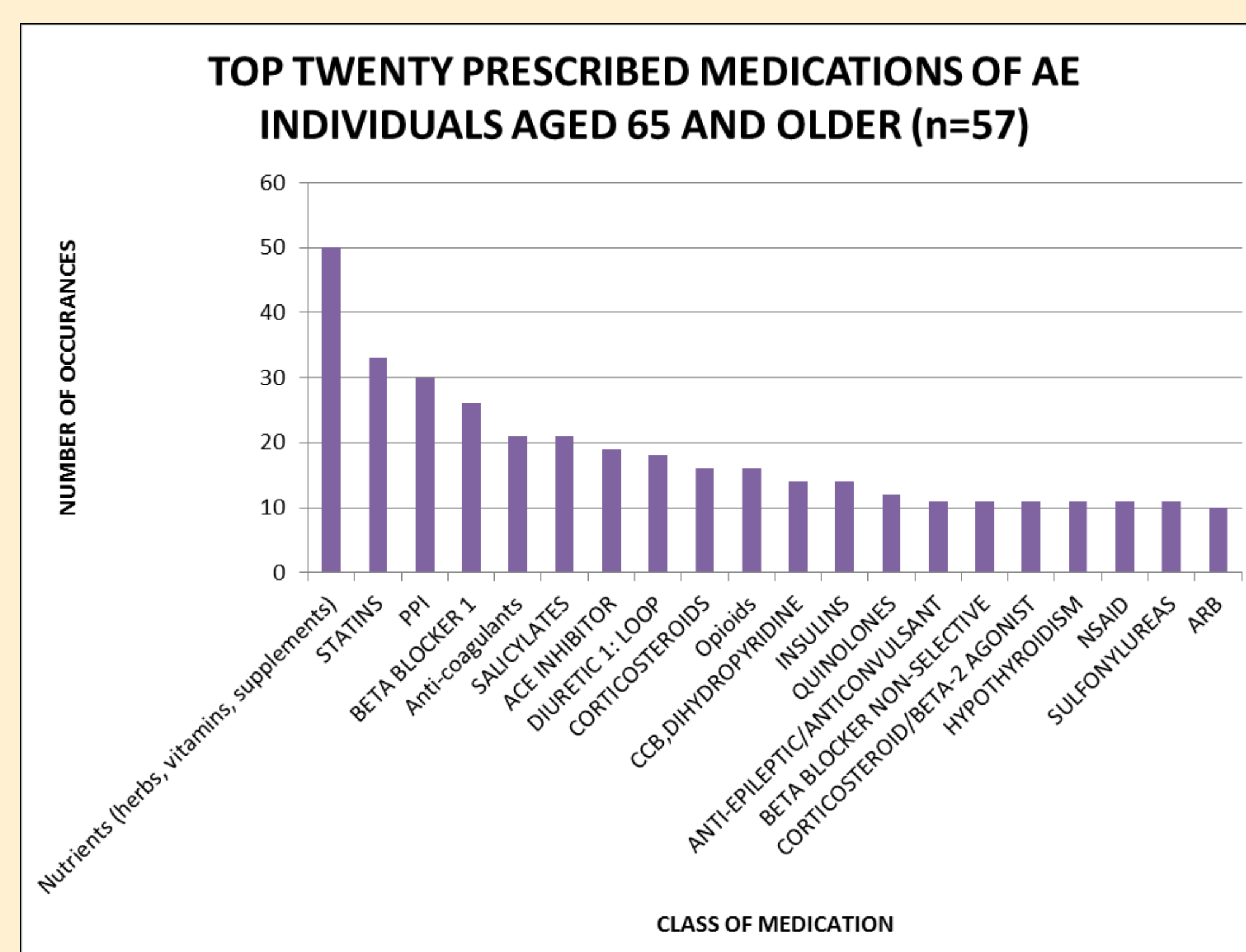


	Age		Gender		Zone	
	65-74 (n=26)	75+ (n=31)	Female (n=35)	Male (n=22)	Urban (n=36)	Rural (n=21)
Mean No. Of Meds	10.19	10.94	10.86	10.18	10.33	11.05
Median No. Of Meds	10	10	10	10	10	10
Mean No. Of Beers Meds	1.12	1.36	1.46	0.91	1.42	0.95
Mean No. Of STOPP Meds	1.27	0.90	1	1.18	1.05	1.09
Males	13 (50%)	9 (29%)		22 (100%)	12 (33%)	10 (48%)
Females	13 (50%)	22 (71%)	35 (100%)		24 (67%)	11 (52%)
Urban	20 (77%)	16 (52%)	24 (69%)	12 (55%)	36 (100%)	
Rural	6 (23%)	15 (48%)	11 (31%)	10 (45%)		21 (100%)



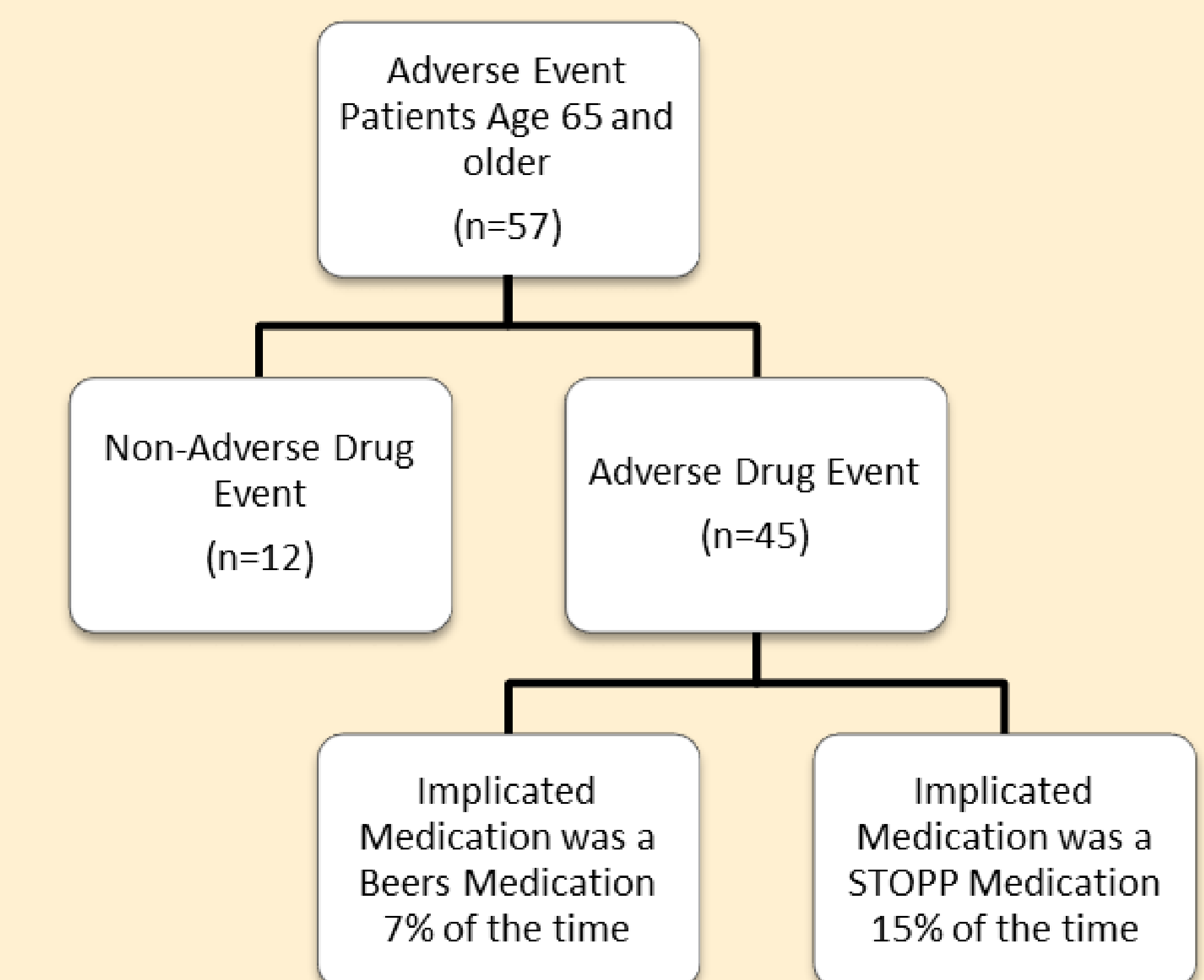
	NON-ADE (n=12)		ADE (n=45)	
	65-74 (n=6)	75+ (n=6)	65-74 (n=20)	75+ (n=25)
Mean No. of Meds	9.83	9.5	10.3	11.28
Mean No. of Beers Meds	1.33	1.33	1.05	1.36
Mean No. Of STOPP Meds	1.3	0.83	1.25	0.92
Males	5 (83%)	3 (50%)	8 (40%)	6 (24%)
Females	1 (17%)	3 (50%)	12 (60%)	19 (76%)
Urban	5 (83%)	3 (50%)	15 (75%)	13 (52%)
Rural	1 (17%)	3 (50%)	5 (25%)	12 (48%)
White	6 (100%)	6 (100%)	19 (95%)	22 (88%)
Black	0	0	1 (5%)	3 (12%)
65-74	6 (100%)		20 (100%)	
75+		6 (100%)		25 (100%)

Results



Conclusions

- 1.) Of the age groups, 65-74 and 75 and older who have experienced an AE:
 - ◊ Aside from nutrients, statin medications had the highest number of occurrences.
 - ◊ Mean number of medications was 10 to 11 medications.
 - ◊ Median number of medications was 10 medications.
 - ◊ Rural patients were on slightly more medications than urban patients.
 - ◊ On average, patients were on at least 1 STOPP and/or Beers.
 - ◊ Females tended to be on more Beers medications than males.
- 2.) The relative frequencies of prescribed Beers and STOPP medications within elderly age groups who have experienced an ADE were:
 - ◊ 65-74 Age Group
 - ◆ Beers: NSAIDs had the highest number of occurrences.
 - ◆ STOPP: PPI had the highest number of occurrences.
 - ◊ 75+ Age Group
 - ◆ Beers: Salicylates, vasodilators, and anti-infectives had the highest number of occurrences.
 - ◆ STOPP: PPI had the highest number of occurrences.
- 3.) The frequency of the implicated drug for the ADE that met the Beer's and STOPP criteria are as follows:



References

1. Forster AJ, Murff HJ, Peterson JF, Gandhi TK, Bates DW. The incidence and severity of adverse events affecting patients after discharge from the hospital. *Ann Intern Med.* Vol 138. United States 2003:161-167.
2. Forster AJ, Clark HD, Menard A, et al. Adverse events among medical patients after discharge from hospital. *CMAJ.* Feb 3 2004;170(3):345-349.
3. PL Detail-Document, STARTing and STOPping Medications in the Elderly. Pharmacist's Letter/Prescriber's Letter. September 2011.
4. The American Geriatrics Society 2012 Beers Criteria Update Expert Panel (2012), American Geriatrics Society Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. *Journal of the American Geriatrics Society*, 60: 616-631. doi: 10.1111/j.1532-5415.2012.03923.x