Fall-Related Emergency Department Traumas at Thomas Jefferson University Hospital: A Retrospective Analysis of Elderly Adult Trends.

Mark Lyons, MPH (c)
Dr. Albert Crawford, PhD, MBA, MSIS, Nora Kramer, R.N., MSN

BACKGROUND

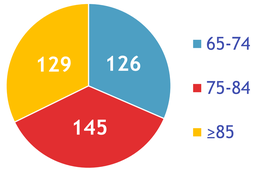
- Injuries due to unintentional falling are the most common non-fatal injuries reporting to US EDs for every age category except ages 15-24.
- In 2014 the PA statewide cost for fall-related injuries in patients ages ≥65 was $2.7 billion with an average per-hospitalization cost of $58,529.
- Pennsylvania has the fifth highest state senior population in the country and Philadelphia has the fifth largest senior population among the major American cities, 17.4% as of 2016.
- We will analyse the 2016 Jefferson ED fall-related trauma database to help understand the unique demographics of our community and help contribute to ongoing falls prevention and reduction efforts at TJU.

METHODS

- Study Design – A retrospective analysis of de-identified data.
- Data - The 2016 Thomas Jefferson ED fall-related trauma database will be searched retrospectively for fall-related trauma incidents occurring between January 1, 2016 and December 31, 2016.
- Sample - Patients ages ≥65 with the word "Fall" in their reported mechanism of injury who meet the Pennsylvania Trauma Outcome Study (PTOS) criteria for a trauma in Pennsylvania.
- Inclusion/Exclusion – The PTOS outlines specific guidelines for what are considered fall-related traumas (details upon request) and distinguish those from other falls and fall-related injuries not considered physically traumatic.
- Data Analysis – SAS 9.4 was used to run crosstab analysis on variables across age croups, an ANOVA with Tukey test for analysis of multiple group mean differences, and a t-test for significance of length of hospital stay among those with and without an initial loss of consciousness.

RESULTS

Figure 1: Age Distribution of Sample by Adult Age Group.



- The 400 total incident records for 2016 are represented roughly evenly by our three age groups of older adults.

RESULTS cont.

Figure 2: Percentage of Fall Type by Age Group

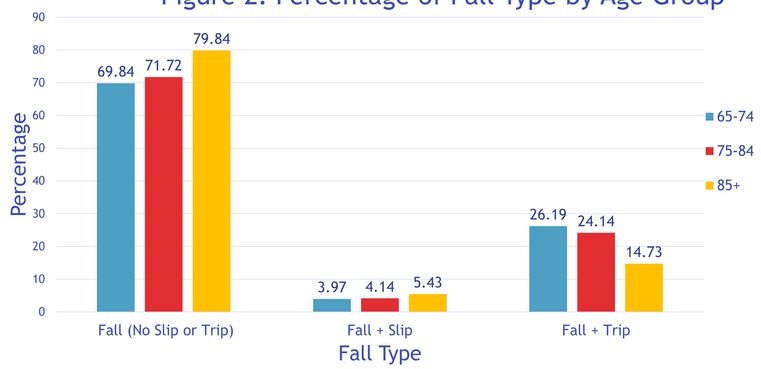


Figure 3: Mean Length of Stay by Age Group

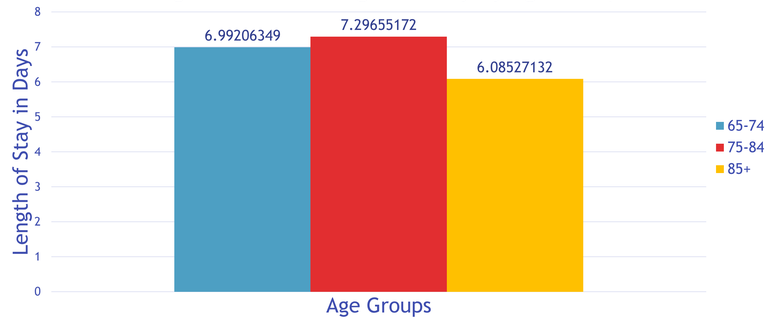


Figure 4: Percentage of Post ED Destination by Age Group

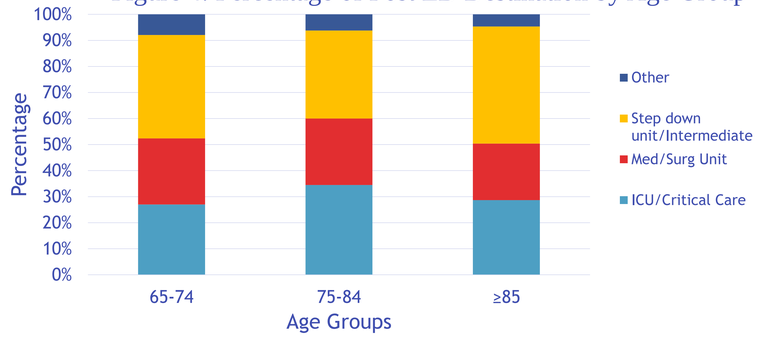


Table 1: T-test Comparing Mean Length of Stay (LOS) for Loss of Consciousness (LOC) vs No-LOC

Reported Loss of Consciousness	N	Mean	SD	SE	t Value	p
Yes	63	8.2381	7.1701	0.9033	-2.23	0.0262
No	337	6.543	5.1737	0.2818		

DISCUSSION

- Fall Types across age groups describe a linear trend increasing with age for simple falls and a linear trend decreasing with age for falls involving a trip – trend observed without statistical significance.
- While no significant difference in Mean Length of Stay is observed across age groups, it is noteworthy that each age groups is staying approximately 7 days in hospital.
- Patients' Post ED Destination are not significantly different across age groups, but we can observe that patients are moved to the 4 categories of destination in similar proportions regardless of age group.
- Comparing the Mean Length of Stay between patients reporting an initial loss of consciousness and those who did not, reveals patients with an LOC are staying more than a full day longer on average. While LOC reporting can be unreliable, Jefferson health care providers/administrators may be able to anticipate longer LOS for this group.
- Study limitations include potential for incomplete "falls" records as a result of the established reporting system, e.g., falls due to dizziness, those not resulting in a trauma, or not requiring a hospital stay long enough to meet PTOS standards may not be included in our original data set.

CORE COMPETENCIES

- Contributes to assessments of community health status and factors influencing health in the community (e.g., availability accessibility, and the use of health services).
- Identifies current trends affecting health in the community.
- Provides input for developing, implementing, evaluating, and improving policies, programs and services.
- Contributes to development of a vision for a healthy community (e.g., emphasis on prevention, health equity for all, excellence and innovation).

ACKNOWLEDGEMENTS

Thank you to my Capstone Chair Dr. Albert Crawford, PhD, MBA, MSIS and to my Capstone Preceptor Nora Kramer, R.N., MSN for their guidance and support. Also a special thank you to Trauma Data and Research Specialist Gerard King, for his assistance in understanding our data and to the Jefferson Public Health Capstone Coordinator Dr. John McAna, PhD, MA for his support throughout this project.