

The Geriatric Trauma Triage Project

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The Geriatric Trauma Triage Project

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Introduction and Purpose

By 2050, 25% of the US population will consist of individuals over the age of 65 compared to the 12.5% makeup in 2000.¹ There are multiple reasons for this expected substantial increase in the geriatric population including extended lifespan, decrease in overall fertility rate, and an increase in the socioeconomic level of people.² As the population of elders rises, their needs in healthcare will also become greater. The demand for aid in the older aged community is consequently increasing and will continue to as the population grows larger. In fact, as a person ages, their list of medical conditions becomes increasingly significant.³ These pre-existing comorbidities make it more difficult to determine the severity in any injury of a geriatric individual. In particular, trauma incidents in the elderly are becoming more common yet more complex due to their medical conditions. In fact, trauma in the elderly was the ninth leading cause of death in that 65 and older age group in 2008.⁴

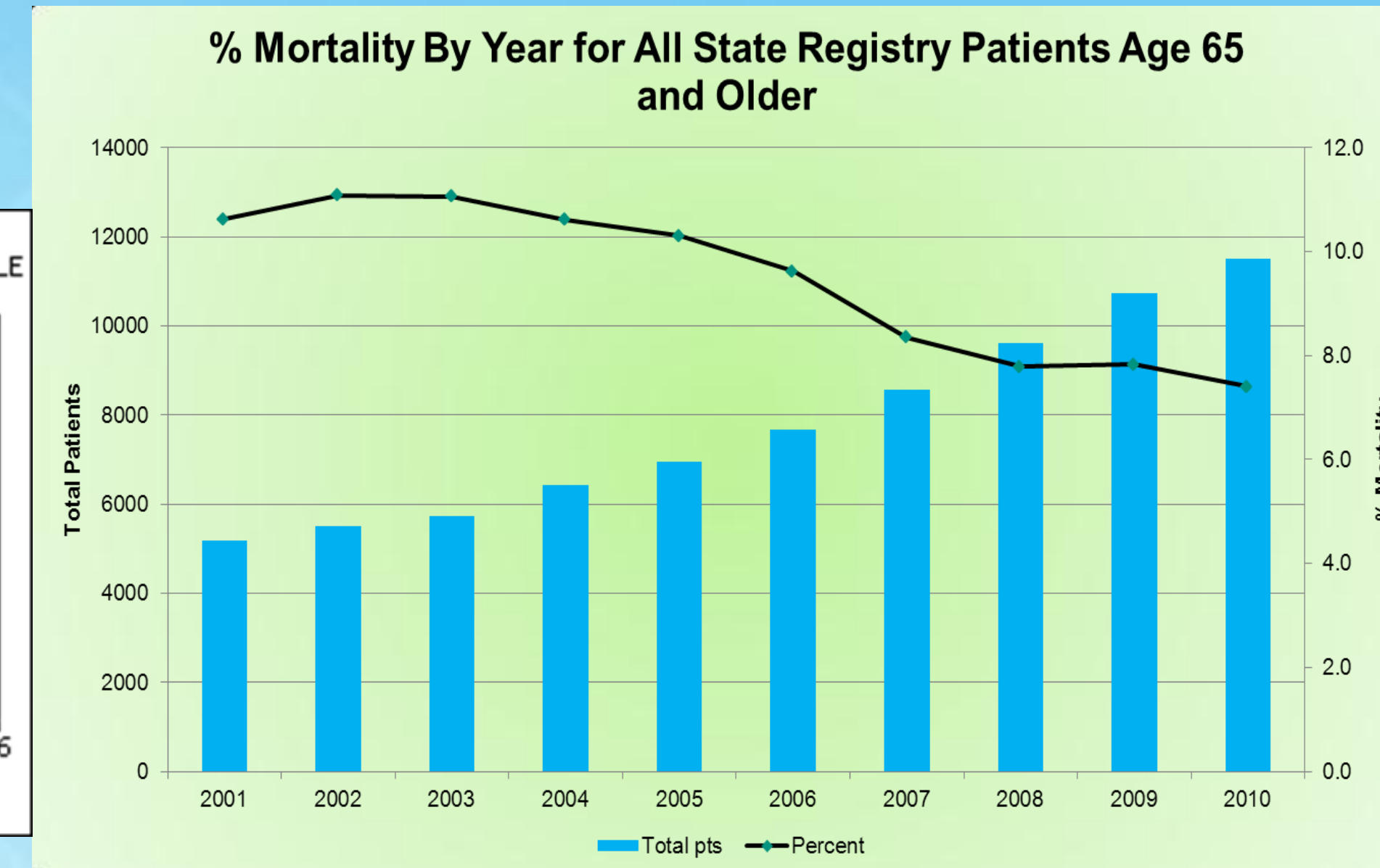
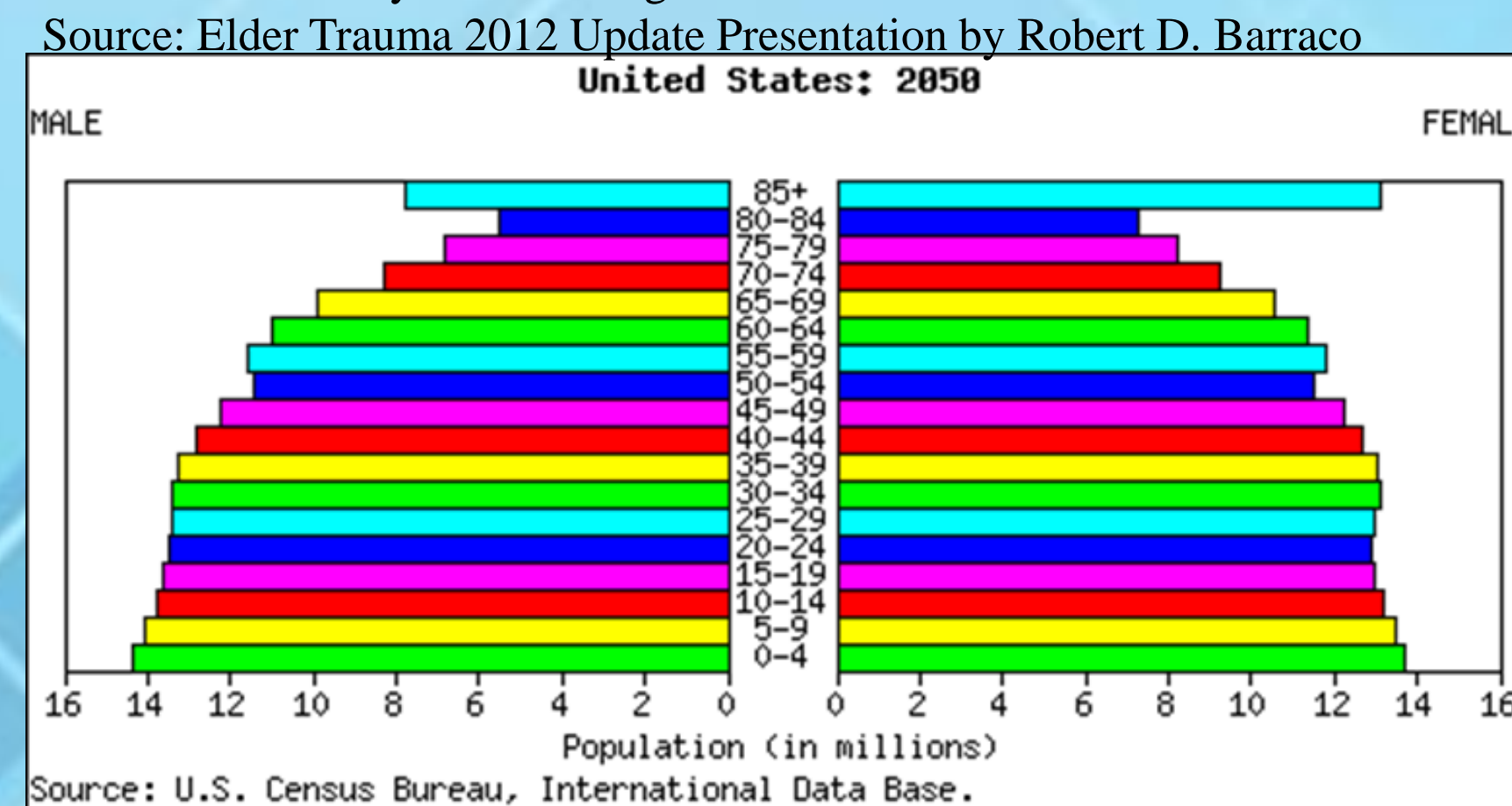
The Lehigh Valley and in particular Lehigh Valley Health Network aims to create a new set of criteria to be used in conjunction with the existing ACS trauma triage criteria of the elderly. A checklist was compiled imitating the state of Ohio's new criteria based on Glasgow Coma Score, mechanism of injury (fall, MVC, etc.), and pre-existing medical conditions like cardiac disease and drug use, in particular anti-coagulants such as Coumadin.⁵ This study uses that checklist to determine the presence of over or under-triaging when it comes to the elderly population seen by various EMS departments throughout the Lehigh Valley area.

Methods

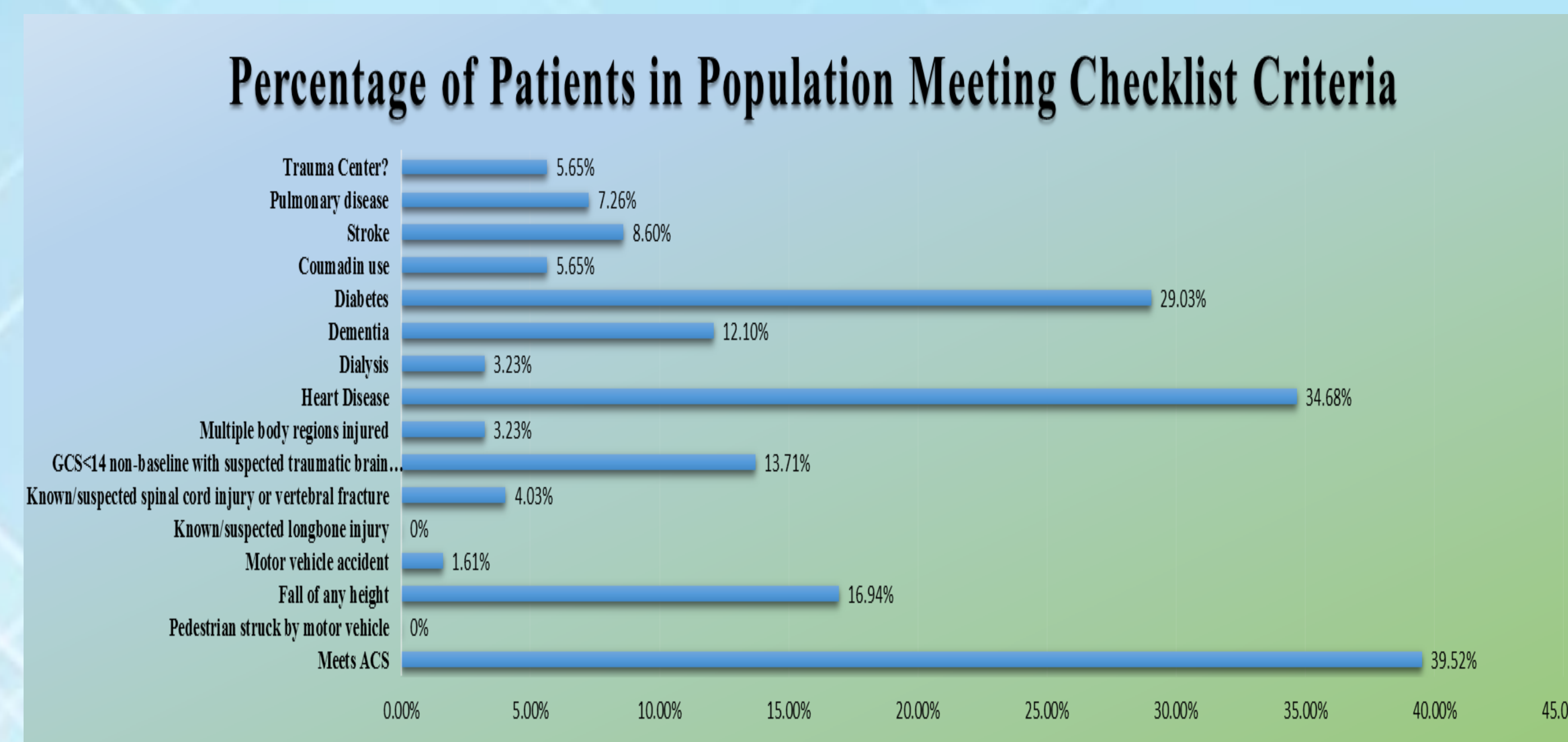
A retrospective Lehigh county EMS chart review was conducted in order to determine whether or not initial emergency responders are correctly and efficiently triaging geriatric trauma victims. Due to lack of time, only one station, Lehighon, was included in the study. Charts of patients who required facility transfer were not included in the study to keep it solely based on the initial response to the trauma. The identities of all patients were kept confidential and only seen by the designated chart reviewer. In addition, no individuals were harmed in this study. All data was taken from previously treated patients. The data ranged from April 1, 2014 to July 1, 2014.

The emergency charts of 124 geriatric trauma patients, 65 years and older, were reviewed and used to complete the newly established yes/no checklist of trauma triage criteria. This criteria included the age of the patient, if the case met already existing ACS triage criteria, the new criteria based on type of injury and any pre-existing comorbidities, and patient destination. The data was compiled into an excel spreadsheet and sorted to find the frequency in percent of each piece of criteria in the population. Over and under triage were able to be determined from these percentages. Statistical analyses were then done in order to establish any relationships between criteria and triaging geriatric trauma patients.

Below: shows the expected increase in the elderly population by 2050. Right: shows that the number of elderly patients is increasing, but mortality is decreasing



Results



The following data tables compare the percentages of patients who met specific criteria and their destination. The percentages are shown in terms of subset populations not the entire population. For example, a subset population includes all those people who met ACS Criteria.

	Met ACS Criteria	Did Not Meet ACS Criteria
Trauma Center	14.29% (7/49)	0% (0/75)
Not a Trauma Center	85.71% (42/49)	100% (75/75)
	At Least One Criteria	Did Not Meet Any Criteria
Trauma Center	6.38% (6/94)	3.33% (1/30)
Not a Trauma Center	93.62% (88/94)	96.67% (29/30)

The data was statistically analyzed using chi-squared test comparing triage and ACS criteria as well as triage and the newly established criteria. In the first test, the percentage of people that were triaged to a trauma center while meeting ACS criteria was statistically significant compared to those who met and were not sent to a trauma facility. With a p-value of 0.001 (0.1%), the deviation was most likely significant with only a 0.1% chance that the difference was random.

In the second test, the p value was found to be between 0.1 and 0.9 showing that there was a 10% to 90% chance that the deviation in data was due to random chance. Therefore, there is no significant relationship between trauma triage and whether or not the patient met established criteria.

Discussion

The current ACS criteria does not include the evaluation of an elderly person's pre-existing comorbidities, but when met, requires triage to a designated trauma center. The chart showing Percentage of Patients in Population Meeting Checklist Criteria suggests that despite the diversity among the patients in comorbidities and mechanisms of injury, meeting ACS criteria was the most common criteria. However, the percentage of people who met ACS criteria and were not sent to a trauma center suggests a significant amount of under-triage in Lehigh County. Obviously, ACS criteria is not enough to denote an elderly patient as a trauma alert. EMS responders may not follow this protocol, but rather take each incident on a case-by-case basis.

There was found to be no relationship between meeting the newly established criteria based on pre-existing comorbidities and whether or not the patient's destination was a trauma center. This suggests that EMS people do not properly consider the altered state and medical conditions associated with the elderly. The checklist was not directly used by EMS departments when responding to geriatric trauma events which may indicate a lack of evaluating a patient's pre-existing medical conditions and using them when making a destination decision. In addition, there were virtually no patients who were over-triaged, or inappropriately sent to a trauma center.

Conclusion

The checklist established based on Ohio's criteria must be further studied to better determine its efficiency in triaging elderly trauma patients. In order to expand this study, more EMS departments must get involved in the data collection stage to make conclusions on over and under-triage in Lehigh County. The outcomes of patients should be analyzed to determine if under-triaging the elderly affects their mortality rate or hospital length of stay. Other studies have shown that geriatric patients who experience relatively minor traumas have a significantly higher risk of death when compared to their younger cohorts.⁶ It would be interesting to determine these rates to show the effects of under-triage in the Lehigh Valley.

REFERENCES:

- Daly, J., Schmeidel Klein, A., & Jogerst, G. (2012). Critical Care Nurses' Perspectives on Elder Abuse. *Nursing in Critical Care*, 17(4), 172-179.
- Staudenmayer, K., Hsia, R., Mann, N., Spain, D., Newgard, C. (2013). Triage of Elderly Trauma Patients: A Population-Based Perspective. *Journal of the American College of Surgeons* 217(4), 569-576.
- Rehn, M. (2013). Improving adjustments for older age in pre-hospital assessment and care. *Scandinavian Journal of Trauma And Emergency Medicine*, 21(1), 4.
- Davis, J., Allan, B., Sobowale, O., Ivescu, F., Orion, K., Schulman, C. (2012). Evaluation of a New Elderly Trauma Triage Algorithm. *Southern Medical Journal*, 105(9), 447-451.
- State of Ohio State Board of Emergency Medical Services Trauma Committee (2007). Geriatric Trauma Task Force. *The State Board of EMS*.
- Kahl, J., Calvo, R., Sise, M., Sise, B., Thronkide, J., Shackford, S. (2013). The changing nature of death on the trauma service. *The Journal of Trauma and Acute Care Surgery* 75(2), 195-201.

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