PATTERNS AND TRENDS IN THE OUTCOMES AND HOSPITAL COSTS FOR SEPSIS IN THE ELDERLY

Olubode A Olufajo, MD, MPH, Namita Akolkar, MD,
Jahniece Williams, Norma Smalls, MD

INTRODUCTION

- Sepsis is responsible for a large proportion of hospital deaths
- Sepsis hospitalization in the very elderly has markedly increased over the years.
- Understanding trends in outcome and costs are important in clinical and administrative decisions.
- However, sparse data exists among this population.

INTRODUCTION

- Aim: To measure the patterns of sepsis in the elderly and analyze trends in these patterns

- Hypothesis:
  - Overall, older age will be associated with worse mortality compared to younger patients.
  - There will be a trend towards decreased mortality over time but with an increasing cost of care in the elderly

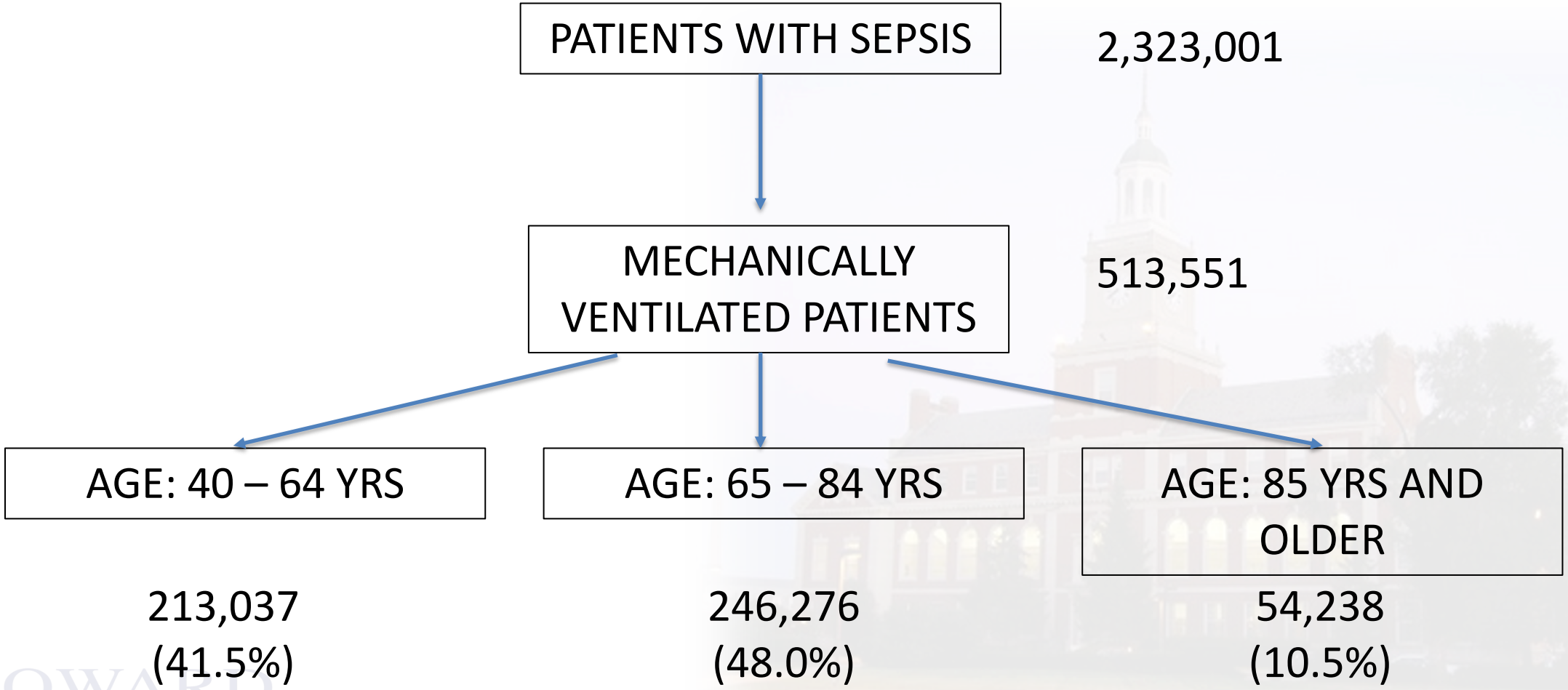
METHODS

- Patients 40 years and older in National Inpatient Sample, 2005 – 2014
- As a marker of critical illness, patients with procedure codes for mechanical ventilation were identified.
- Age groups of 40 – 64, 65 – 84, and ≥85 were examined.

METHODS

- Demographics, co-morbidities and outcomes of the age groups were compared using descriptive analyses
- Multivariate regression analyses identified independent outcome predictors
- Trends in outcomes were assessed

RESULTS



DEMOGRAPHICS

	Age Category			
Characteristics	40-64	65-84	>85	P-value
Sex				
Male	117,559 (55.18%)	129,984 (52.78%)	23,983 (44.22%)	< 0.001
Female	95,470 (44.82%)	116,275 (47.22%)	30,248 (55.78%)	
Race/Ethnicity				
White	119,295 (63.72%)	151,721 (69.32%)	34,341 (69.55%)	< 0.001
Black	36,479 (19.48%)	31,820 (14.54%)	6,586 (13.34%)	
Hispanic	19,335 (10.33%)	19,415 (8.87%)	4,216 (8.54%)	
Other	12,125 (6.48%)	15,902 (7.27%)	4,232 (8.57%)	

CO-MORBIDITIES

	Age Category			
Characteristics	40-64	65-84	>85	P-value
Charlson Category				
0	45,691 (21.45%)	36,750 (14.92%)	9,975 (18.39%)	< 0.001
1	46,104 (21.64%)	52,087 (21.15%)	12,958 (23.89%)	
2 or greater	121,242 (56.91%)	157,439 (63.93%)	31,305 (57.72%)	
Comorbidities				
CAD	17,933 (8.42%)	38,660 (15.70%)	9,279 (17.11%)	< 0.001
HTN	86,956 (40.82%)	125,808 (51.08%)	29,089 (53.63%)	< 0.001
DM	57,960 (27.21%)	73,318 (29.77%)	12,501 (23.05%)	< 0.001
ARF	115,048 (54.00%)	140,130 (56.90%)	31,823 (58.67%)	< 0.001
CHF	47,882 (22.48%)	87,869 (35.68%)	23,065 (42.53%)	< 0.001

HOSPITAL LOCATION AND DISCHARGE STATUS

	Age Category			
Characteristics	40-64	65-84	>85	P-value
Hospital location				
Rural	13,432 (6.35%)	16,204 (6.61%)	3,010 (5.57%)	<0.001
Urban Non-Teaching	77,022 (36.42%)	102,546 (41.84%)	24,046 (44.47%)	
Urban Teaching	121,034 (57.23%)	126,332 (51.55%)	27,017 (49.96%)	
Hospital discharge status				
Home	30,278 (23.25%)	11,768 (8.99%)	1,215 (5.07%)	<0.001
Short term acute care facility	12,668 (9.73%)	11,078 (8.46%)	1,430 (5.96%)	
Home-health	20,825 (15.99%)	15,581 (11.90%)	2,398 (10.00%)	
SNF/ICF	65,171 (50.04%)	92,309 (70.49%)	18,913 (78.88%)	
AMA	1,295 (0.99%)	217 (0.17%)	20 (0.08%)	

OUTCOMES

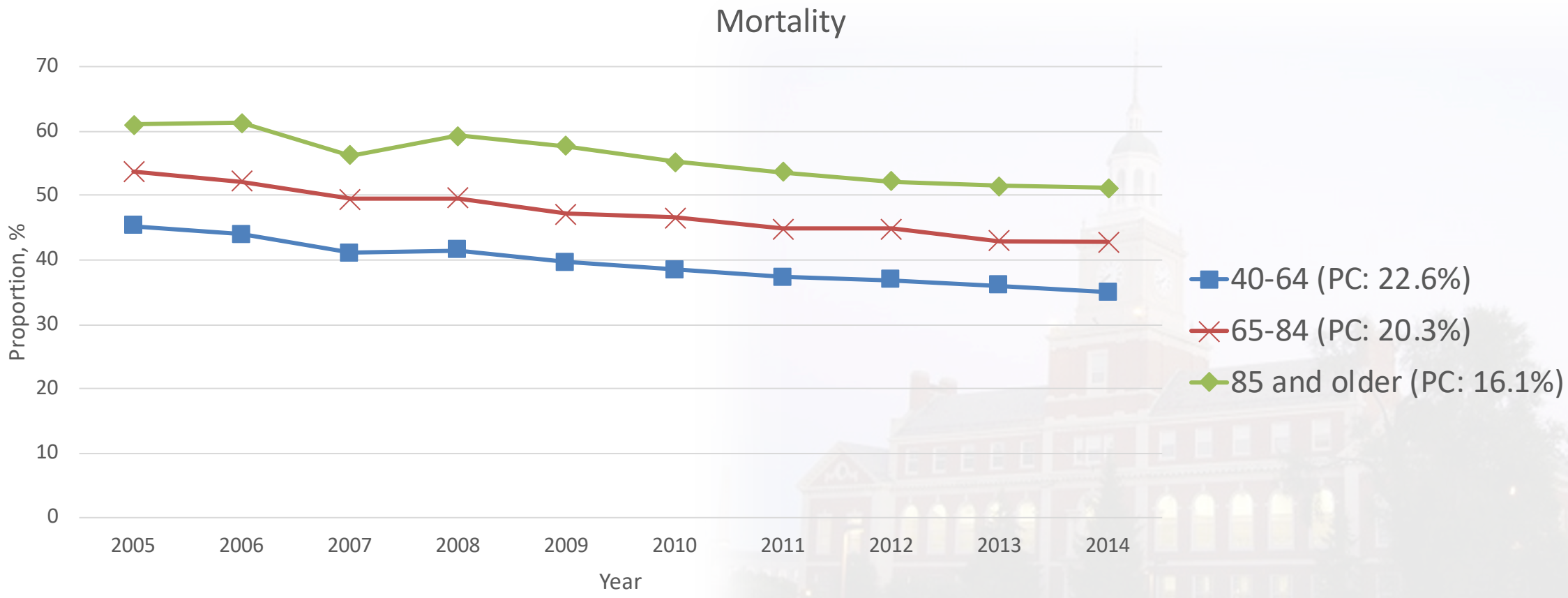
Outcome	Age Category			
	40-64	65-84	>85	P value
Mortality	82,265 (38.64%)	114,584 (46.56%)	30,081 (55.48%)	<0.001
Hospital LOS* Days (IQR)	16 (10-27)	16 (10-25)	14 (8-21)	<0.001
Hospital Cost* $ (IQR)	44,066.89 (25,428.26-77,374.44)	40,324,92 (24,093.75-67,899.99)	32,880.38 (20,367.77-52,857.42)	<0.001

*Analyses restricted to patients who survived
IQR, Interquartile Range

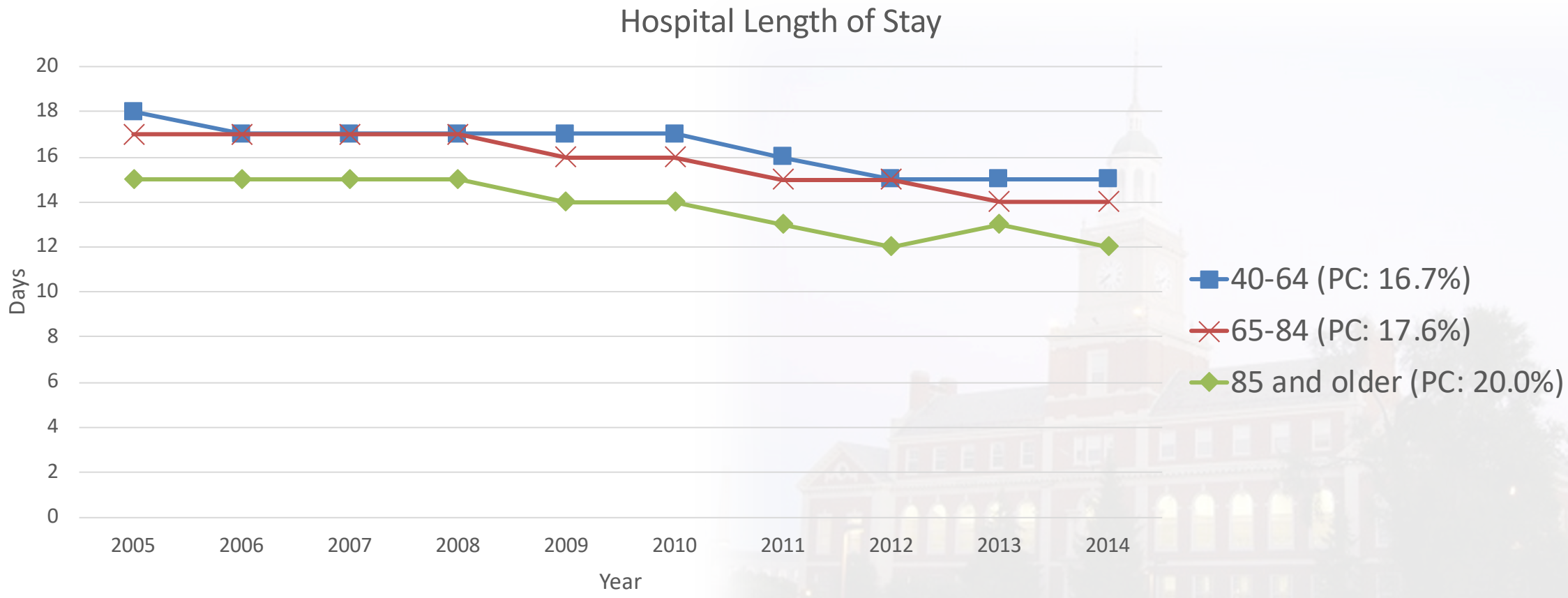
MULTIVARIATE REGRESSION ANALYSIS

Characteristics	Mortality OR (95% CI)	LOS Mean difference (95% CI)	Hospital Charge Mean difference, $ (95% CI)
Age			
40-64	Ref	Ref	Ref
65-84	1.46 (1.43 – 1.49)	0.38 (0.15 – 0.61)	-811.44 (-1,503.97 – -118.90)
>85	2.20 (2.13 – 2.26)	-2.03 (-2.44 – -1.63)	-11,267.10 (-12,265.36 – -10,268.84)

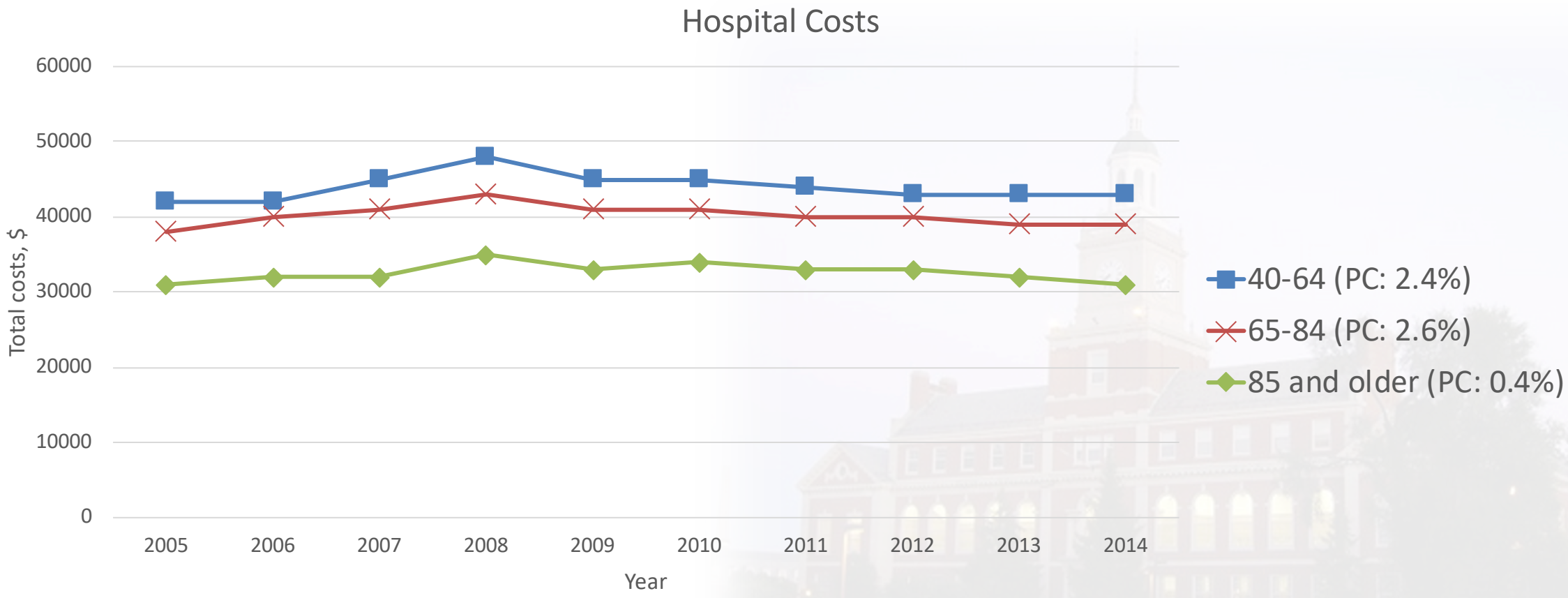
TRENDS IN MORTALITY



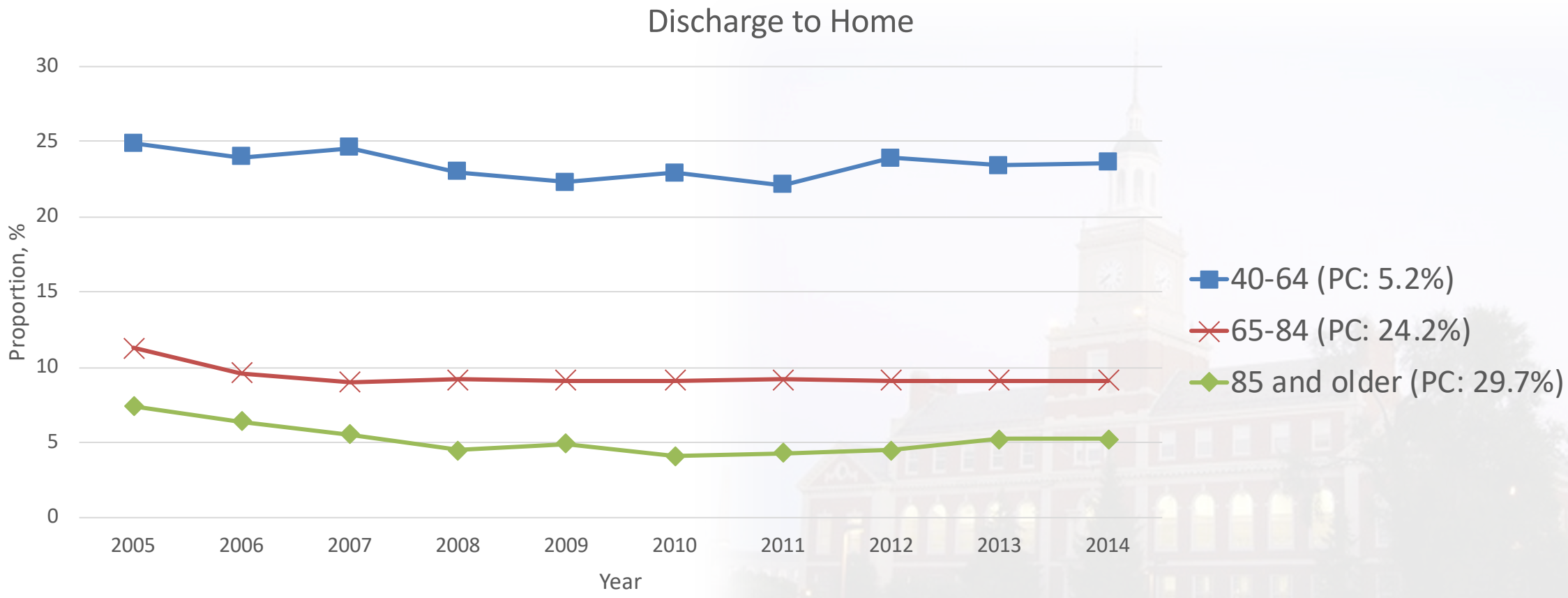
TRENDS IN HOSPITAL LOS



TRENDS IN COSTS



TRENDS IN DISCHARGE DISPOSITION



CONCLUSION

- Although mortality in the very elderly septic patient remains high.
- Mortality and LOS decreased during the study period with minimal change in cost
- The decrease in hospital LOS was not associated an increase discharge to sub-acute care facilities

CONCLUSION

- Continued improvements in care processes specific to the elderly may be beneficial in improving outcomes among older patients.

Thank you

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