

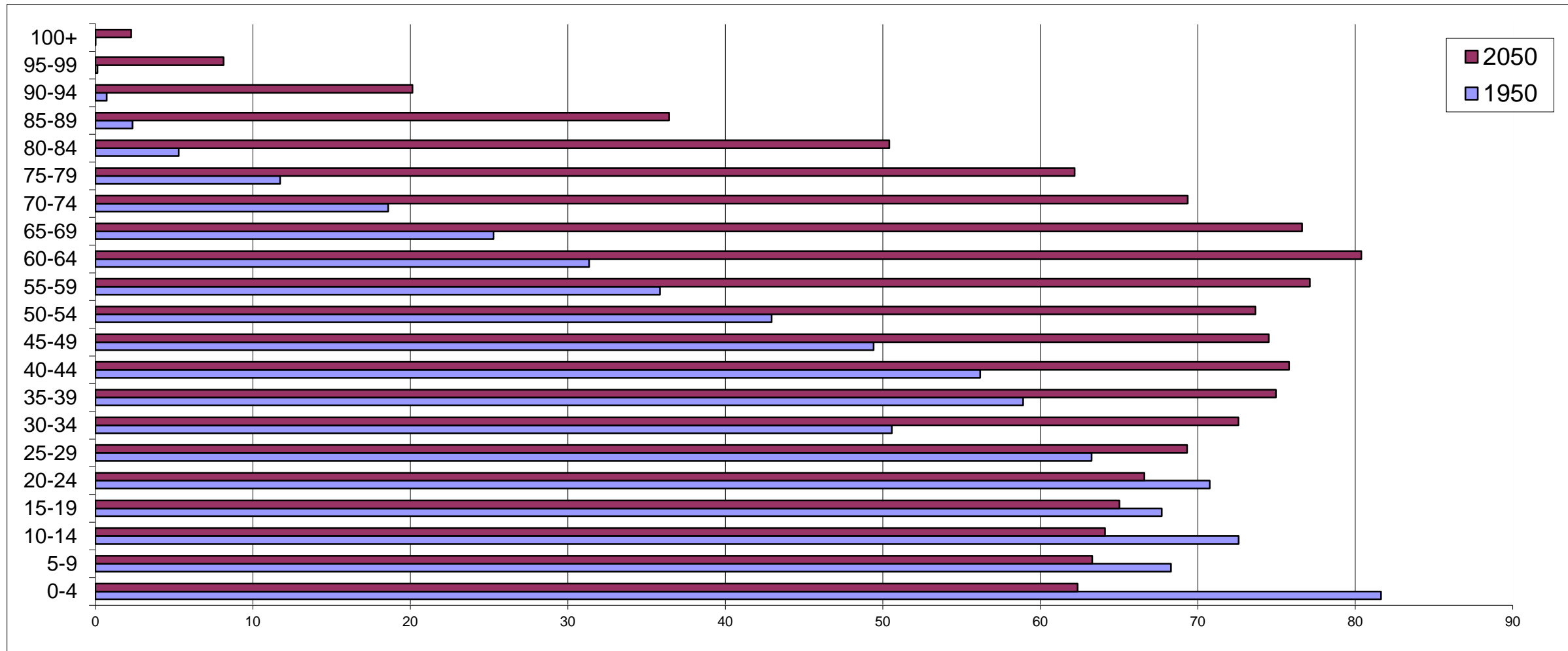
# Change in the Age Distribution of ICU Patients and Its Effect on Clinical Outcome

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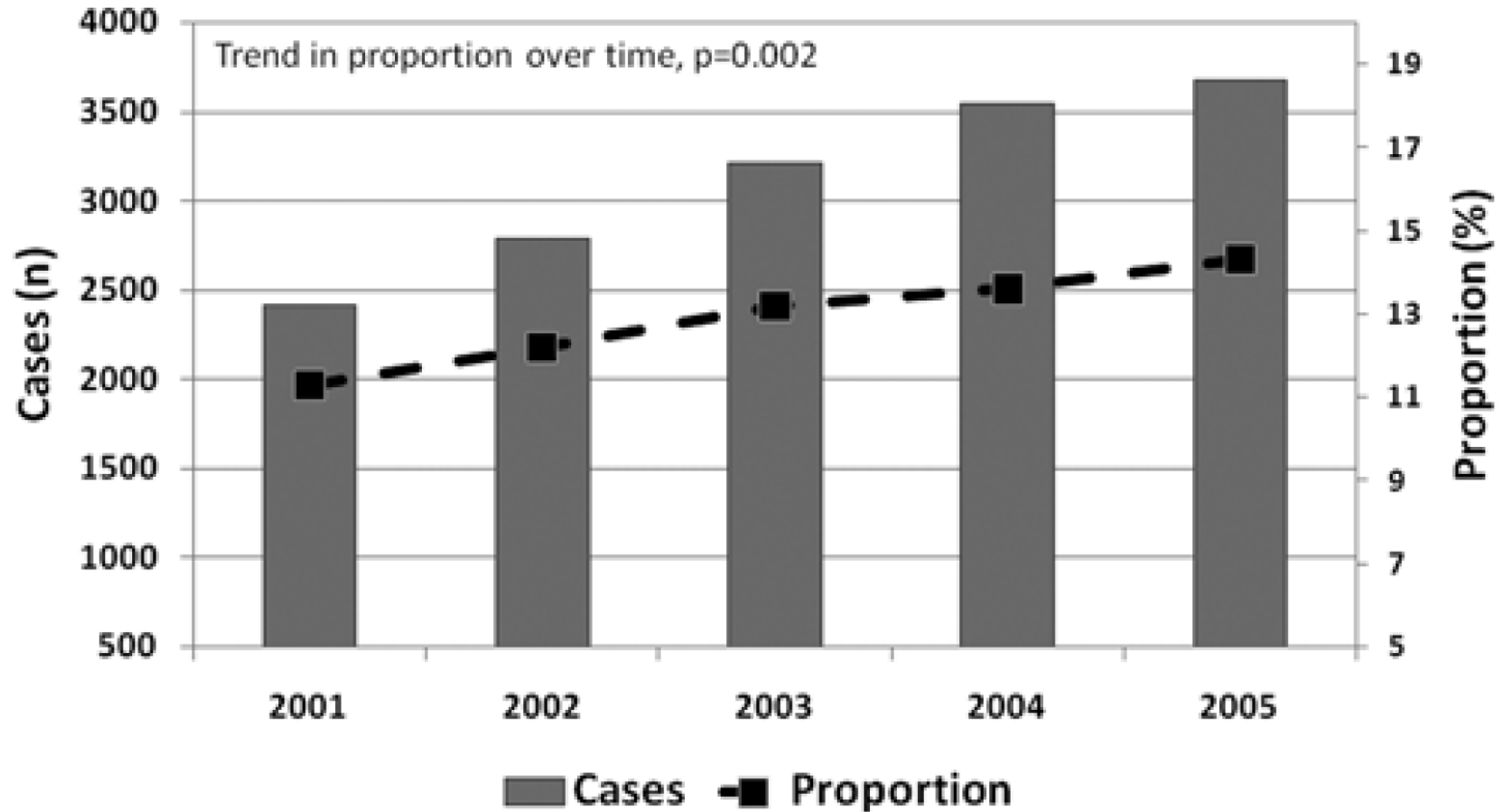


# Aging global population

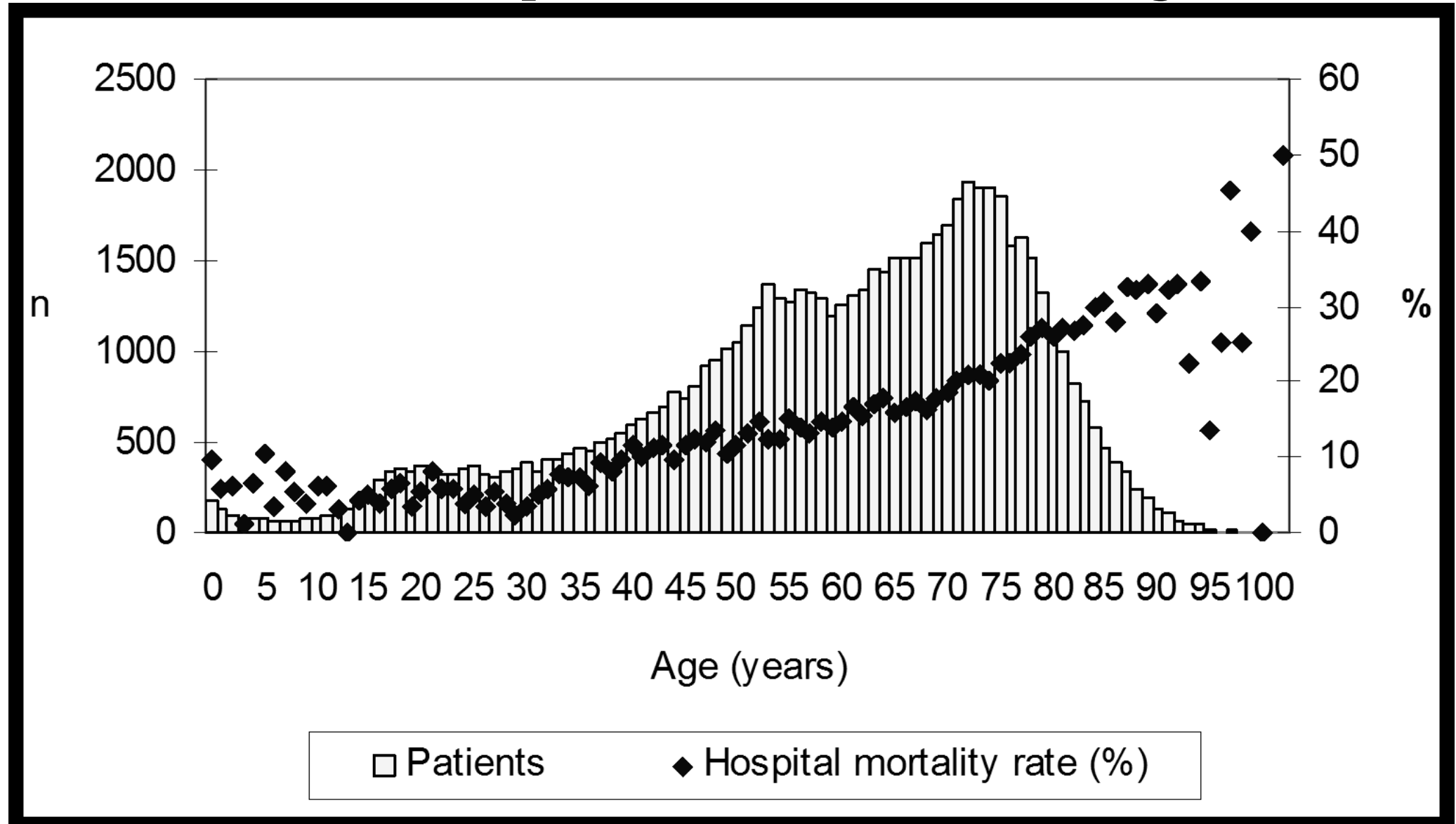


Source: United Nations (2006), World Population Prospects

# Aging ICU patients



# In-hospital mortality



# Korea: aging population

## Population aged 60 or older (n, %)

	2009	2050
China	160,250,000 (12%)	440,439,000 (31%)
DPRK	3,413,000 (14%)	6,066,000 (25%)
Japan	37,827,000 (30%)	44,914,000 (44%)
Republic of Korea*	7,304,000 (15%)	17,983,000 (41%)

# Purpose

- **Aims of our study**

- Evaluate change of age strata of ICU patients
- Impact on clinical outcomes
  - In-hospital mortality
  - Length of ICU stay
  - Length of hospital stay

# Materials and methods

- ICU patients of St. Paul's Hospital and Incheon St. Mary's Hospital, The Catholic University of Korea
- Jan 2004 to December 2014
- Retrospective analysis of medical electronic data.
- Elderly patients: Age  $\geq 65$
- Excluded elective cardiac intervention cases.
- 26,732 ICU patients.

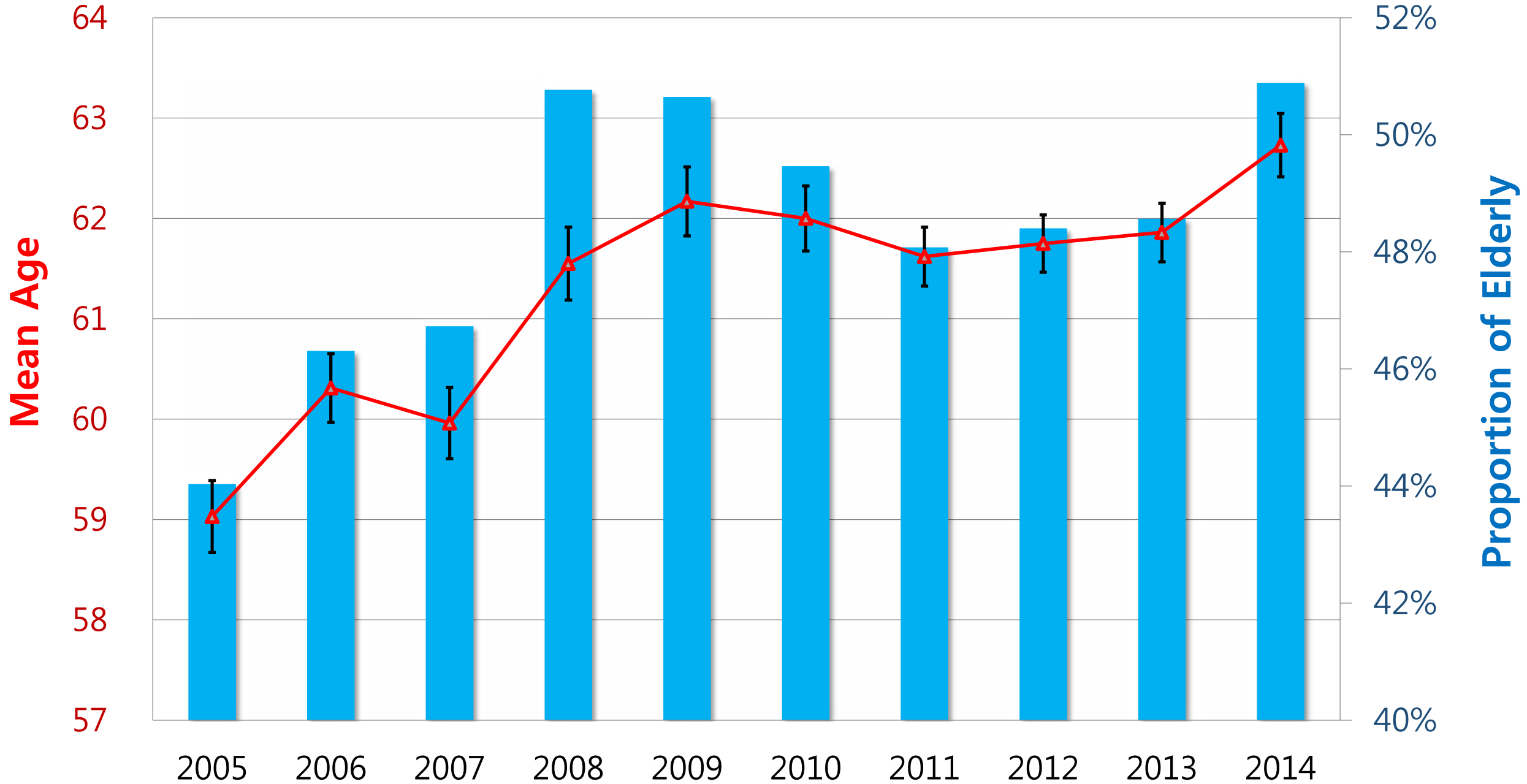
# Results



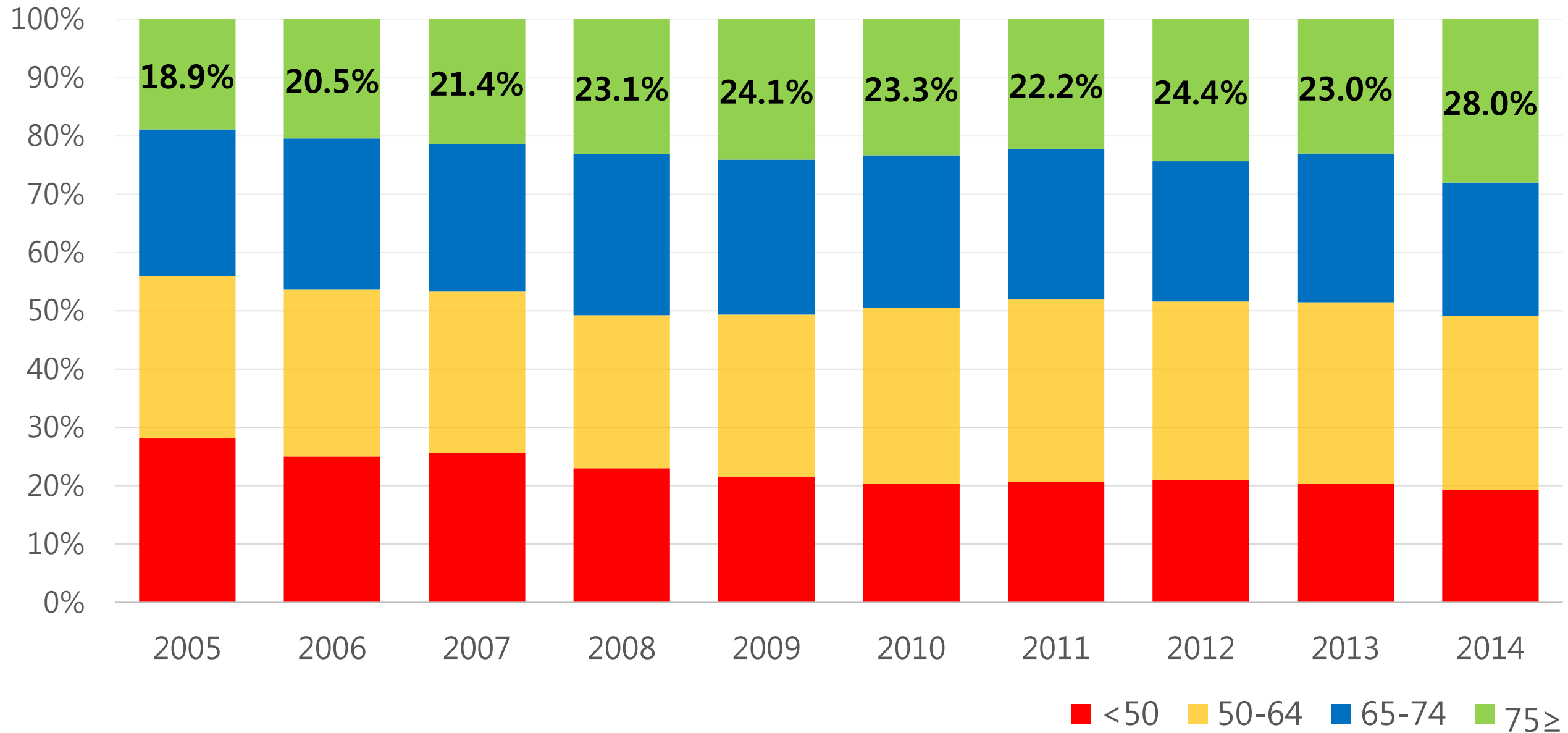
# Patient Characteristics

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	p-value
<b>Patients</b>	2371	2479	2478	2210	2237	2517	3147	3378	3103	2812	
<b>Mean Age</b>	59.03± 17.47	60.31± 17.07	59.96± 17.67	61.55± 17.09	62.17± 16.27	62.00± 16.26	61.62± 16.51	61.75± 16.58	61.86± 16.27	62.73± 16.75	<.001
<b>Elder (65≥)</b>	1044 (44.0%)	1148 (46.3%)	1158 (46.7%)	1122 (50.8%)	1133 (50.7%)	1245 (49.5%)	1513 (48.1%)	1635 (48.4%)	1507 (48.6%)	1431 (50.9%)	<.001
<b>Female</b>	1061 (44.8%)	1111 (44.8%)	1193 (48.1%)	1037 (46.9%)	1114 (49.8%)	1215 (48.3%)	1411 (44.8%)	1547 (45.8%)	1369 (44.1%)	1297 (46.1%)	0.349
<b>ICU stay (day)</b>	5.15± 15.95	4.43± 6.82	4.98± 21.13	4.51± 11.00	4.46± 12.68	4.23± 7.79	4.63± 8.57	4.59± 10.07	5.02± 12.59	4.78± 7.92	0.807
<b>ICU stay (day)</b>	2 (1-5)	2 (1-5)	2 (1-4)	2 (1-4)	2 (1-4)	2 (1-4)	2 (1-5)	2 (1-4)	2 (1-5)	2 (1-5)	
<b>Hospital stay (day)</b>	20.04± 25.60	18.99± 20.29	20.32± 32.58	21.05± 28.87	20.59± 29.90	19.45± 20.29	19.70± 21.89	19.53± 21.26	19.83± 21.61	18.67± 17.62	0.065
<b>Hospital stay (day)</b>	14 (7-23)	13 (7-23)	13 (8-24)	14 (8-25)	14 (8-25)	14 (8-23)	14 (8-24)	14 (8-23)	14 (8-24)	14 (8-23)	
<b>Mortality</b>	292 (12.3%)	353 (14.2%)	311 (12.6%)	323 (14.6%)	292 (13.1%)	340 (13.5%)	392 (12.5%)	400 (11.8%)	382 (12.3%)	367 (13.1%)	0.129

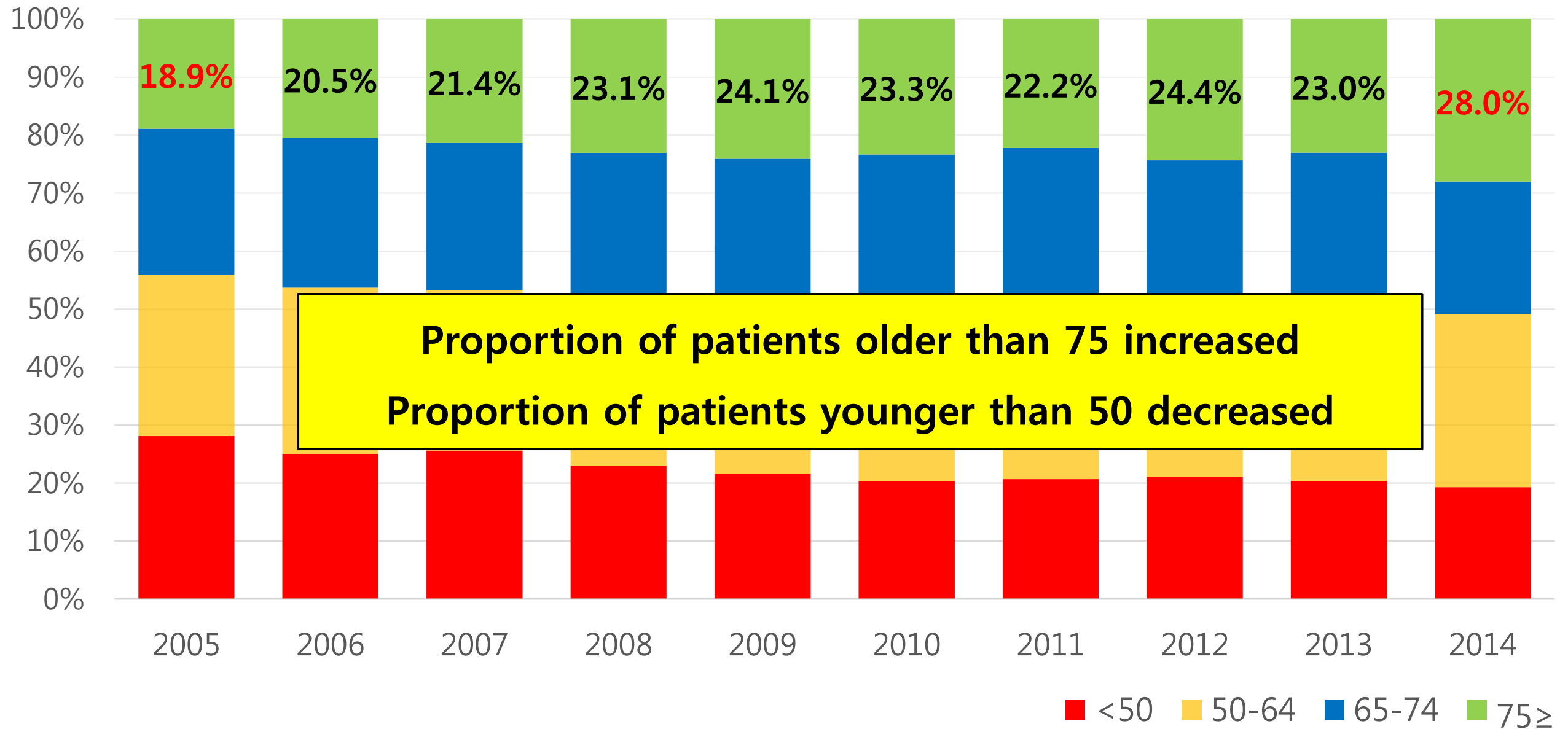
# Mean Age and Proportion of Elderly



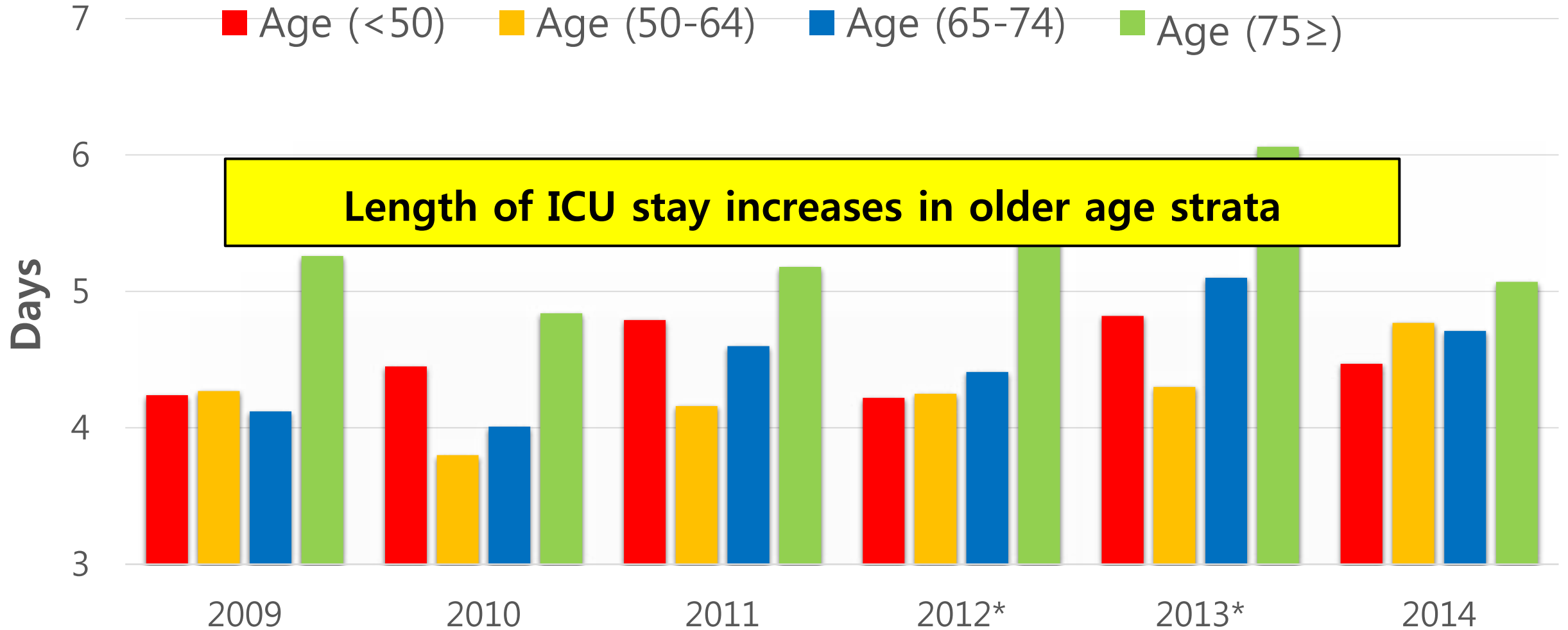
# Proportion of different age strata



# Proportion of different age strata

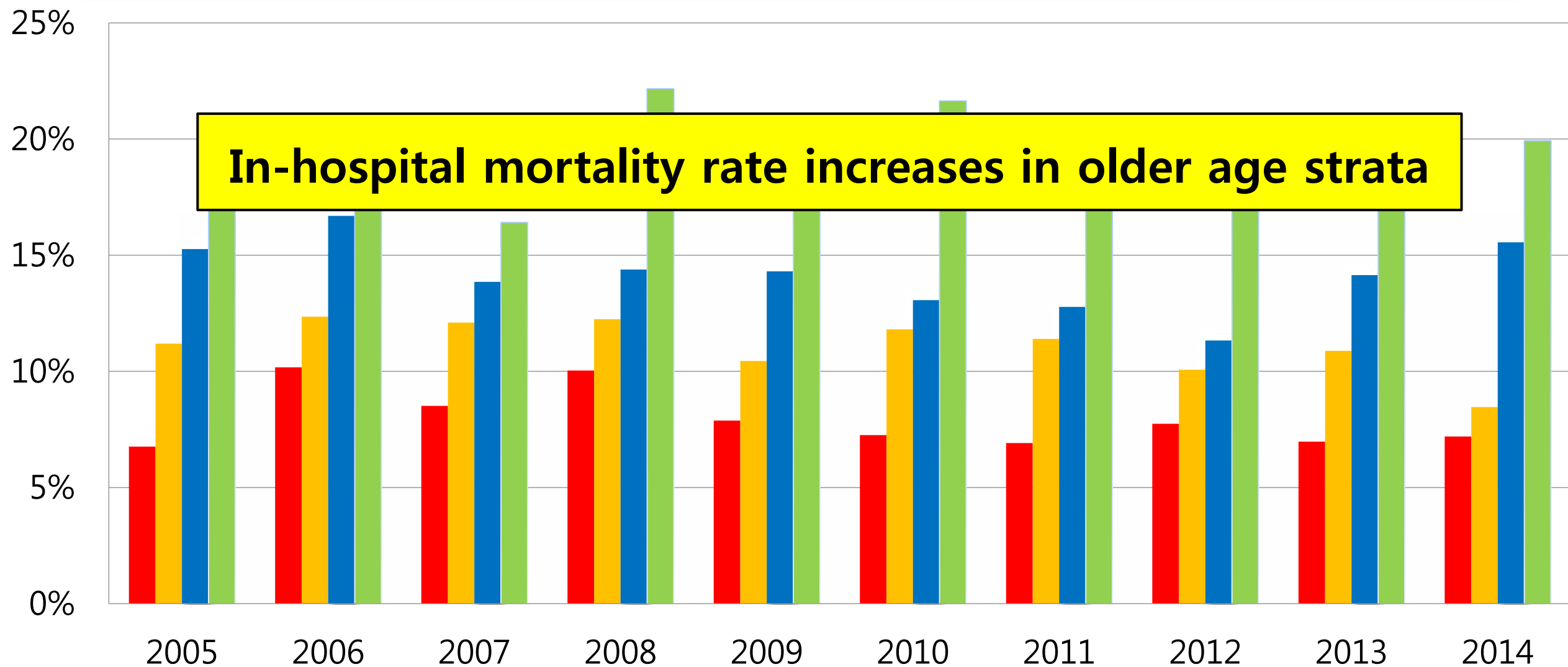


# Length of ICU stay



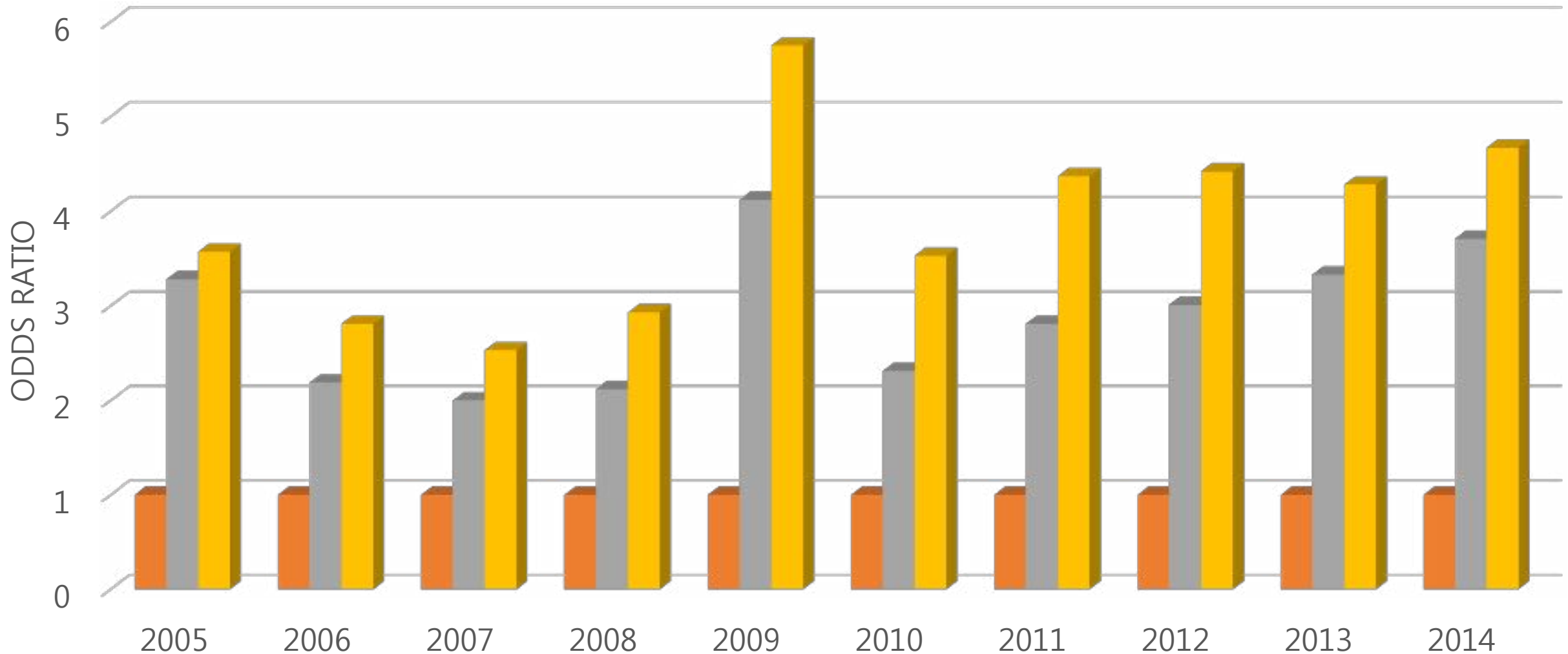
# In-hospital mortality by age strata

■ Mortality (% , <50) ■ Mortality (% , 50-64) ■ Mortality (% , 65-74) ■ Mortality (% , 75≥)

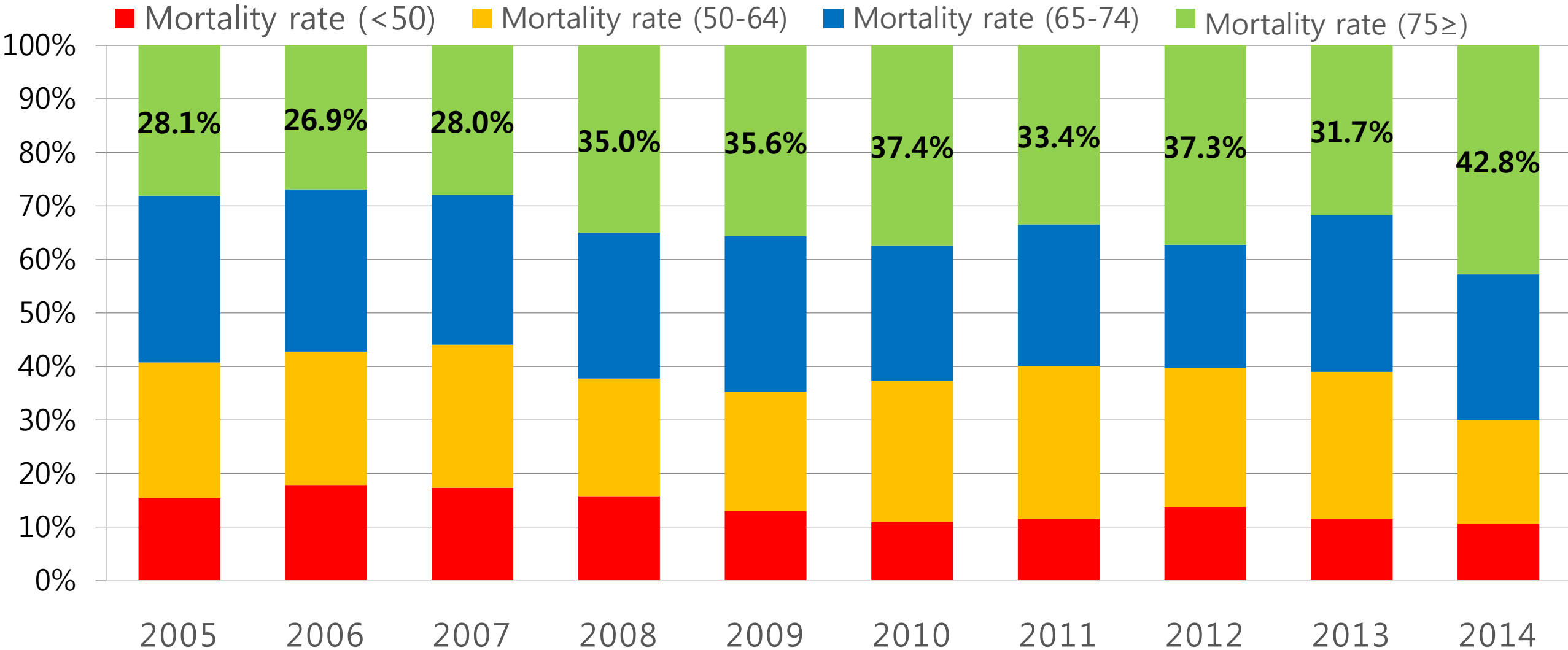


# Odds ratio for in-hospital mortality

■ Patient (Age≤40)   ■ Patient (Age≥65)   ■ Patient (Age≥80)

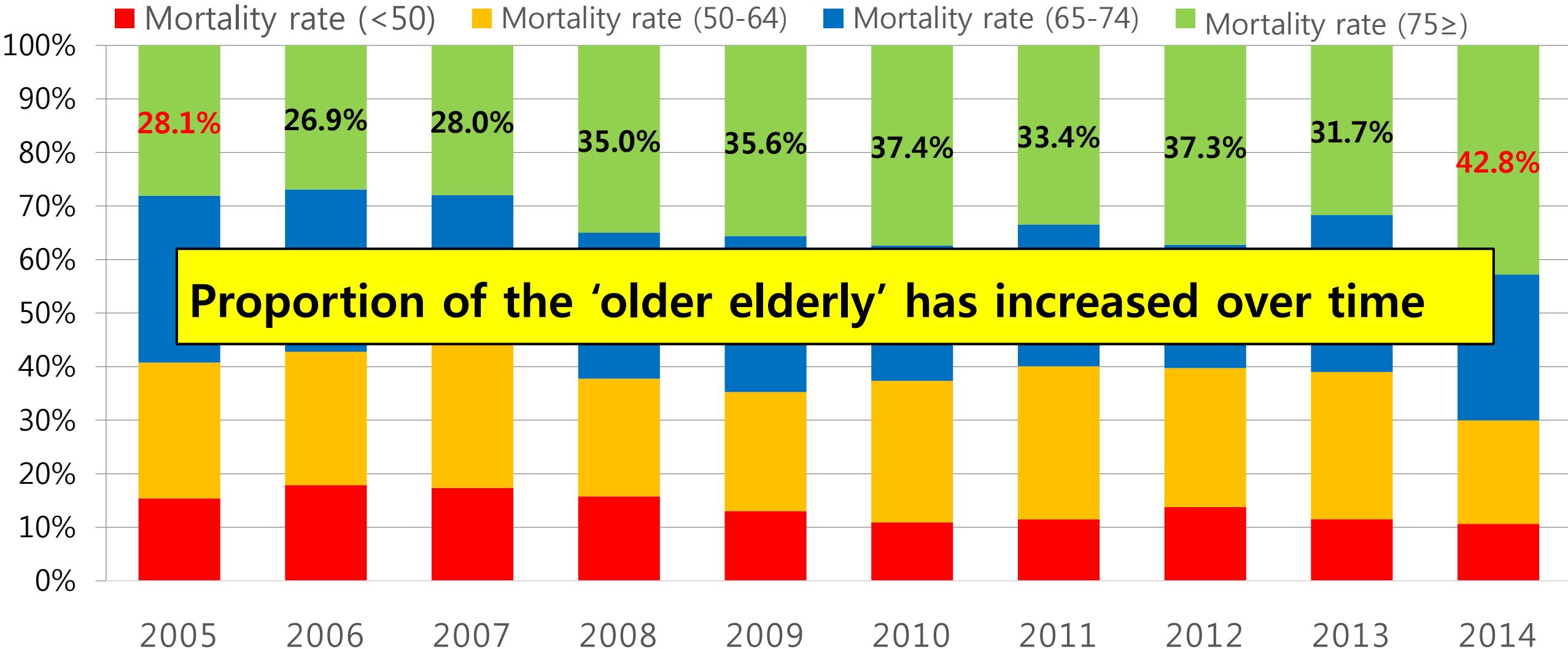


# In-hospital mortality: proportion by age strata

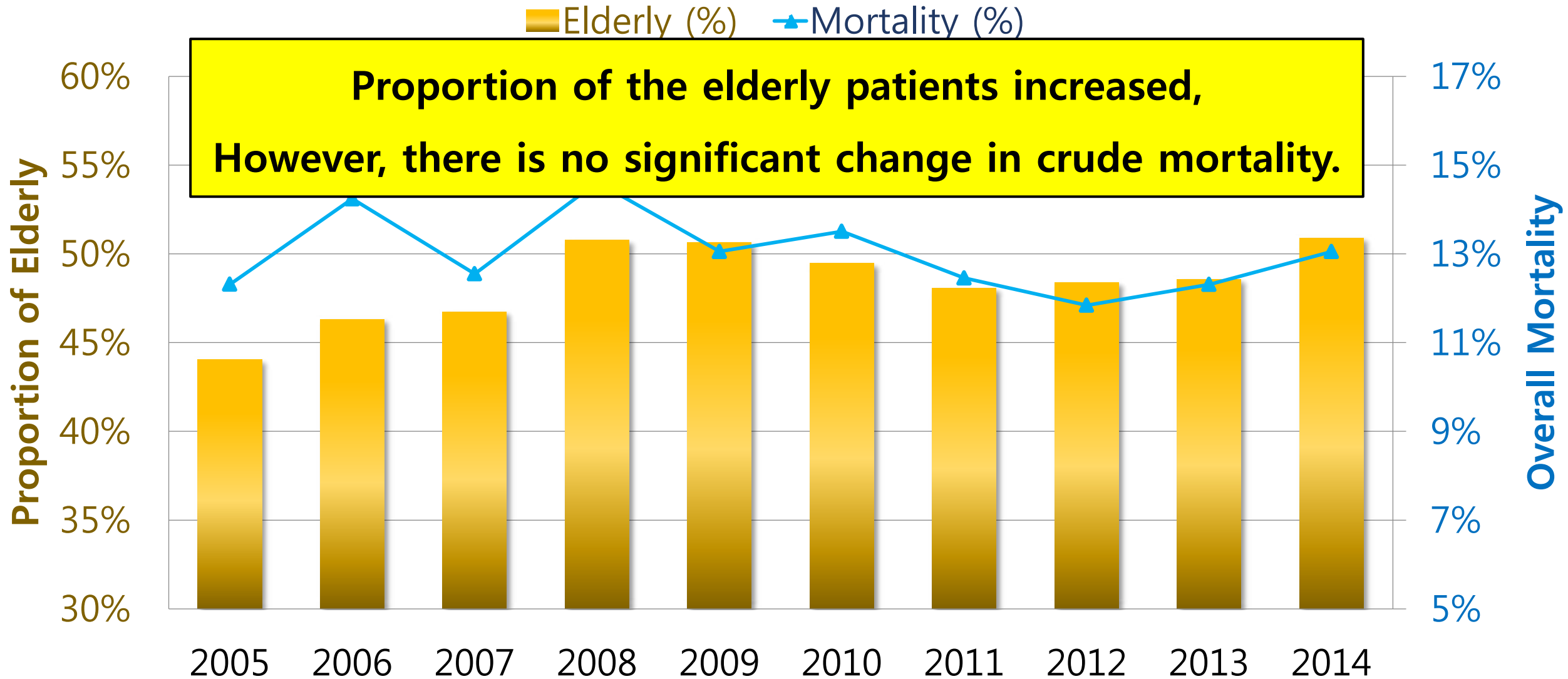




# In-hospital mortality: proportion by age strata



# Proportion of elderly and overall mortality



# Summary

- Proportion of elderly ICU patients increased.
- Proportion of patients aged 75 years and older: increased markedly
- Longer ICU stay for older age strata.
- Higher in-hospital mortality for older age strata.
- Mortality of overall ICU patients: not changed in the last 10 years.

# Conclusion

- Proportion of elderly patients admitted to ICU increased annually and expected to increase in future.
- Need for intensive care resources for elderly ICU patients will increase.
- Further studies for finding the subgroup of elderly patients who benefit most from ICU care, is needed.