



Do Good Hospitals Close?

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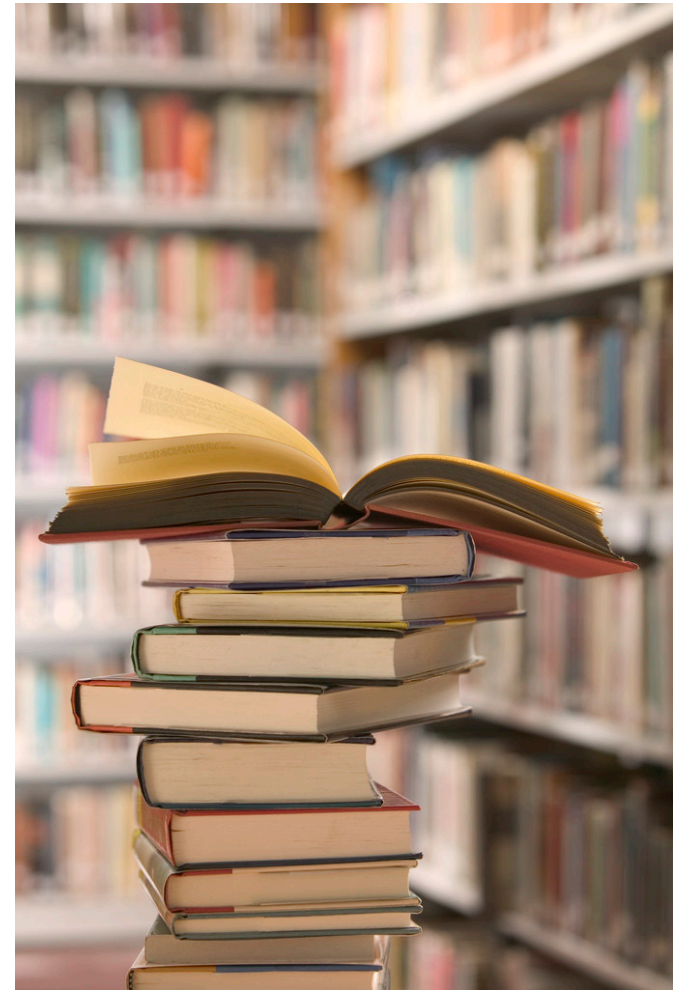
*** TAKE AWAY MESSAGE ***

- Issue: Hospitals expand or close for various reasons
- Theory: Low quality hospitals close
(High quality firms survive & expand)
- Question: Is this true?
- Answer based on AHRQ indicators:
Typically no
Sometimes higher quality in closing facilities



Prior research on hospital closures

- Characteristics of closing hospitals
 - Financially weak
 - Trouble competing
- Characteristics of neighborhoods (e.g., in poor/minority)
- Geographic access after closures
 - Other hospitals nearby
 - Ambulance diversion
 - Mortality effects



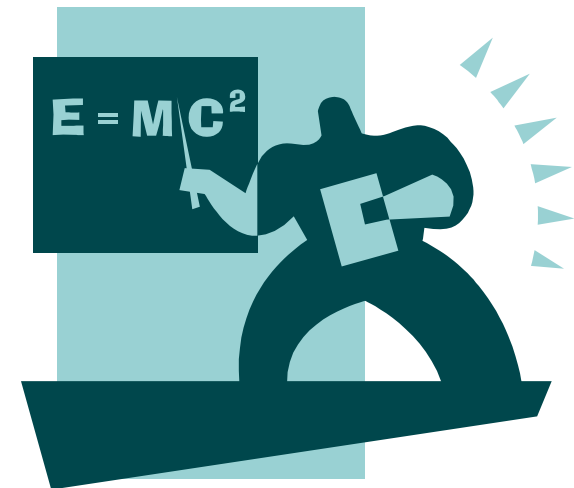
New contribution

- No studies have directly compared the quality of care in closing vs. non-closing hospitals.
- KEY QUESTION:
Do good hospitals close?



Conceptual framework

- Efficient markets
 - Good firms drive bad firms out of business
 - May not apply to hospitals
- Determinants of hospital survival
 - Bargaining power
 - Reimbursement maximization
- Serving community \neq financial success
- History of hospital bailouts
 - No relationship to quality



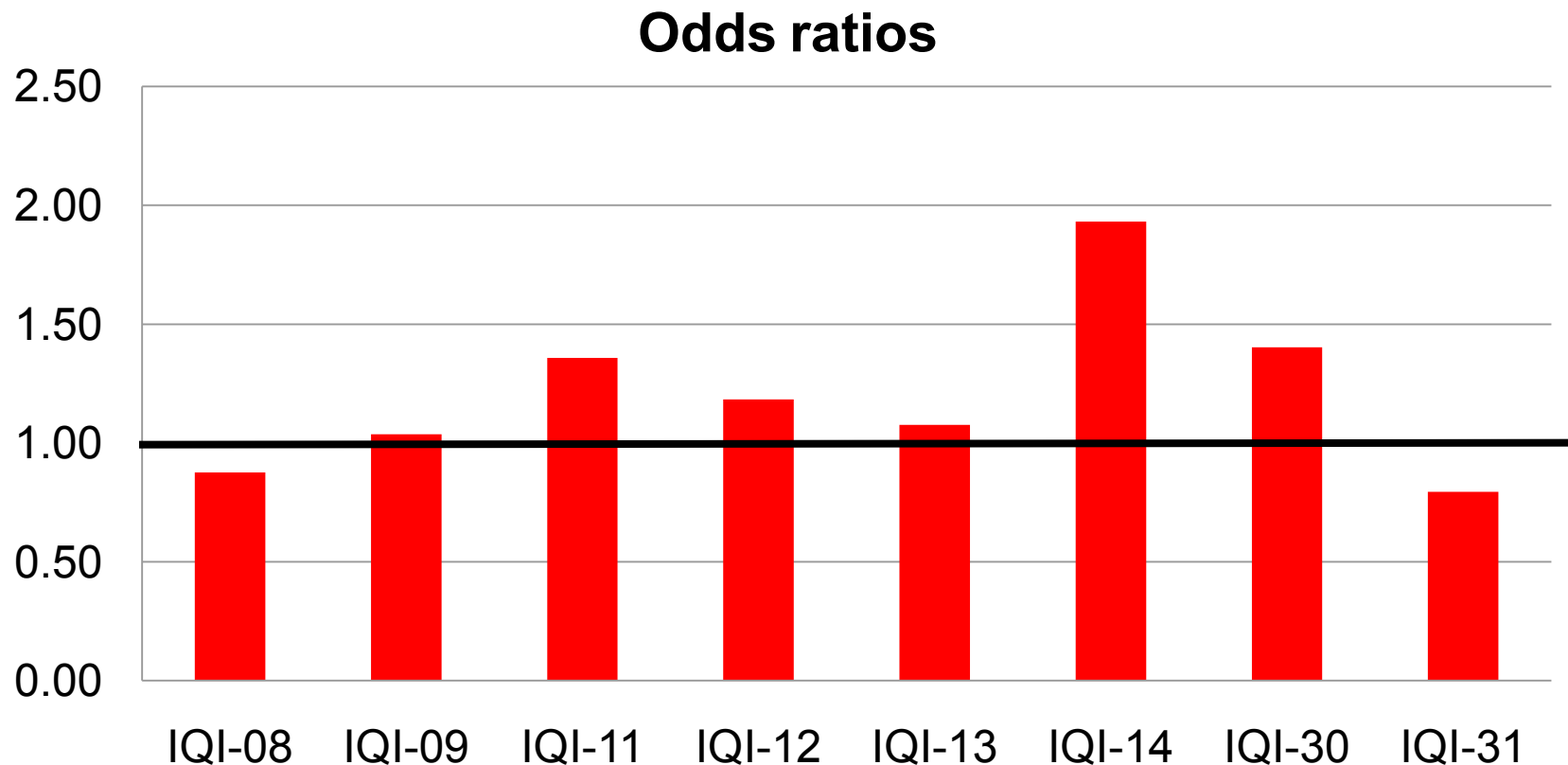
Research methods

- Hospital discharge data (HCUP, state data)
- 41 acute care hospital closures, 1998-2004
- Quality measures 3 years before closure
AHRQ IQI's & PSI's
- Compare to 232 non-closing hospitals in same counties
- Hierarchical logistic regression
 - Patients in hospitals in counties
 - Control for patient risk, service year
- Separate analysis within markets (counties)



Findings I: Logistic regression results

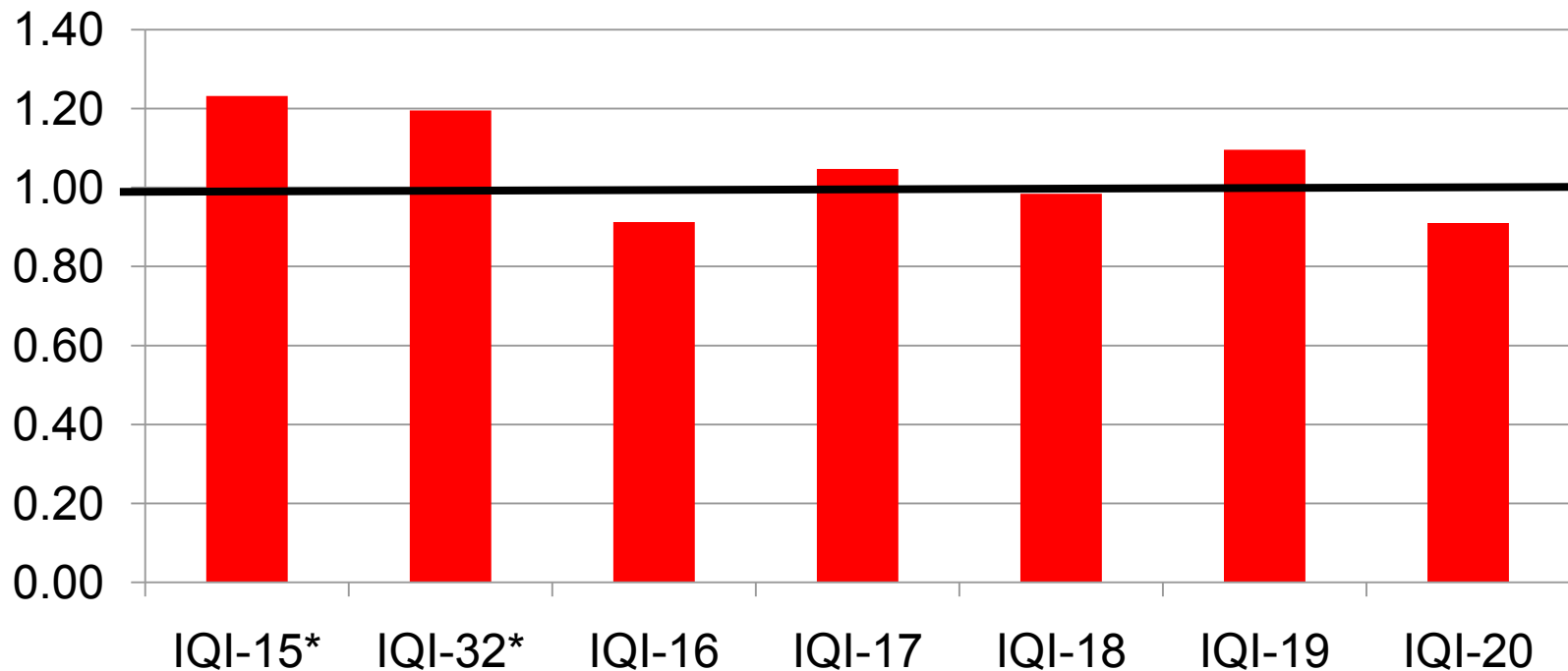
Mortality during inpatient procedures: Closing vs. non-closing hospitals



Note: All p-values are greater than 0.05.

Mortality for inpatient conditions: Closing vs. non-closing hospitals

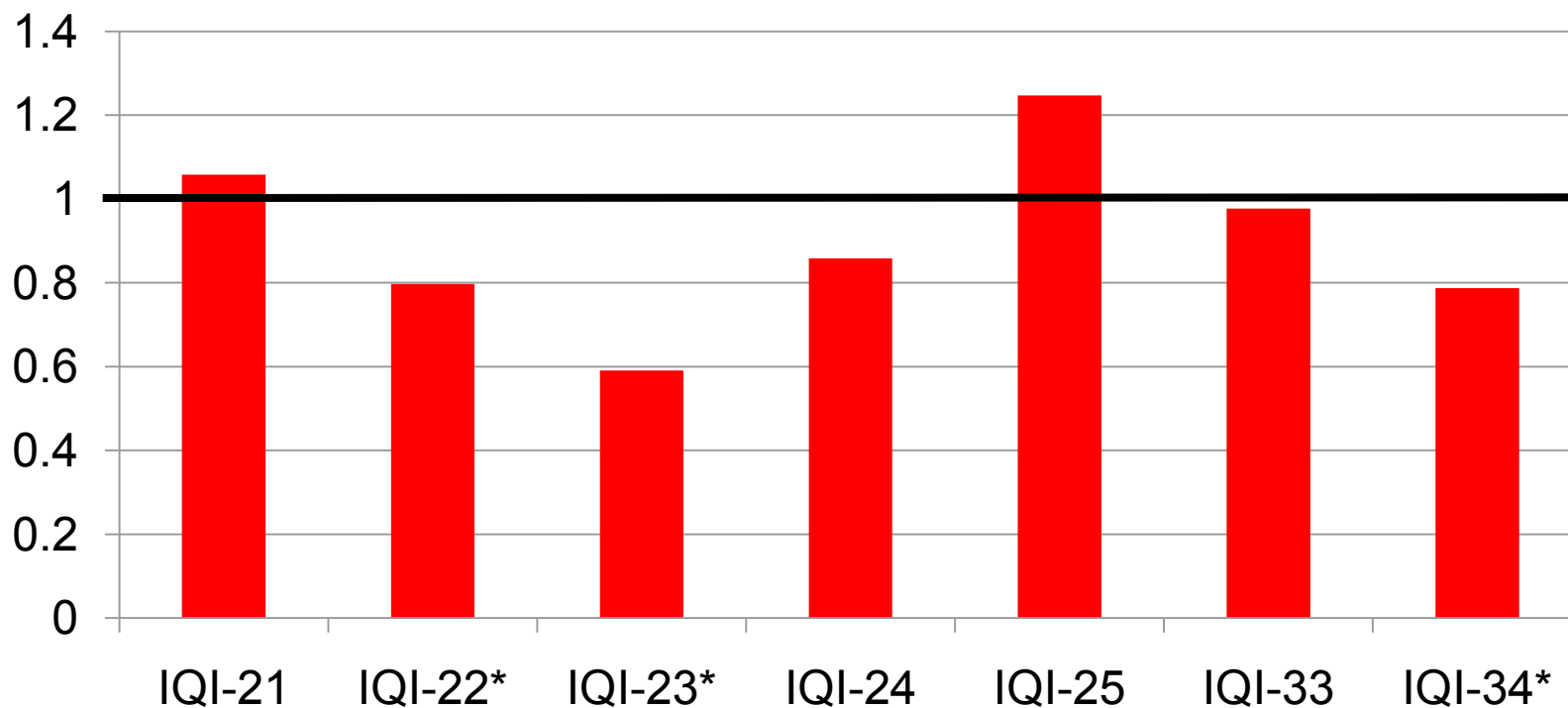
Odds ratios



Note: * indicates p-value < 0.05.

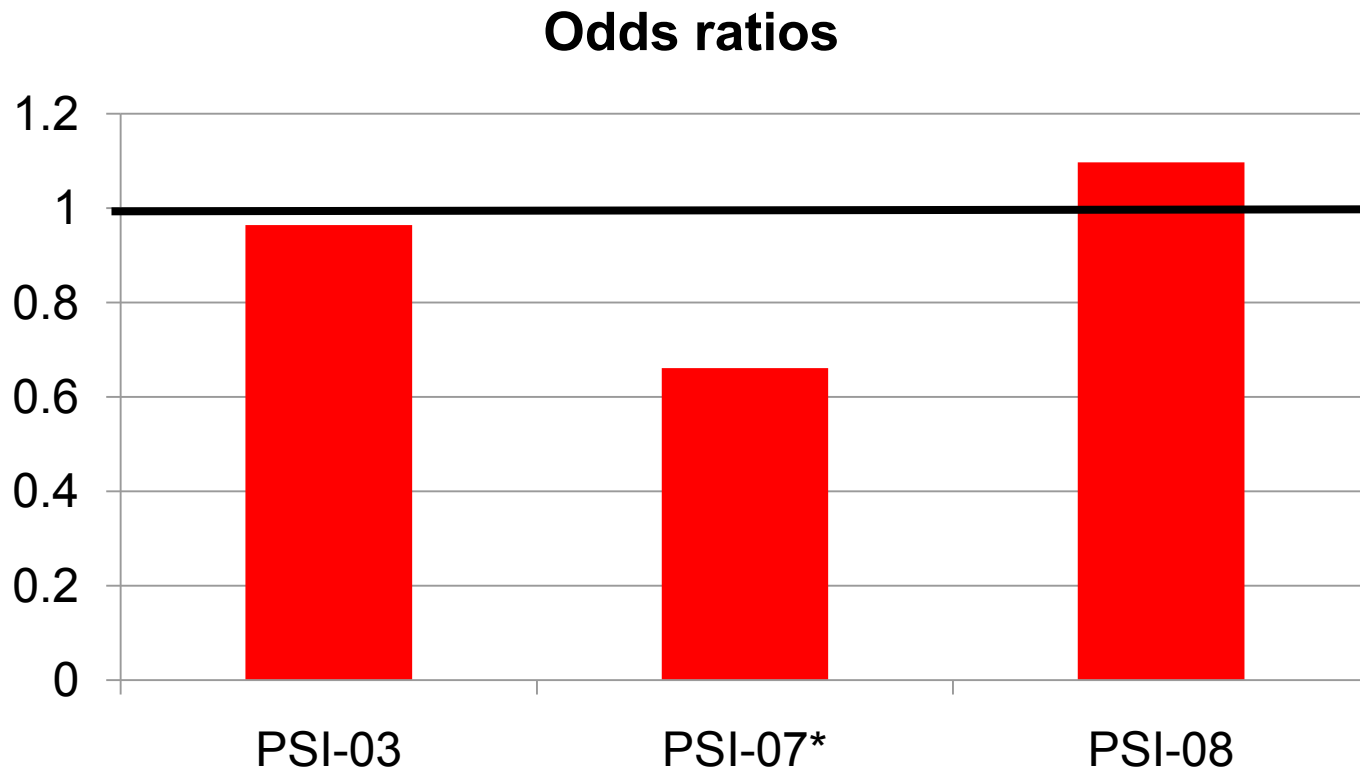
Utilization indicators: Closing vs. non-closing hospitals

Odds ratios



Note: * indicates p-value < 0.05.

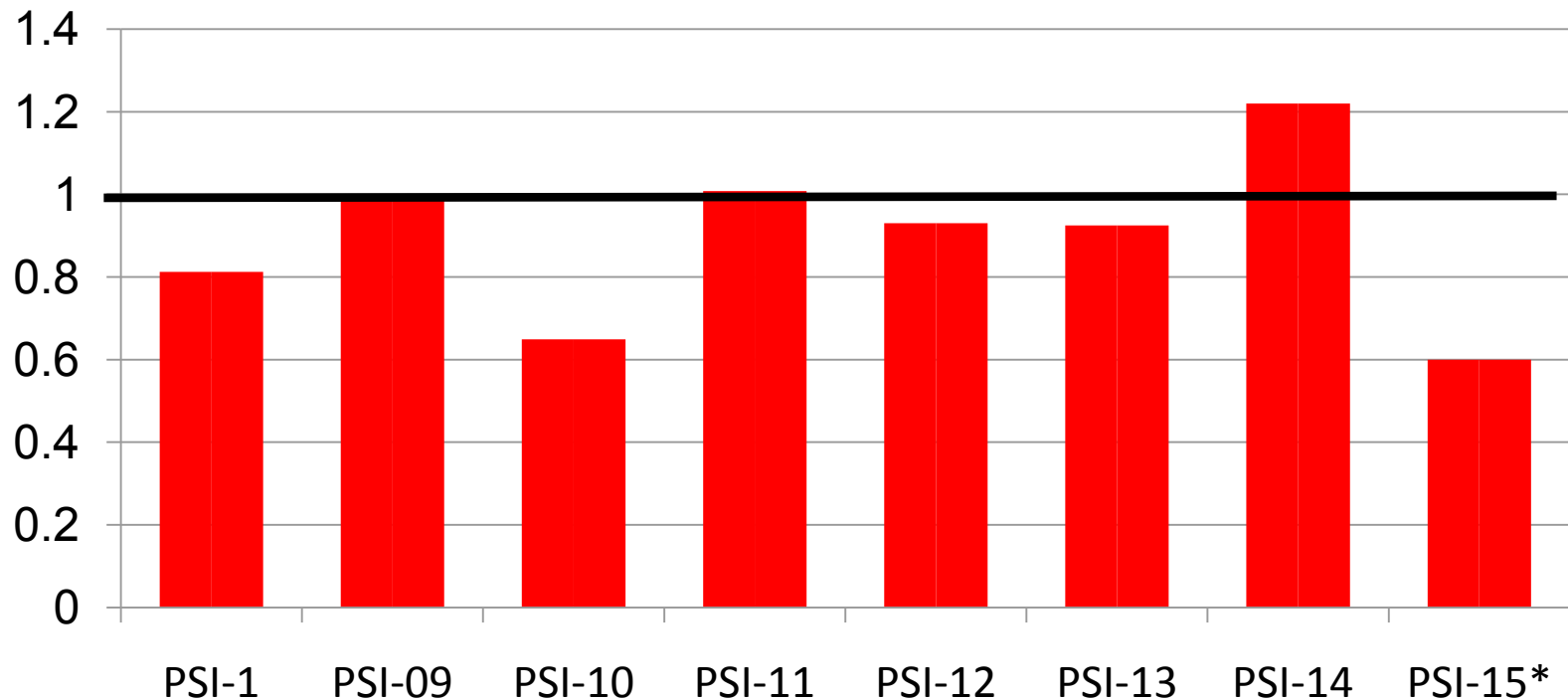
Nursing related PSI's: Closing vs. non-closing hospitals



Note: * indicates p-value < 0.05.

Surgery related PSI's: Closing vs. non-closing hospitals

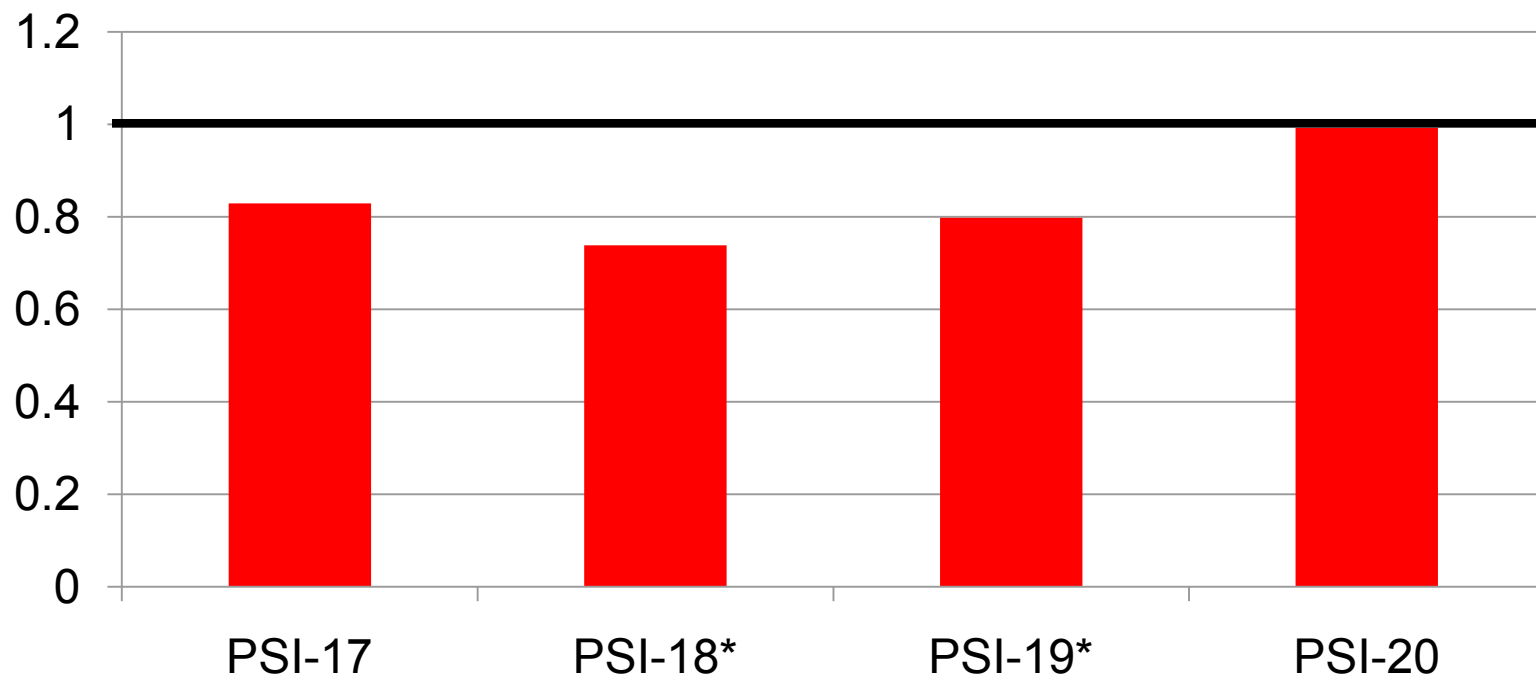
Odds ratios



Note: * indicates p-value < 0.05.

Birth related PSI's: Closing vs. non-closing hospitals

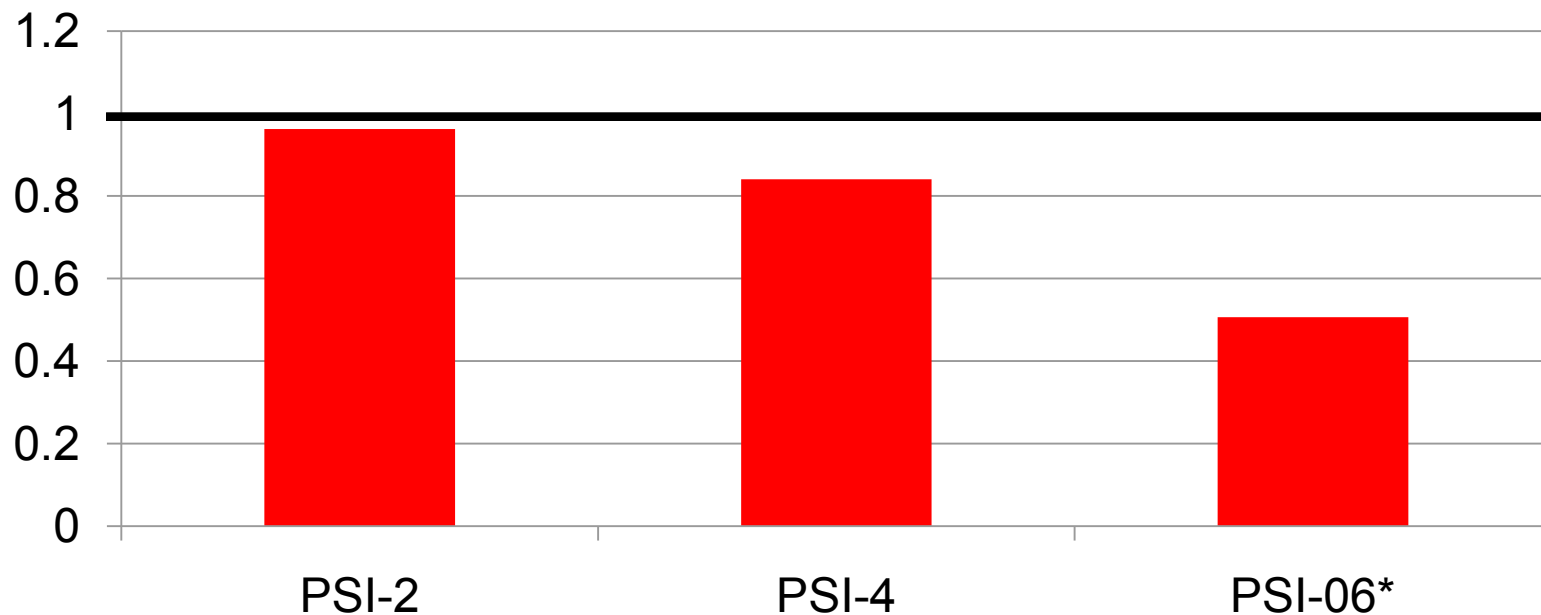
Odds ratios



Note: * indicates p-value < 0.05.

Other PSI's: Closing vs. non-closing hospitals

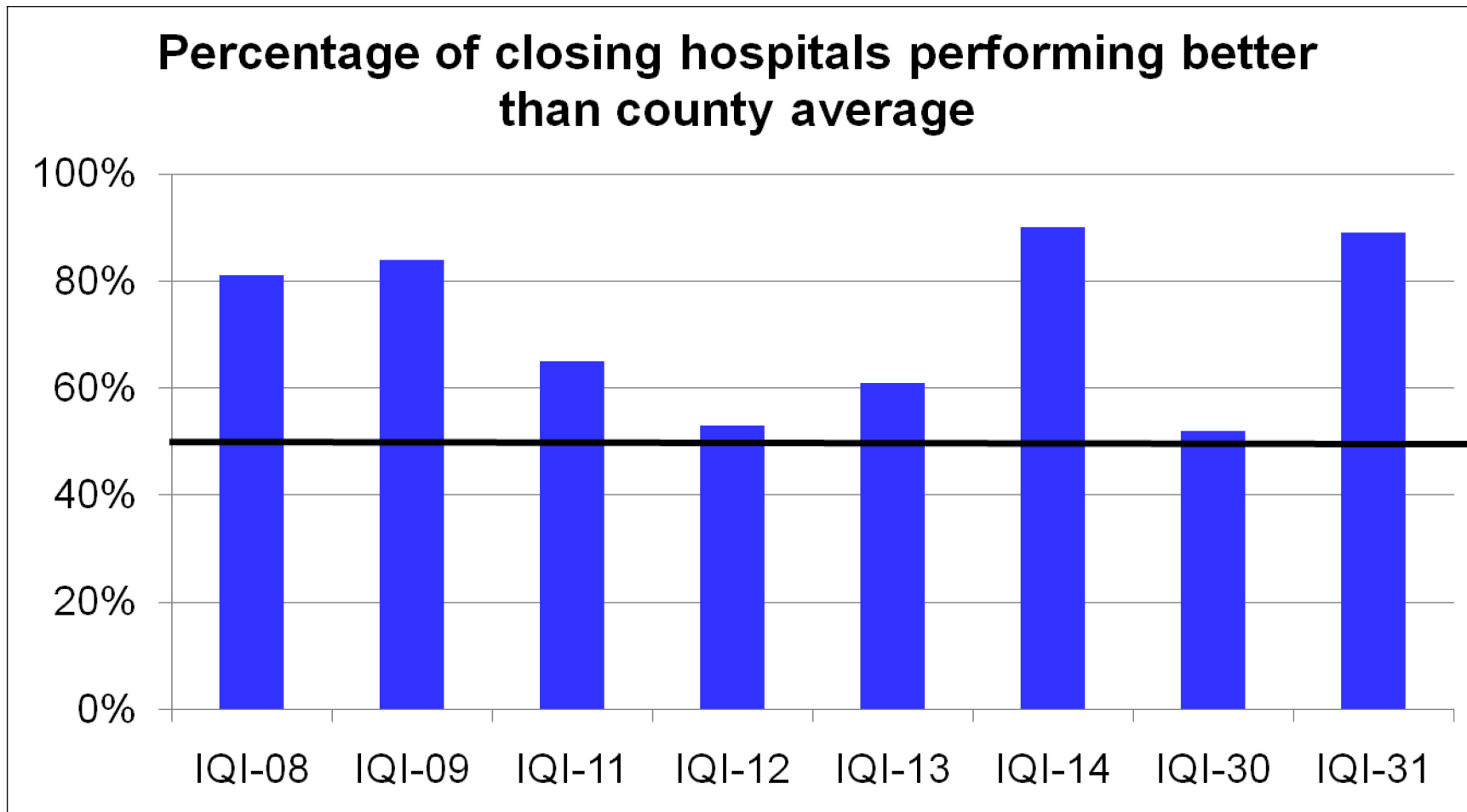
Odds ratios



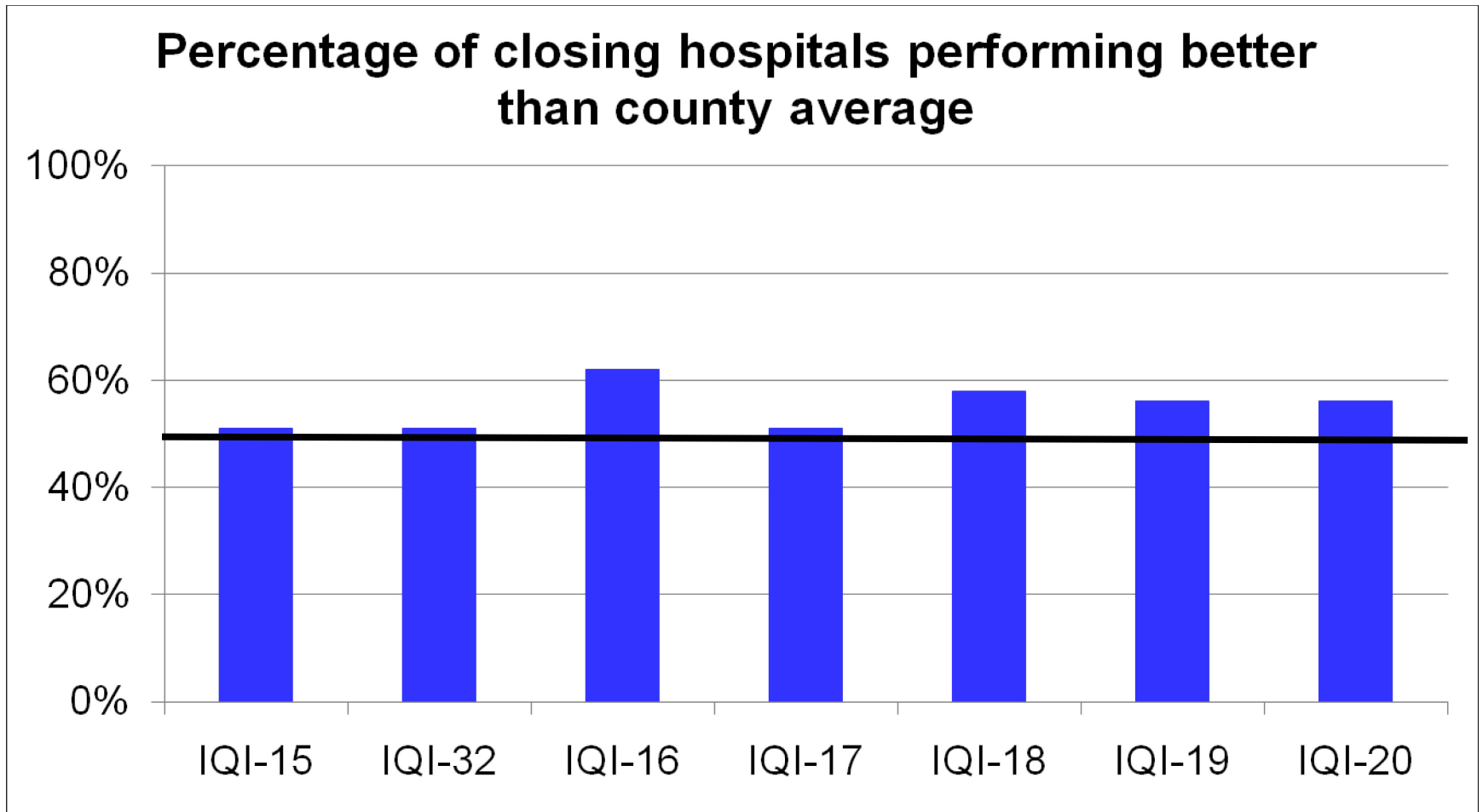
Note: * indicates p-value < 0.05.

Findings II:
Within county
comparisons

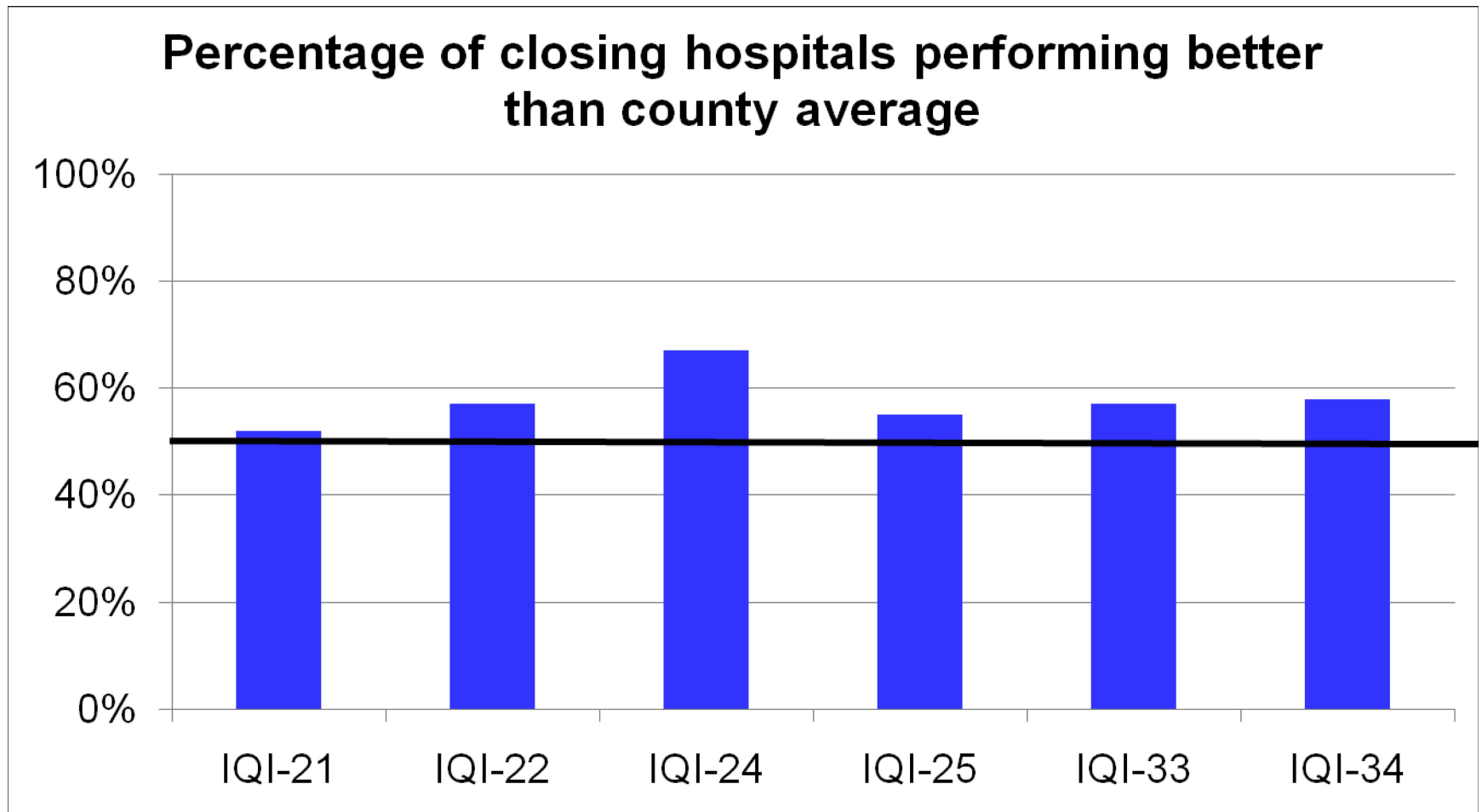
Mortality during inpatient procedures



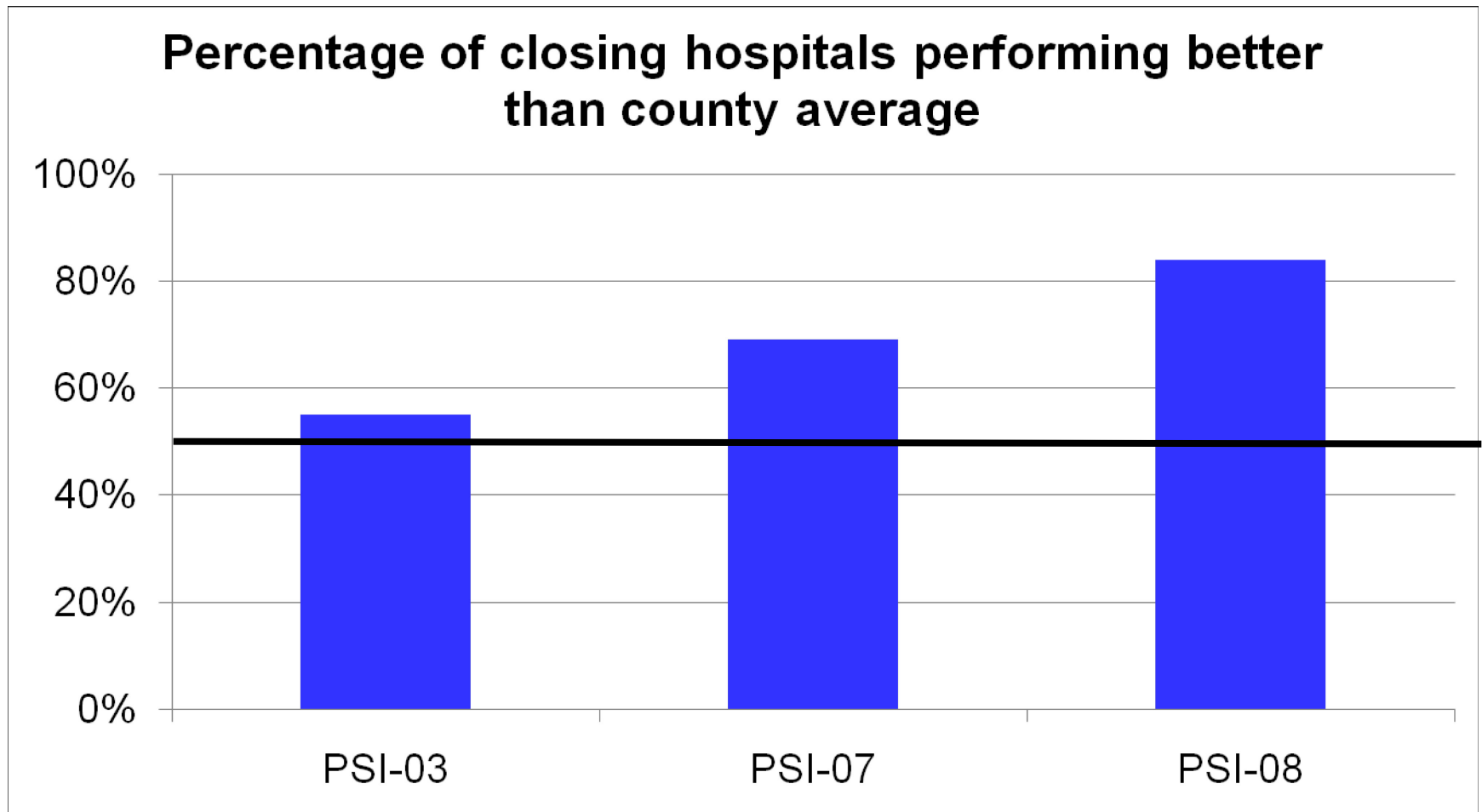
Mortality for inpatient conditions



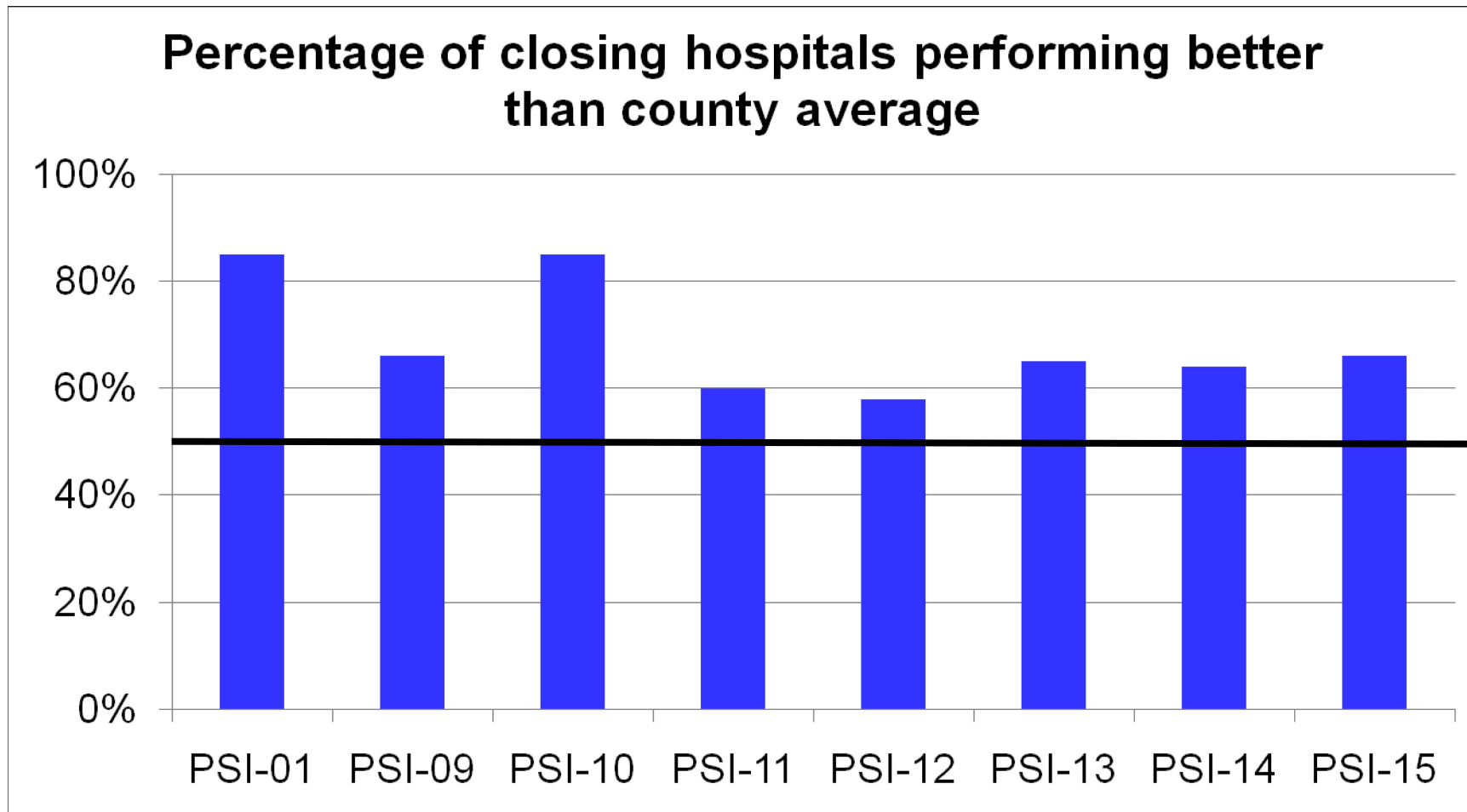
Utilization indicators



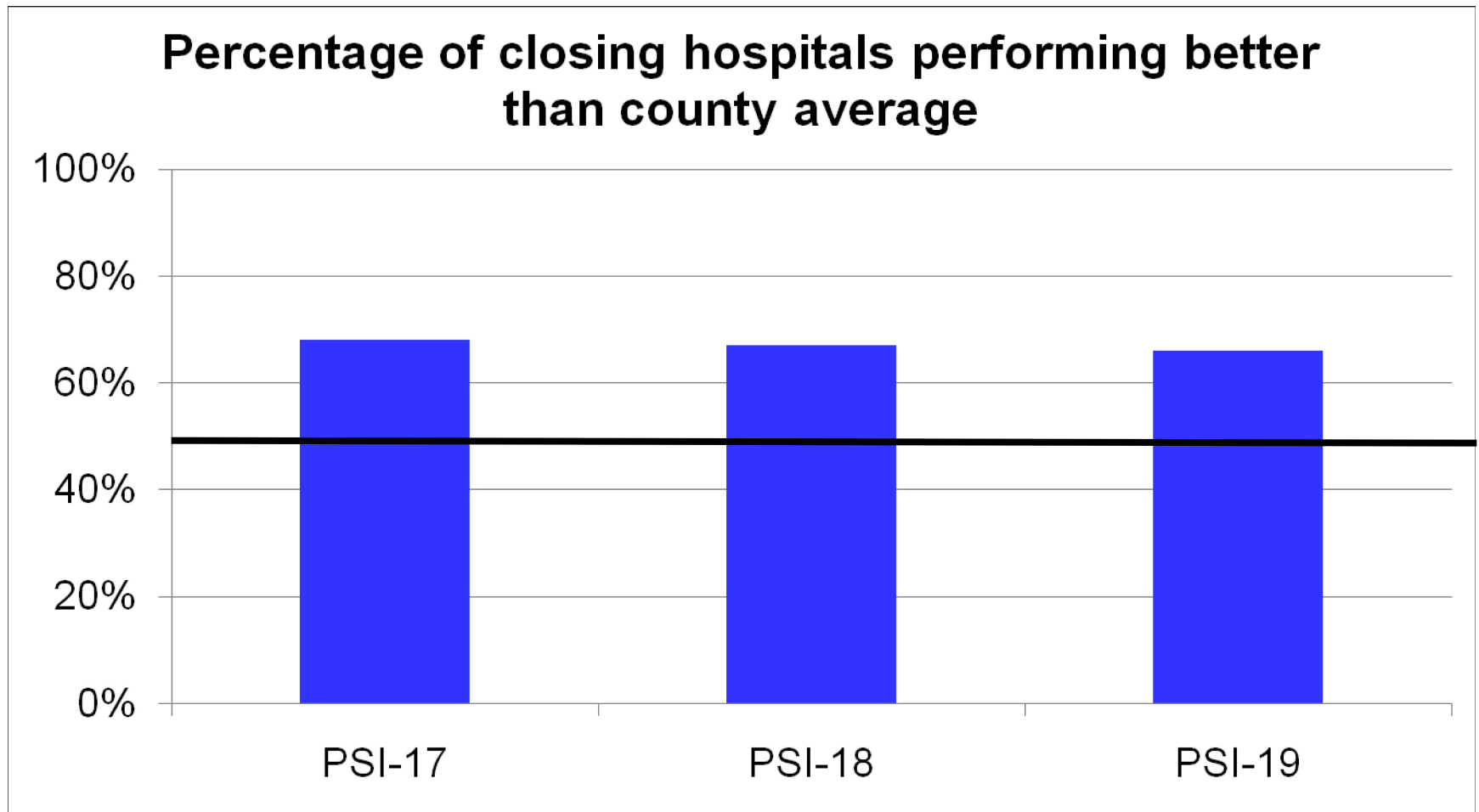
Nursing related PSI's



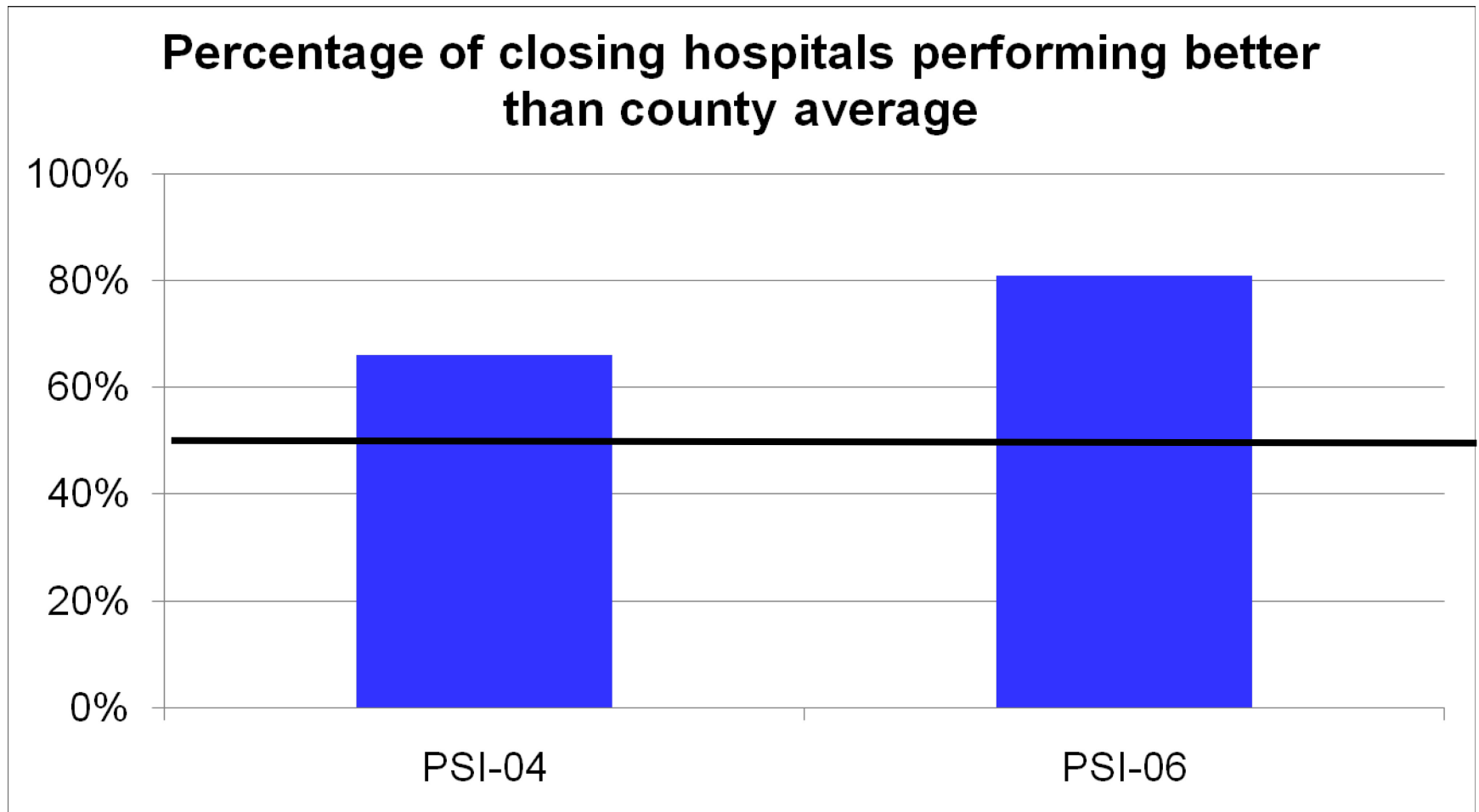
Surgery related PSI's



Birth related PSI's



Other PSI's



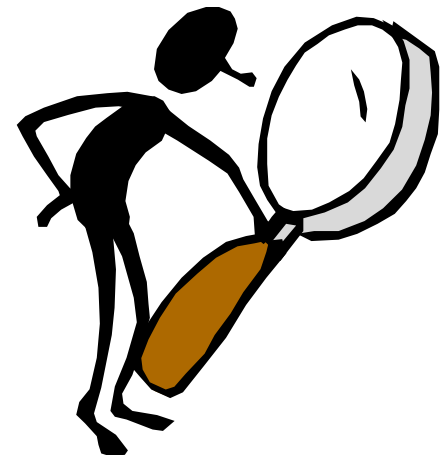
Summary & conclusions

- Some “good hospitals” may have closed
 - Quality performance similar to other hospitals
 - Relative performance within county usually better
- Markets do not appear to drive out worst hospitals
- Closing may be linked to other factors
 - Patient casemix
 - Payer mix
 - Access to subsidies (bailout \$\$\$)



Study limitations

- Relies on within hospital quality measures only
 - No measures of post-hospital survival, readmission, etc.
- Some adverse conditions may have been present on admission (POA)
 - POA coding generally not used during study period



Appendix: Inpatient Quality Indicators (IQI's)

Mortality during inpatient procedures
IQI-08: Mortality during esophageal resection
IQI-09: Pancreatic Resection
IQI-11: Abdominal aortic aneurysm repair
IQI-12: Coronary artery bypass graft (CABG)
IQI-13: Craniotomy
IQI-14: Hip replacement
IQI-30: Percutaneous transluminal coronary angioplasty (PTCA)
IQI-31: Carotid endarterectomy
Mortality for inpatient conditions
IQI-15: Acute myocardial infarction (AMI)
IQI-32: AMI without transfers
IQI-16: Congestive heart failure
IQI-17: Acute stroke
IQI-18: Gastrointestinal hemorrhage
IQI-19: Hip fracture
IQI-20: Pneumonia
Utilization indicators
IQI-21: Cesarean section delivery
IQI-22: Vaginal birth after Cesarean (VBAC) section, uncomplicated
IQI-24: Incidental appendectomy
IQI-25: Bi-lateral catheterization
IQI-33: Primary Cesarean Section
IQI-34: VBAC, All

Appendix: Patient Safety Indicators (PSI's)

Nusing related PSI's
PSI-03: Decubitis ulcer
PSI-07: Selected infections due to medical care
PSI-08: Postoperative hip fracture ***
Surgery related PSI's
PSI-01: Complications of anesthesia
PSI-09: Postoperative hemorrhage or hemotoma
PSI-10: Postoperative physiologic and metabolic derangement
PSI-11: Postoperative respiratory failure
PSI-12: Postoperative PE or DVT
PSI-13: Postoperative sepsis
PSI-14: Postoperative wound dehiscence
PSI-15: Accidental puncture or laceration
Birth related PSI's
PSI-17: Birth trauma – Injury to neonate
PSI-18: Obstetric trauma - Vaginal delivery with instrument
PSI-19: Obstetric trauma – Vaginal delivery without instrument
PSI-20: Obstetric trauma - Cesarean delivery
Other PSI's
PSI-02: Death in low mortality DRG's
PSI-04: Failure to rescue
PSI-06: Iatrogenic pneumothorax

Acknowledgements

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