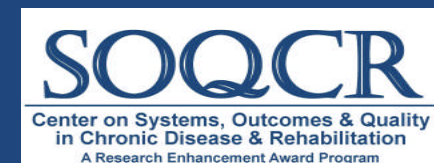# Adherence to Quality Measures and Mortality among Veterans with Congestive Heart Failure

Hank Wu, MD, MPH

Providence VA Medical Center

Associate Professor of Medicine

Brown University

Acknowledgment

- VA HSR&D QUERI:
RRP #09-172

- CHF QUERI
  – Paul Heidenreich, MD, MS
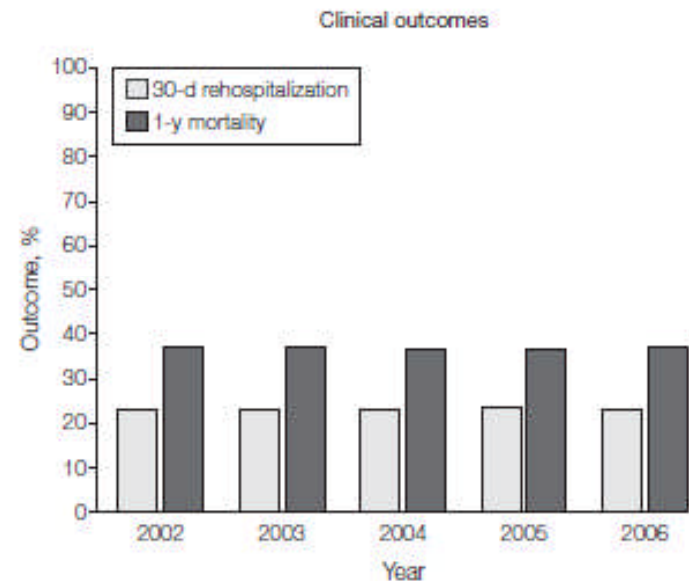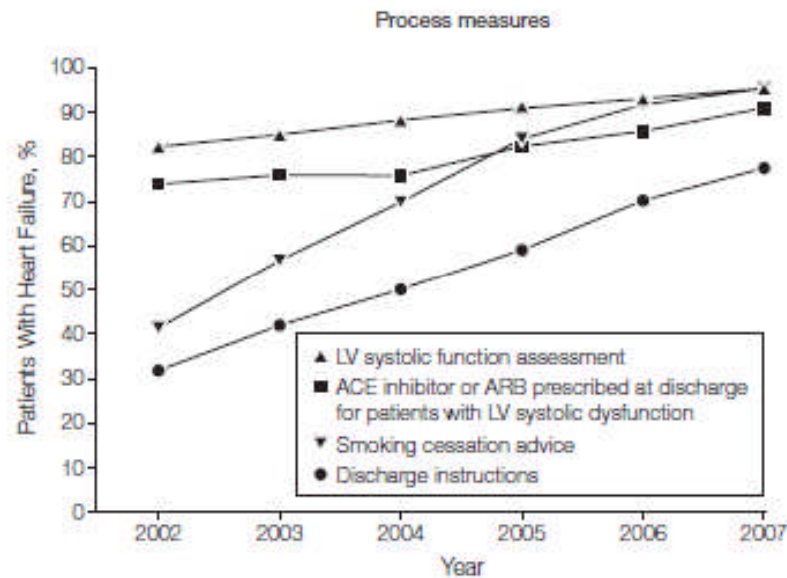 – Anju Sahay, PhD

DISCLOSURES

- VA HSR&D Merit Review
- VA HSRD QUERI

BACKGROUND

All VHA medical centers and most private-sector hospitals report on the quality of care provided to patients with heart failure (HF)

- Limited evidence supports adherence to HF quality measures and improved patient survival

Temporal Trends in Process Measures and Outcomes in HF

Medicare Patients 2002-2007
Peterson & Fonarow, JAMA 2009

OBJECTIVE

To examine the association between adherence to 8 inpatient and 2 outpatient HF quality measures and subsequent 30-day and 1-year mortality.

METHODS

- VA External Peer Review Project data linked to DSS, PTF and OPC datasets
- Population: Nationally-representative cohort of 107,045 veterans with primary discharge diagnosis of HF 2001-2008.
- Outcome Measures: 30-day and one-year mortality.

ANALYSIS

We assessed the relationship between adherence to each performance indicator and death at 30 days and one year, using generalized estimating equations to adjust for detailed clinical data and clustering within VA medical center.

Baseline Characteristics of the Study Cohort

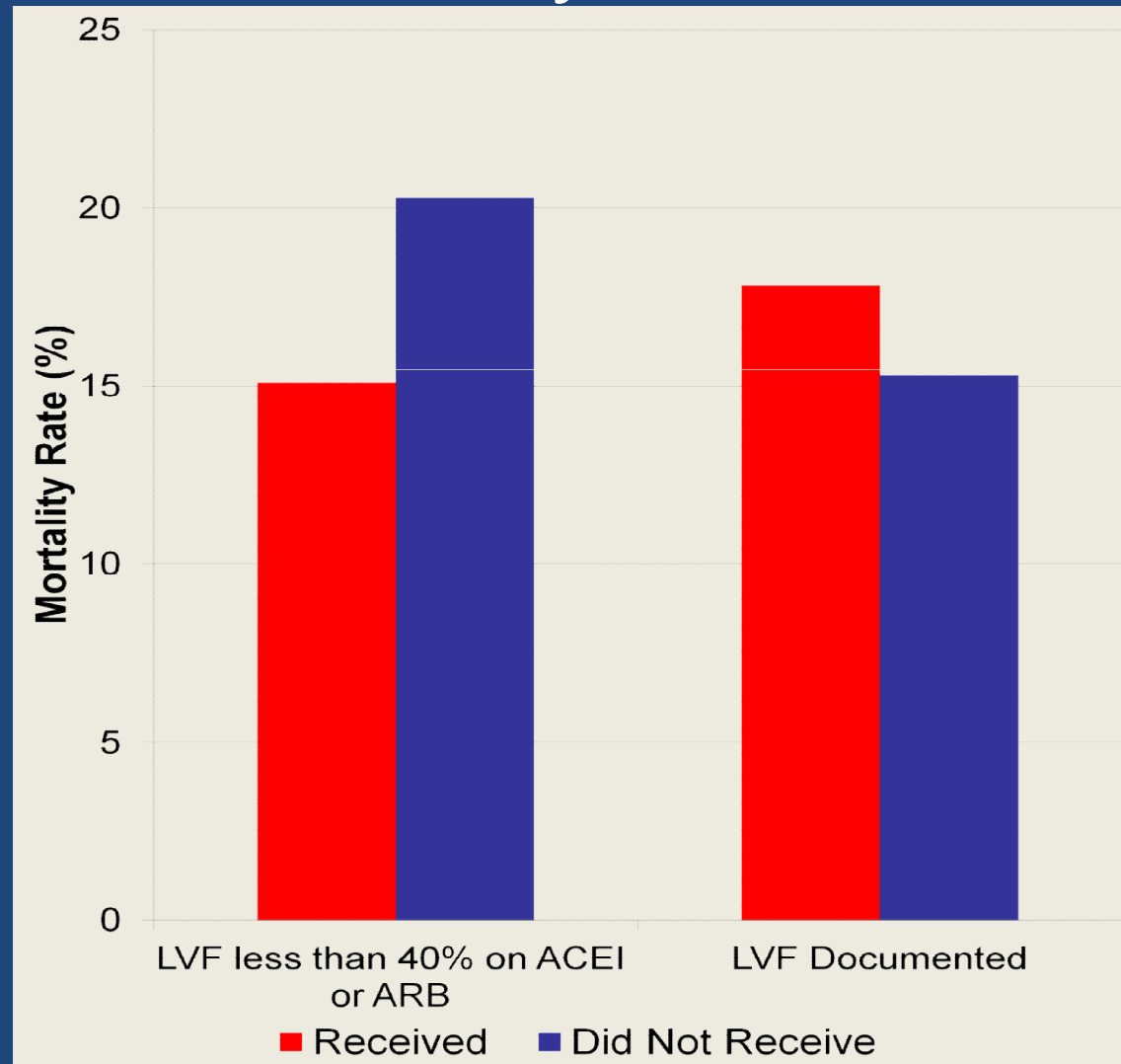|	Inpatient Cohort	Outpatient Cohort
N	64,321	42,680
Mean Age, Y	70.7	71.6
Black, %	21	12
Mean SBP	124	128
Mean GFR	58.3	59.6
Mean # Comorbid Conditions	6.3	4.7

Inpatient Cohort
Unadjusted 30-Day Mortality Receiving vs. Not Receiving HF Quality Indicators
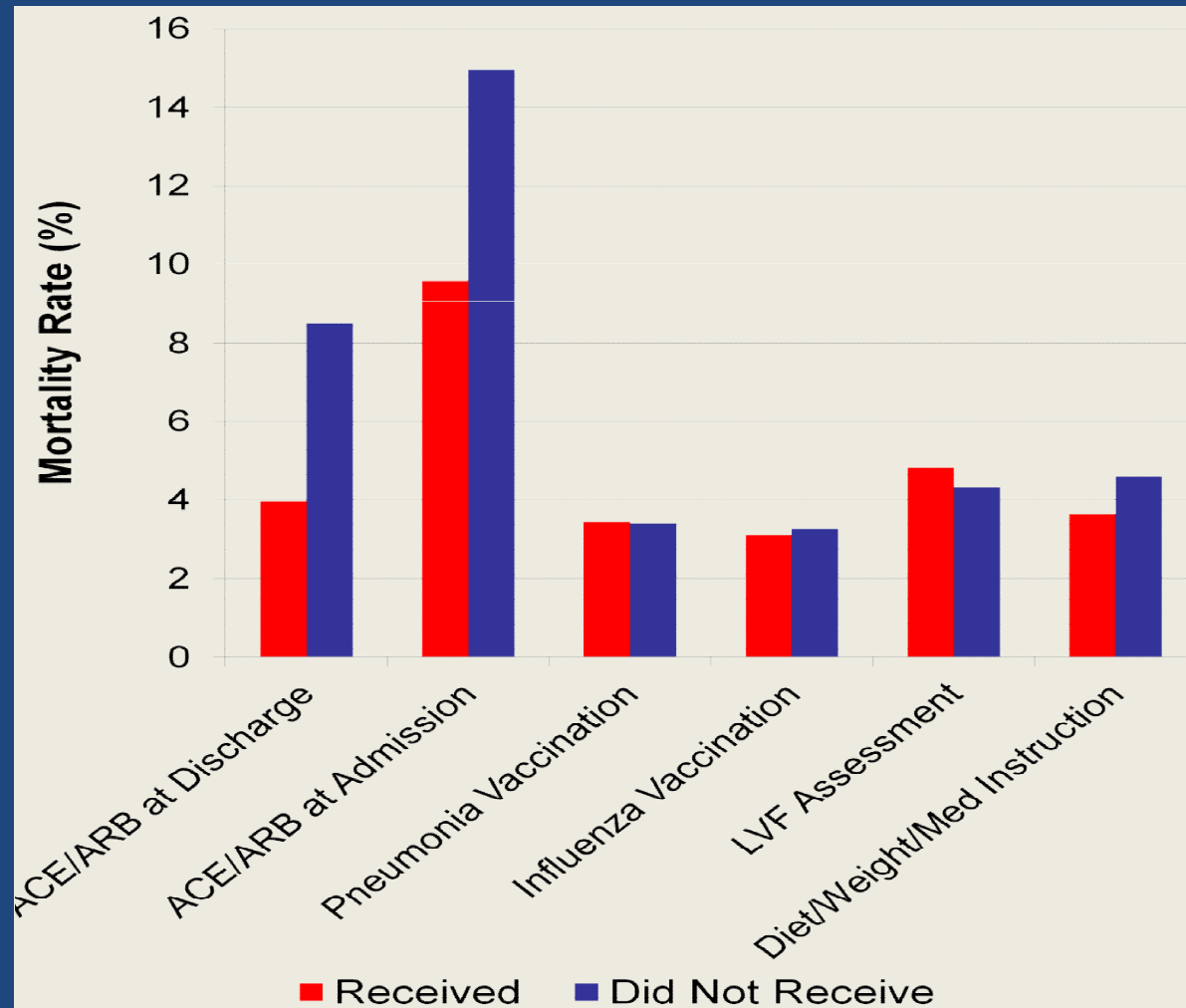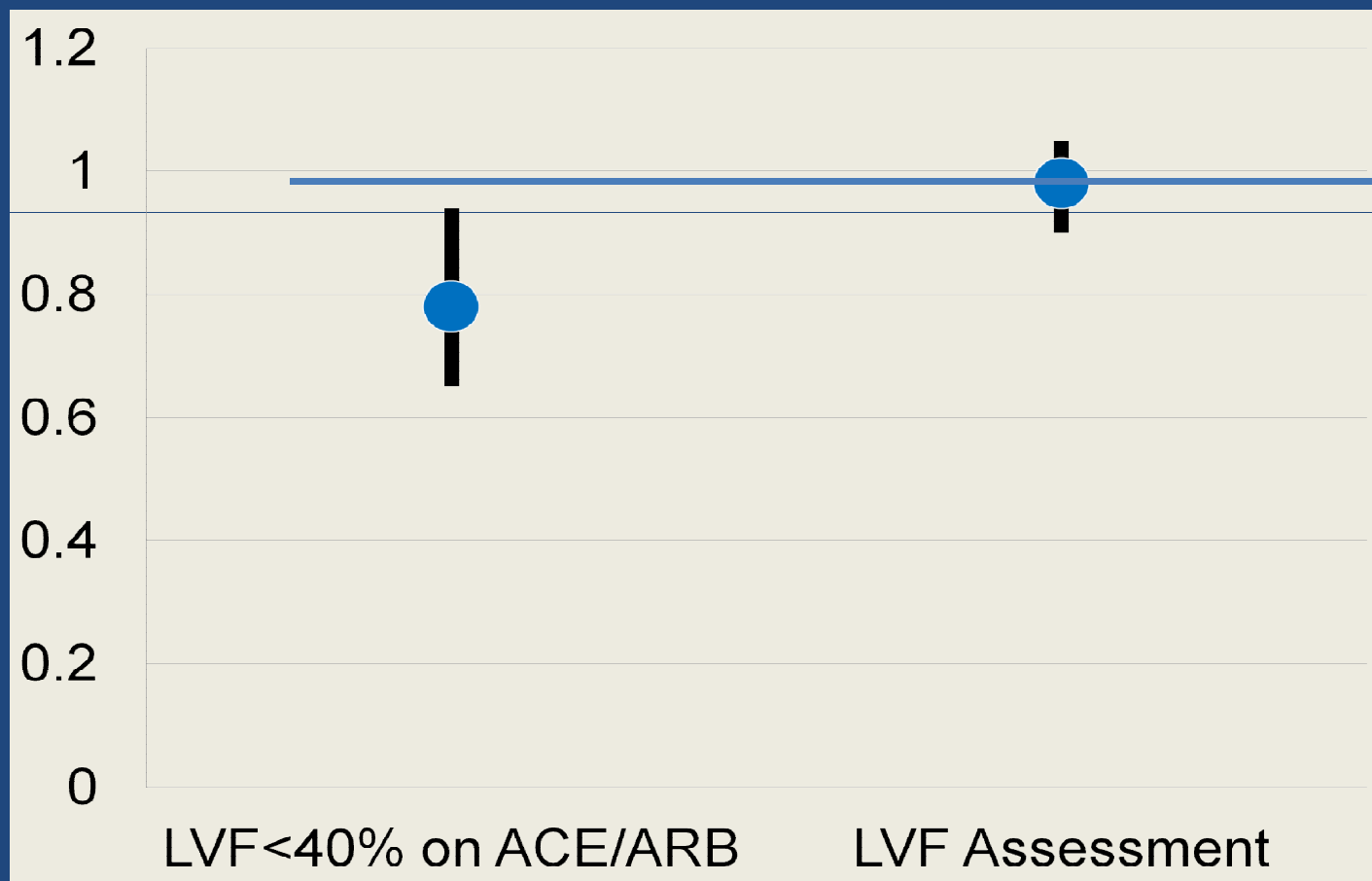
Inpatient Cohort - Adjusted Odds of 30-Day Mortality Receiving vs. Not Receiving the Quality Indicator
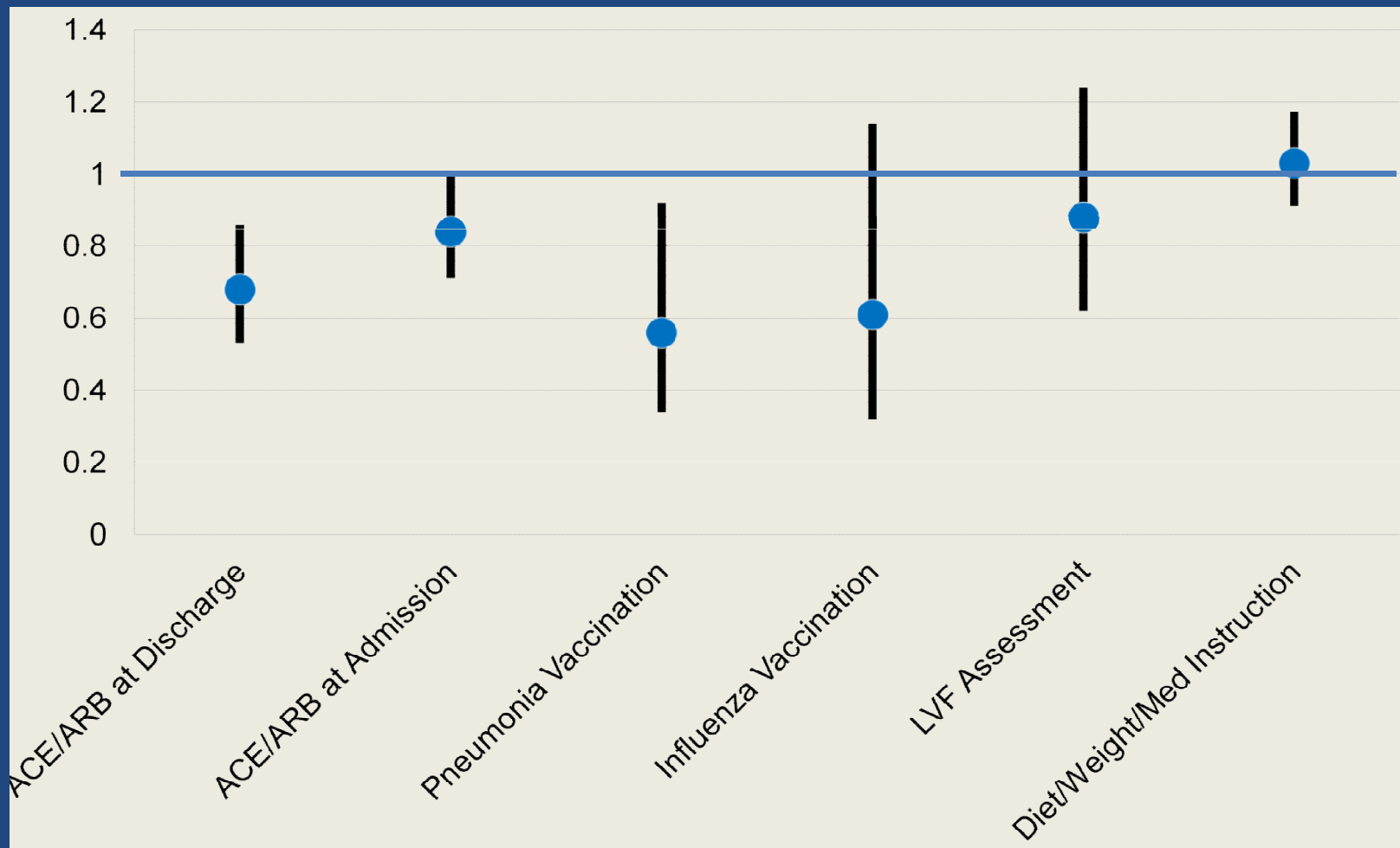
Outpatient Cohort - Unadjusted 1-year Mortality Receiving vs. Not Receiving the Quality Indicator
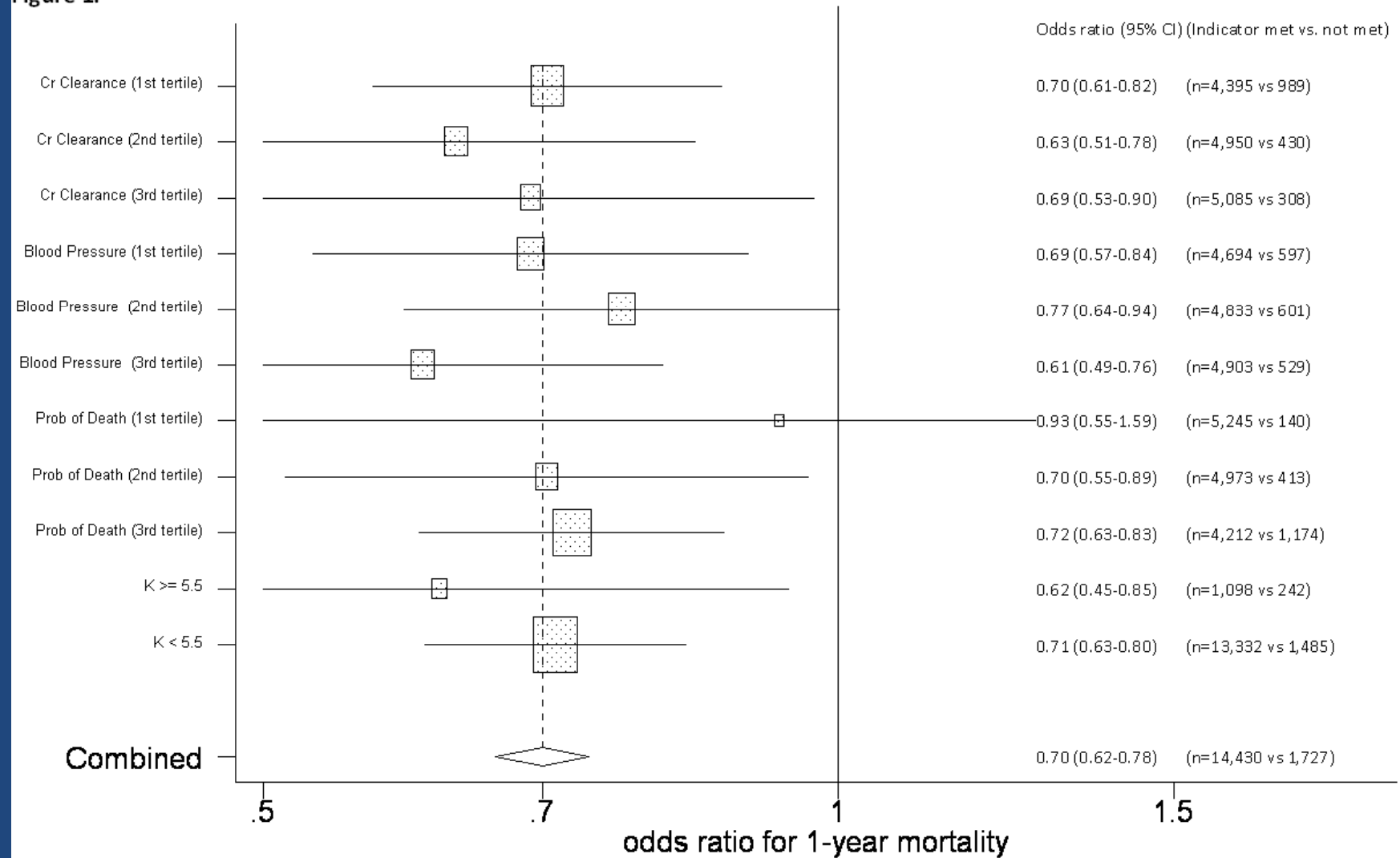
Outpatient Cohort - Adjusted Odds of 1-year Mortality Receiving vs. Not Receiving the Quality Indicator
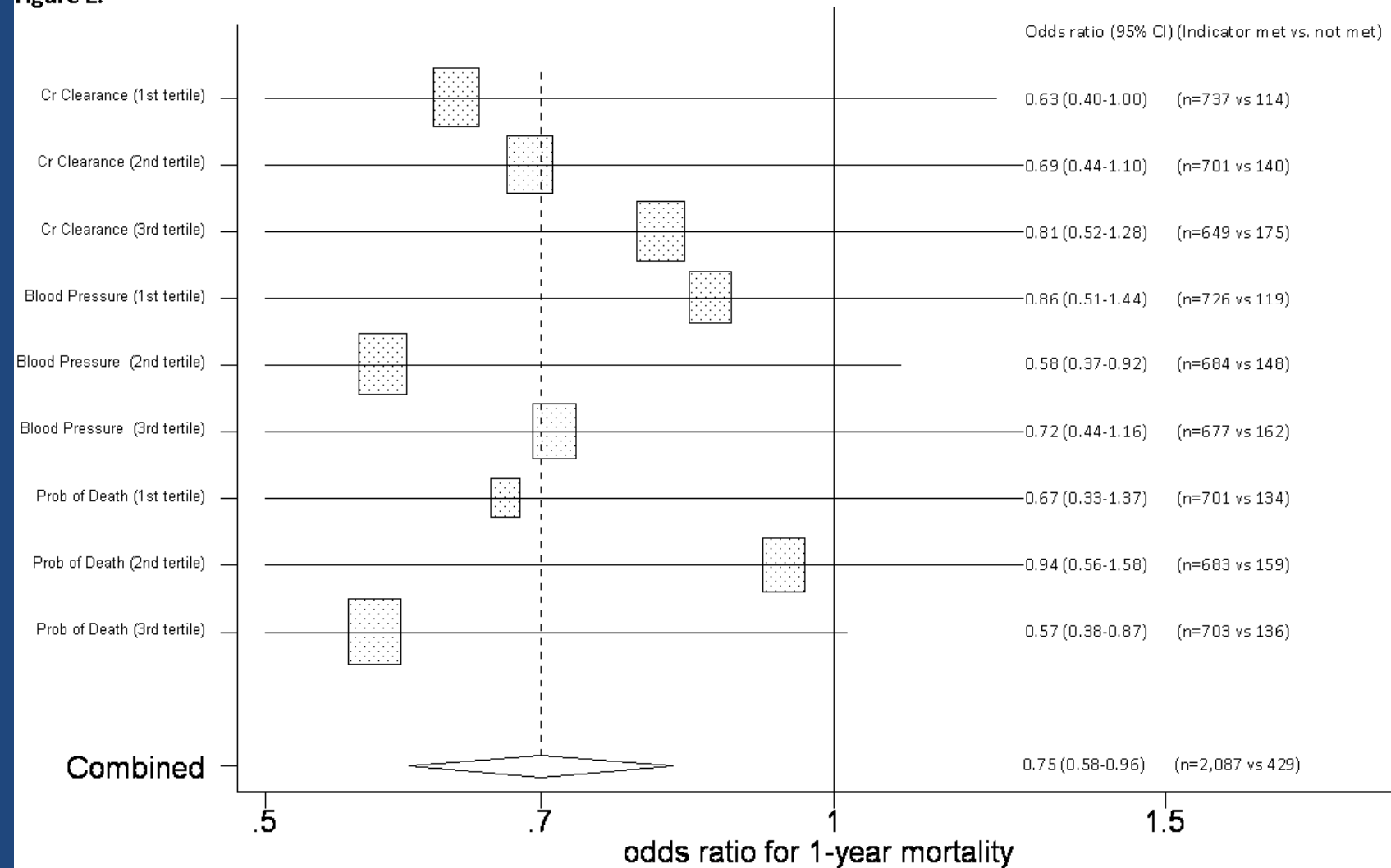
ACEI/ARB at Hospital Discharge & 1-year Mortality
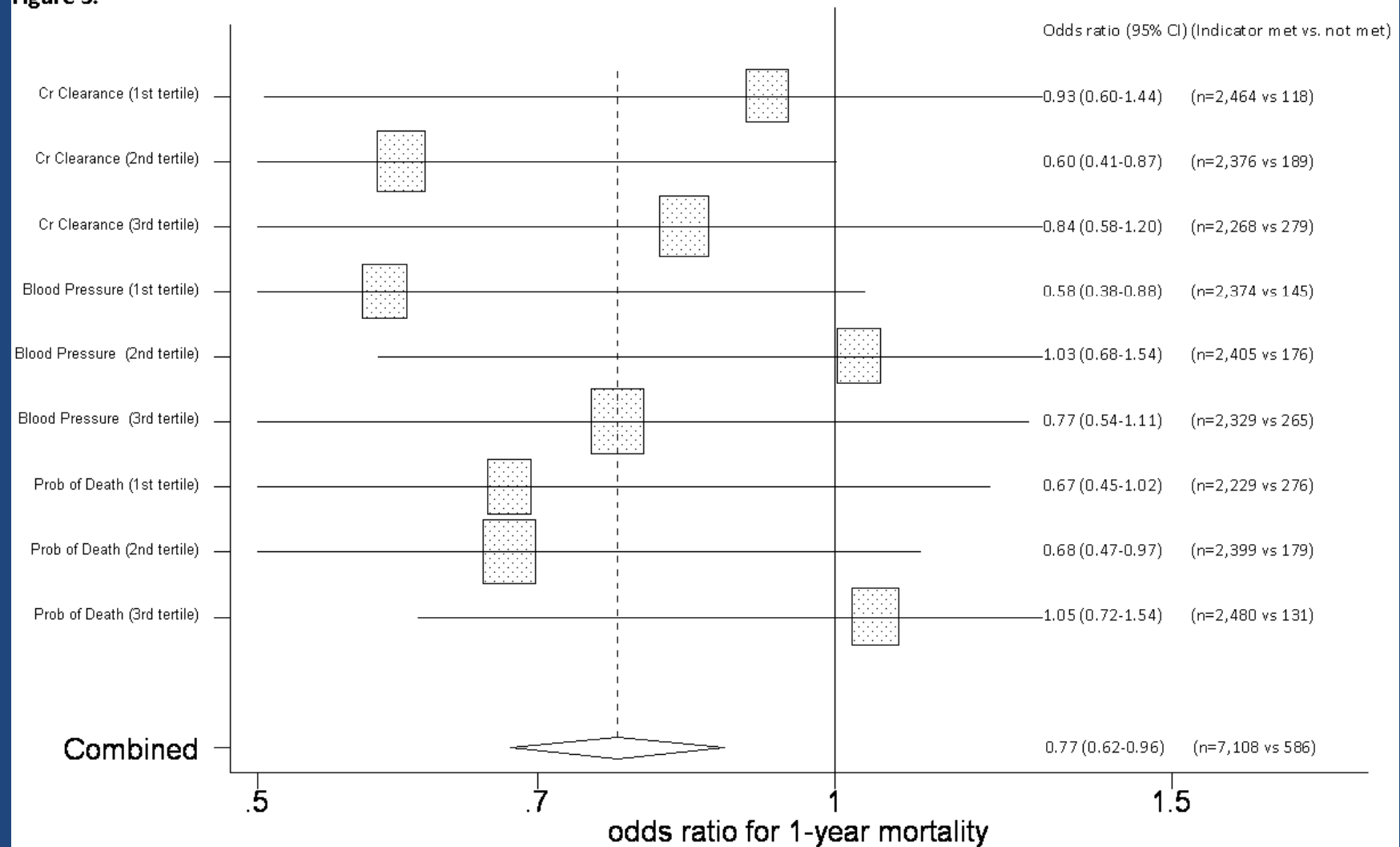

Figure 1.

Flu vaccine & 1-year Mortality

Figure 2.

Pneumovax & 1-year Mortality

Figure 3.

Conclusions

- Only half of the 10 indicators predicted mortality.

- ACE-I / ARB use for LV dysfunction had consistent associations with reduced one-year mortality among both inpatients and outpatients

- Inpatient vaccinations for influenza and pneumococcus were also associated with reduced one-year mortality.

Conclusions

Stratified analyses by K levels, renal function, mean arterial pressures and tertiles of predicted probability of death confirmed the consistency of these results among subgroups at varied risk.

Conclusions

Clinicians and policymakers should focus efforts on increasing ACEI/ARB use. Pneumococcal and influenza vaccinations are other valid targets for quality improvement in HF care.

Co-Investigators

- Peter D. Friedmann, M.D., M.P.H.;
- Lan Jiang, M.S.;
- Amal Trivedi, M.D.,M.P.H.