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Racial Disparities in Emergency General Surgery: Do Differences in Outcomes Persist Among Universally Insured Military Patients?

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Recommended Citation

Zogg, Cheryl, Wei Jiang, Muhammed Ali Chaudhary, John Scott, Adil A. Shah, Stuart R. Lipsitz, Joel S. Weissman, Zara Cooper, Ali Salim, Stephanie L. Nitzschke, Louis L. Nguyen, Lorens A. Helmchen, Linda G. Kimsey, Samuel Olaiya, Peter A. Learn, Adil H. Haider. 2016. "Racial Disparities in Emergency General Surgery: Do Differences in Outcomes Persist Among Universally Insured Military Patients?." *Health Policy and Management Faculty Presentations*. Presentation 26. source: <https://academyhealth.confex.com/academyhealth/2016arm/meetingapp.cgi/Paper/10787>
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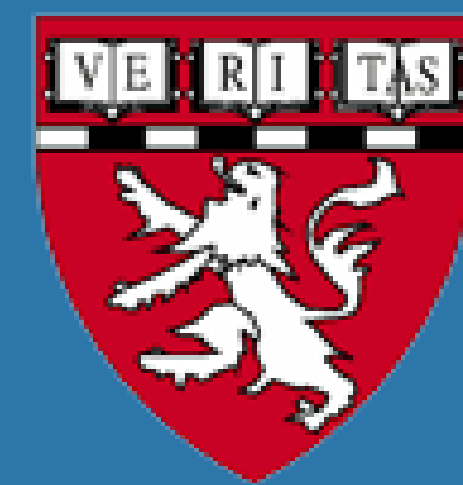
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Racial disparities in emergency general surgery: Do differences in outcomes persist among universally insured military patients?

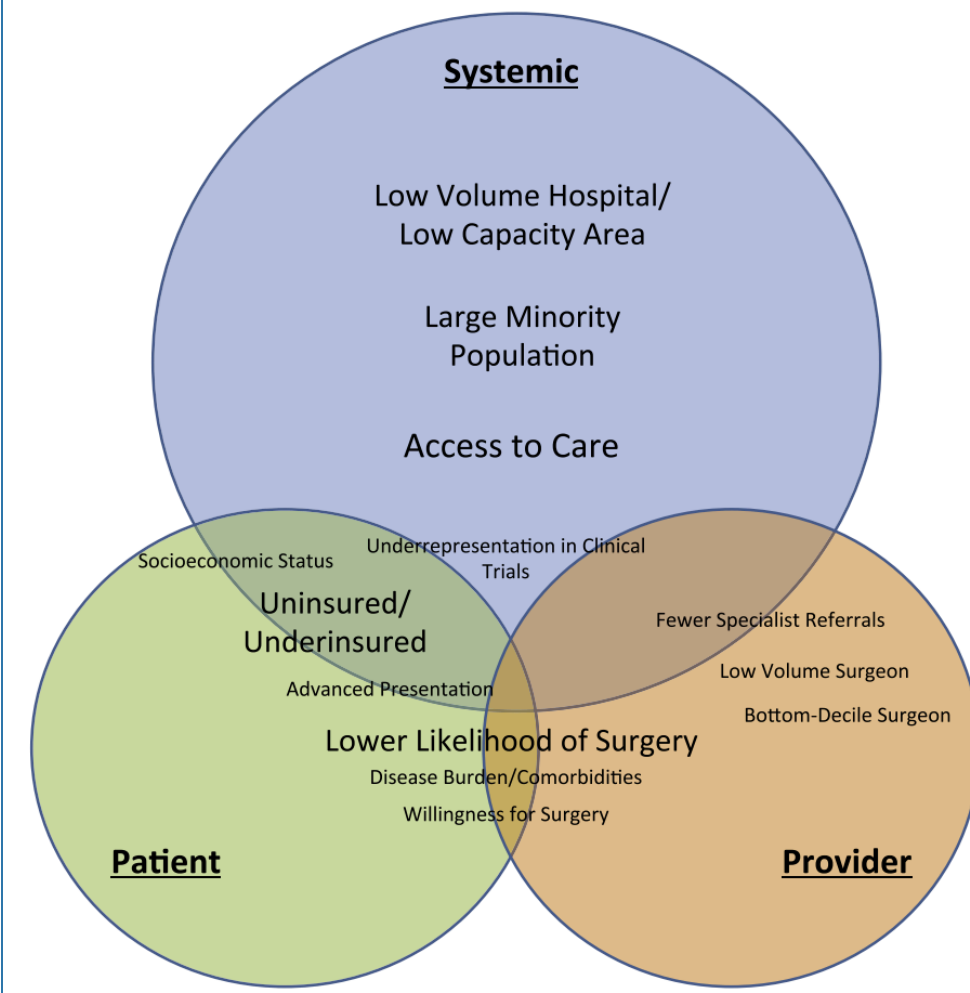


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BACKGROUND

- Racial/Ethnic disparities account for **>83,000 deaths, \$57 billion per year**
 - "One of the most serious health problems affecting the nation"
 - "Major public health concern"
- May 2015 NIH, ACS National Agenda for Surgical Disparities Research
 - Urgent need to consider longer-term outcomes of care**



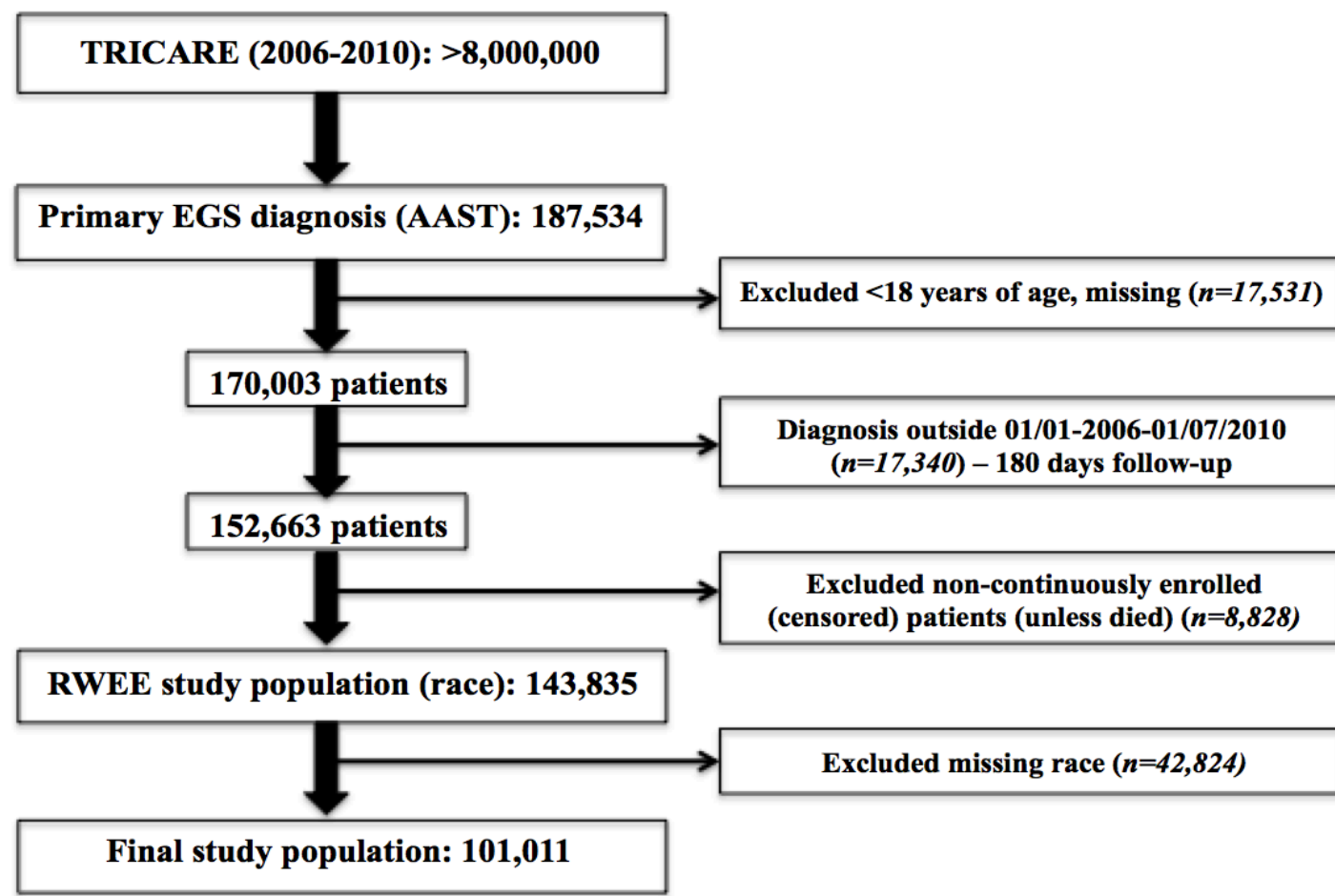
- Access to care "must be considered", lack of insurance → access blamed

OBJECTIVE

- To determine whether racial disparities in 30/90/180 outcomes exist within a universally-insured population of EGS patients
- To ascertain whether disparate outcomes occur: (a) among diagnostic groups, (b) in military vs civilian hospitals, (c) among officers vs enlisted

METHODS

- 2006-2010 national TRICARE Prime, Prime Plus**
 - >5 million members of uniformed forces, families
 - Longitudinal follow-up military and civilians
 - Similar race and SES to US, including adults <65y
- Outcomes: mortality, major morbidity, readmission**
- Risk-adjusted survival analysis with Cox PH models
- Reweighted estimating equations for missing race



RESULTS

- No difference in mortality among EGS diagnoses**
 - Or when restricted to operative procedures

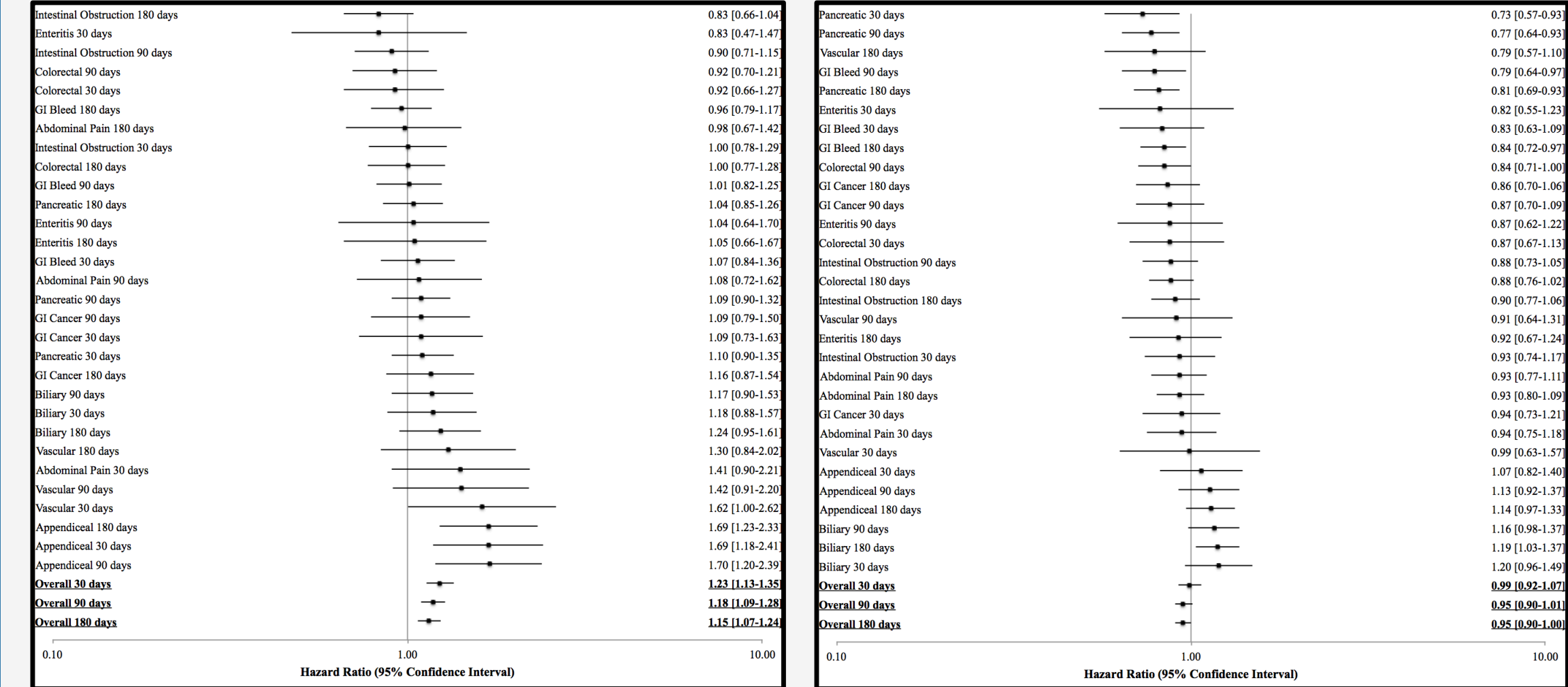


Figure 1. Risk-adjusted NH Black vs NH White TRICARE HR stratified by diagnostic condition for (a) major morbidity and (b) unplanned readmission

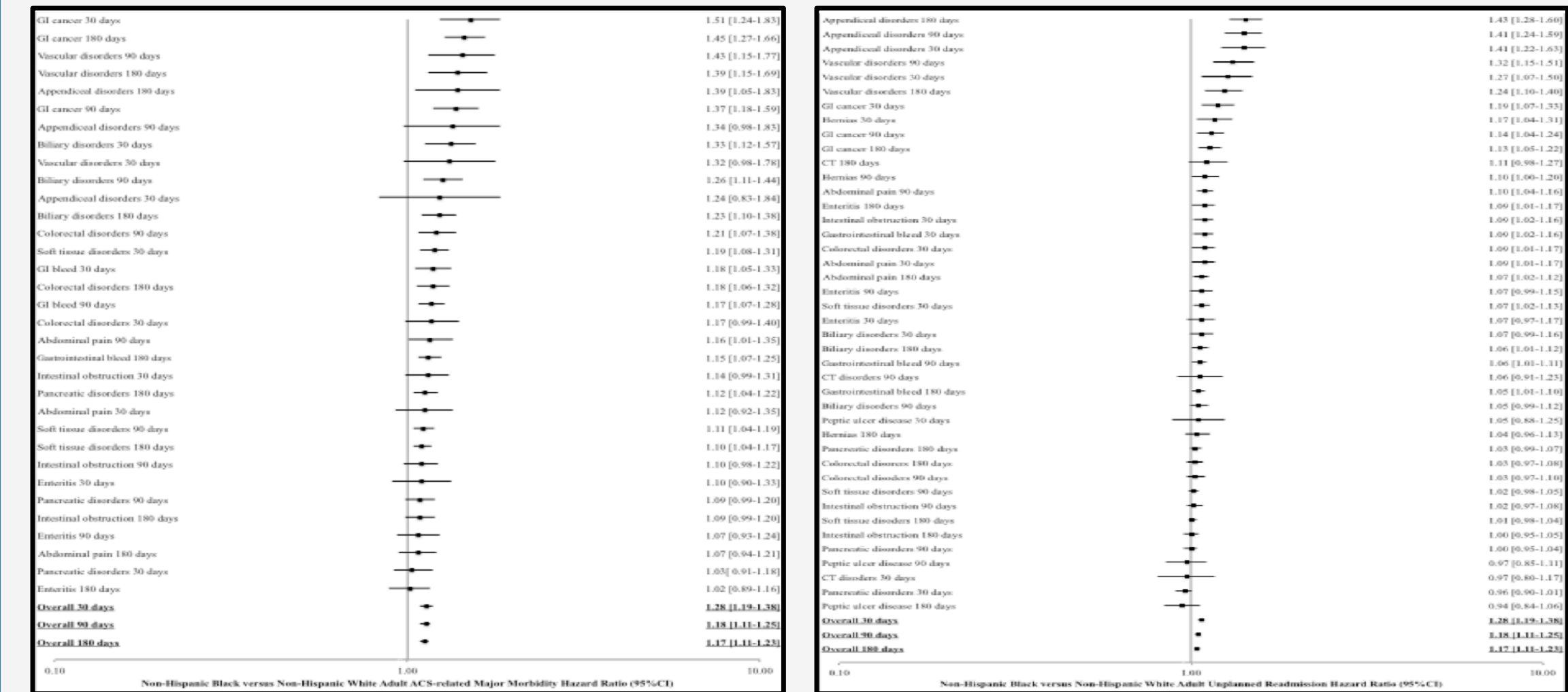


Figure 2. Risk-adjusted NH Black vs NH White CA State Inpatient Database HR stratified by diagnostic condition for (a) major morbidity and (b) unplanned readmission

	Non-Hispanic White		Non-Hispanic Black		Non-Hispanic Asian		Hispanic		Non-Hispanic Other	
	Hazard Ratio	95% CI	Hazard Ratio	95% CI	Hazard Ratio	95% CI	Hazard Ratio	95% CI	Hazard Ratio	95% CI
Emergency general surgery diagnoses										
Mortality										
30-day	1.00 (reference)	–	1.38 (0.85, 2.22)	0.53 (0.20, 1.42)	1.09 (0.34, 3.49)	1.59 (0.72, 3.54)	1.00 (reference)	–	0.91 (0.69, 1.20)	0.50 (0.29, 0.85)
90-day	1.00 (reference)	–	0.97 (0.76, 1.23)	0.72 (0.48, 1.06)	0.90 (0.52, 1.54)	0.79 (0.38, 1.34)	1.00 (reference)	–	1.24 (1.12, 1.38)	1.03 (0.90, 1.18)
180-day	1.00 (reference)	–	1.24 (1.12, 1.36)	1.00 (0.88, 1.14)	0.92 (0.77, 1.08)	0.89 (0.78, 1.08)	1.00 (reference)	–	0.87 (0.81, 0.93)	0.86 (0.79, 0.94)
Major morbidity										
30-day	1.00 (reference)	–	1.34 (1.20, 1.49)	1.09 (0.95, 1.25)	0.89 (0.74, 1.08)	0.98 (0.78, 1.21)	1.00 (reference)	–	0.94 (0.86, 1.03)	0.92 (0.82, 1.02)
90-day	1.00 (reference)	–	1.24 (1.12, 1.38)	1.03 (0.90, 1.18)	0.92 (0.78, 1.08)	0.92 (0.75, 1.13)	1.00 (reference)	–	0.87 (0.81, 0.93)	0.86 (0.79, 0.94)
180-day	1.00 (reference)	–	1.24 (1.12, 1.36)	1.00 (0.88, 1.14)	0.92 (0.77, 1.08)	0.89 (0.73, 1.08)	1.00 (reference)	–	0.87 (0.81, 0.93)	0.90 (0.83, 0.97)
Readmission										
30-day	1.00 (reference)	–	0.94 (0.86, 1.03)	0.92 (0.82, 1.02)	0.83 (0.70, 0.97)	1.01 (0.87, 1.19)	1.00 (reference)	–	0.87 (0.81, 0.93)	0.86 (0.79, 0.94)
90-day	1.00 (reference)	–	0.87 (0.81, 0.93)	0.86 (0.79, 0.94)	0.83 (0.74, 0.93)	0.96 (0.85, 1.08)	1.00 (reference)	–	0.87 (0.81, 0.93)	0.90 (0.83, 0.97)
180-day	1.00 (reference)	–	0.87 (0.81, 0.93)	0.90 (0.83, 0.97)	0.81 (0.73, 0.90)	0.96 (0.87, 1.06)	1.00 (reference)	–	0.87 (0.81, 0.93)	0.90 (0.83, 0.97)

- Higher risk of morbidity among NH Black vs White**
 - Looked at diagnostic-specific comparisons (figure)
 - Isolated to appendiceal disorders
- NH Black and Hispanic less likely to be readmitted**
- Similar results in military and civilian hospitals
 - Place where disparities are found in civilian pop.
- Significant differences only among enlisted BUT limited number of minority officers as TRICARE sponsors

	EGS volume	%Minority	Teaching status	Insurance	Income	Combined
Percent of the effect explained						
30 days	1.1%	56.3%	18.7%	18.5%	6.2%	66.5%
90 days	1.3%	60.4%	23.0%	22.4%	5.6%	79.3%
180 days	1.7%	58.3%	22.9%	24.3%	5.7%	71.7%

Table. Percent of NH Black vs White readmissions explained by access-related factors in SID

Corresponding publications:

- Zogg CK, Jiang W, Chaudhary MA, et al. Racial disparities in emergency general surgery: Do differences in outcomes persist among universally insured military patients? *J Trauma Acute Care Surg.* 2016;80(5):764-77.
- Zogg CK, Olufajo OA, Jiang W, et al. The need to consider longer-term outcomes of care: Racial/Ethnic disparities among adult and older adult EGS patients at 30, 90, and 180 days. *Ann Surg.* 2016 [In Press].



CONCLUSIONS

- While an imperfect proxy of interventions directly applicable to US, the **profound contrast between military/civilian-dependent and civilian results** merits consideration
- Reduction in disparities both during **and after EGS patients' acute care period** provides an **example to which we as a nation, collective of providers all need to strive**