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

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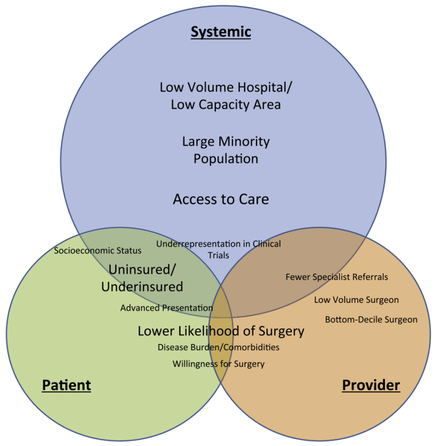
BACKGROUND

- 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

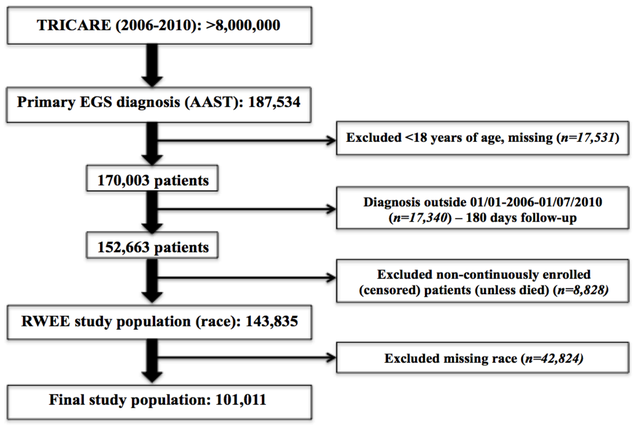
OBJECTIVE

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



METHODS

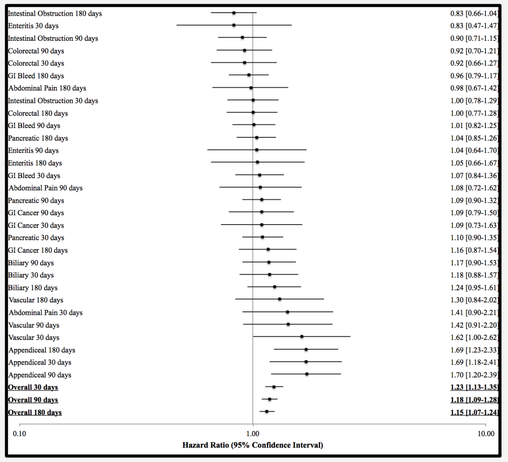
- **2006-2010 national TRICARE Prime, Prime Plus**
  - >5 million members of uniformed forces, families
  - Longitudinal follow-up military and civilians
  - Similar race and SES to US, including adults <65y
- **Outcomes: mortality, major morbidity, readmission**
- Risk-adjusted survival analysis with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



RESULTS

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

	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)
90-day	1.00 (reference)	–	0.91	(0.69, 1.20)	0.50	(0.29, 0.85)	0.79	(0.41, 1.52)	0.71	(0.38, 1.34)
180-day	1.00 (reference)	–	0.97	(0.76, 1.23)	0.72	(0.48, 1.06)	0.90	(0.52, 1.54)	0.79	(0.46, 1.37)
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)
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)
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)
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)
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)
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)



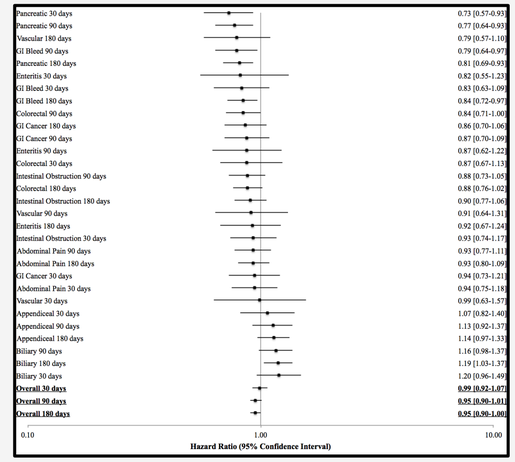
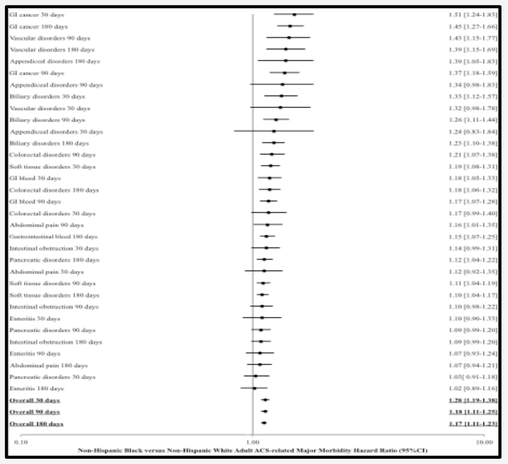


Figure 1. Risk-adjusted NH Black vs NH White **TRICARE** HR stratified by diagnostic condition for **(a) major morbidity** and **(b) unplanned readmission**



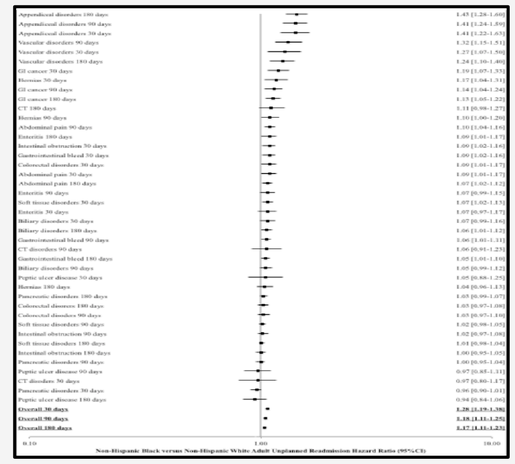


Figure 2. Risk-adjusted NH Black vs NH White **CA State Inpatient Database** HR stratified by diagnostic condition for **(a) major morbidity** and **(b) unplanned readmission**

- **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

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**

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].

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