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Association of Patient Demographics, Code Characteristics, and Survival to Discharge After In-Hospital Cardiac Arrests in the Pediatric Intensive Care Unit

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INTRODUCTION

- Lower socioeconomic status and minority background have both been linked to worse outcomes after outof-hospital and in-hospital cardiac arrests (IHCA)
- Estimated US incidence of pediatric IHCA is 2% with mortality of 35-45%
- Outcomes after IHCA specifically in a Pediatric Intensive Care Unit (PICU) based on patient demographics have not been well defined

METHOD

- Descriptive and retrospective study
- Data obtained from VPS ©
- Included patients 24h old to 18y old experiencing an IHCA in the PICU from 2010 to
- Excluded cardiac arrests outside the PICU
- Patient demographics included race/ethnicity, age, and gender
- Code characteristics included defibrillator shocks delivered. use of CRRT, and use of ECMO
- Outcome was survival to discharge vs death
- Fisher's exact tests and Wilcoxon rank-sum test used for comparing mortality rates by categorical demographics and age, respectively

Association of Patient Demographics, Code Characteristics, and Survival to Discharge After In-Hospital Cardiac Arrests in the PICU

	Outcomes after CPR			
		Survived (N=255)	Died (N=265)	P-value
Age, in months - median [IQR]		9 [2, 50]	14 [2, 105]	0.059
Sex				0.018
	Female n (%)	106 (43.4%)	138 (56.6%)	
	Male	149 (54.0%)	127 (46.0%)	
Race				0.009
	Black	43 (51.2%)	41 (48.8%)	
	Hispanic	17 (39.5%)	26 (60.5%)	
	Asian	2 (25.0%)	6 (75.0%)	
	White	158 (51.1%)	151 (48.9%)	
	Other/Mixed	32 (57.1%)	24 (42.9%)	
	Unknown	3 (15.0%)	17 (85.0%)	

Outcomes after CPR and ECMO				
		Survived (N=50)	Died (N=63)	P-value
Age, in months - median [IQR]		6.5 [1, 82]	5 [1, 58]	0.848
Sex				0.571
	Female n (%)	27 (47.4%)	30 (52.6%)	
	Male	23 (41.1%)	33 (58.9%)	
Race				0.629
	Black	5 (33.3%)	10 (66.7%)	
	Hispanic	4 (50.0%)	4 (50.0%)	
	Asian	0 (0%)	2 (100.0%)	
	White	34 (45.9%)	40 (54.1%)	
	Other/Mixed	6 (60.0%)	4 (40.0%)	
	Unknown	1 (25.0%)	3 (75.0%)	

Outcomes after CPR and CRRT				
		Survived (N=13)	Died (N=36)	P-value
Age, in months - median [IQR]		95 [37, 146]	10 [1, 152]	0.192
Sex				0.348
	Female n (%)	4 (19.0%)	17 (81.0%)	
	Male	9 (32.1%)	19 (67.9%)	
Race				0.577
	Black	1 (33.3%)	2 (66.7%)	
	Hispanic	1 (20.0%)	4 (80.0%)	
	Asian	0 (0%)	3 (100.0%)	
	White	9 (27.3%)	24 (72.7%)	
	Other/Mixed	2 (66.7%)	1 (33.3%)	
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	Outcomes after CPR and Shocks			
		Survived (N=13)	Died (N=20)	P-value
Age, in m	onths - median [IQR]	103 [9, 154]	19 [3.5, 93.5]	0.140
Sex				0.481
	Female n (%)	8 (47.1%)	9 (52.9%)	
	Male	5 (31.3%)	11 (68.8%)	
Race				0.999
	Black	2 (50.0%)	2 (50.0%)	
	Hispanic	1 (50.0%)	1 (50.0%)	
	Asian	0 (0%)	1 (100.0%)	
	White	9 (39.1%)	14 (60.9%)	
	Other/Mixed	1 (33.3%)	2 (66.7%)	
	Unknown	0 (0%)	0 (0%)	

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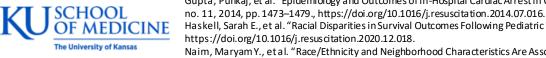
RESULTS

- 520 patients experienced an IHCA within the PICU with 255 patients surviving (49%)
- Statistically significant difference in outcomes based on gender and race
- 276 patients identified as male (53%) having a 54% survival rate compared to 43.4% in females
- Worst outcomes in the Hispanic population with a 39.5% survival rate compared to 51.2% of patients identifying as White
- No outcome differences for those requiring CRRT, ECMO, or defibrillator shocks

DISCUSSION

- Provides framework for future studies
- Care after IHCA is multifactorial and multidisciplinary
- Did not assess CPR performance or post arrest care, work is in progress
- Race/ethnicity not differentiated, self reported
- · Planning to control for severity of illness/comorbidities
- Further analysis to determine potential risk factors for mortality amongst these patients and improve our cardiac arrest outcomes remains ongoing







Haskell, Sarah E., et al. "Racial Disparities in Survival Outcomes Following Pediatric in-Hospital Cardiac Arrest." Resuscitation, vol. 159, 2021, pp. 117–125., https://doi.org/10.1016/j.resuscitation.2020.12.018.

