Racial and Ethnic Disparities in Bystander Treatment and Outcomes for Witnessed Out-of-Hospital Cardiac Arrest in Connecticut

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METHODS
• OHCA treatment and outcomes were compared for Minorities (Black or Hispanic) versus Whites.
• Outcomes: survival to discharge and good neurological outcome.
• Categorical variables are presented as proportions. Chi-square test compared treatment and outcomes for White and Minority cohorts. Standardized difference compared CPR provider identity and census tract demographics for Whites vs. Minorities. Effect sizes are reported as adjusted odds ratios.
• Logistic regression determined the association between race/ethnicity, location of arrest, socioeconomic level of arrest neighborhood, race/ethnic composition of arrest neighborhood, bystander CPR, and OCHA outcomes.
• Favorable neurological outcome was defined by a discharge Cerebral Performance category score of 1 or 2.
• Significance was < .05 and standardized difference > 10.
• Analyses were performed with SPSS v26.0 (IBM Armonk, NY).

Table 1. Reusification Provider and Neighborhood Demographics for OHCA in Minorities vs. Whites in Connecticut [CARES 2013 - 2021]

Parameter | Minority (n=885) | White (n=1588) | Standardized Difference |
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Arrest Year, n (%) | 2013 (52.7) 87 (4.6) 3.9 | 2014 (73.9) 129 (7.4) 1.4 | 2015 (77.8) 152 (8.1) 0.2 |
2016 (70.8) 143 (7.6) 0.0 | 2017 (64.9) 113 (6.0) 0.0 | 2018 (84.9) 145 (7.7) 0.0 |
2019 (89.5) 127 (6.7) 0.0 | 2021 (21.8) 451 (24.9) 10.0 |

Significance was p < .05 and standardized difference > 10.

Table 2. Regression Model for Survival to Discharge Following Witnessed OHCA in Connecticut [CARES 2013 - 2021]

Predictor Variable | Odds Ratio | Lower 95% CI | Upper 95% CI | P Value
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Minority | 1.001 | 1.000 | 1.002 | .995 |
Race/Ethnicity | 1.912 | 1.338 | 2.721 | .000 |
Age (Years) | 1.338 | 1.075 | 1.665 | .000 |
AED with Defibrillation Prior to EMS | 2.066 | 1.958 | 2.176 | .000 |
Gender | 1.338 | 1.086 | 1.645 | .001 |
Location of Arrest | 2.860 | 2.328 | 3.550 | .000 |

DISCUSSION and CONCLUSION
• Bystander CPR and layman AED use predicted survival in all patients but bystander CPR did not eliminate racial and ethnic disparities for survival to discharge or good neurological outcome. Table 2 and Figure 1: Minorities were more likely to receive bystander CPR in communities that had majority minority composition and were less likely to receive bystander CPR in affluent communities or racially and ethnically integrated communities in Connecticut during the study period (Figure 2).
• These results support previous findings of the importance of bystander CPR to survival and favorable neurological outcome.