

Where you Live Should Not Determine if you Live: Assessing for Disparities in Bystander-CPR in Rhode Island Communities

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Abstract

Background & Aim:

Bystander cardiopulmonary resuscitation (B-CPR) can triple the chance of out-of-hospital cardiac arrest (OHCA) survival. Hispanics are more likely to experience OHCA, but less likely to receive B-CPR and survive than non-Hispanic whites. No previous study includes Rhode Island data, in which Hispanics are the largest minority. We sought to investigate disparities in B-CPR and their effects on outcomes based on neighborhood-level ethnicity in a Rhode Island hospital registry of OHCA.

Methods:

We conducted a retrospective chart review study for patients >18 years of age with a non-traumatic OHCA. We excluded OHCA in a healthcare facility, witnessed by EMS, with an indeterminate address, and census tracts with a single OHCA case in the registry, yielding a study population of 983 patients. The data were collected through a single hospital system's records. Neighborhood characteristics were obtained from the U.S. Census Bureau. The rates of B-CPR were assessed by a χ^2 test and modeled in univariate and multivariate logistic regressions.

Results:

The study population had an 18.7% B-CPR rate, 7.4% survival to discharge rate, and 6.3% survival with good neurologic outcome rate. Those who received B-CPR had increased survival (OR: 5.4, CI:1.9-15.4, χ^2 $p < 0.001$) and good neurologic outcome (OR:6.5, CI:2.0-21.5, χ^2 $p < 0.001$). Assessing differences between neighborhoods with the least and greatest Hispanic populations, neighborhoods with Hispanic ethnicity 0-12.5% had less BCPR (11%) than neighborhoods with Hispanic ethnicity >50%, (22%) (OR: 0.44, CI:0.20-0.96, χ^2 $p < 0.05$). However, they did not have significantly lower rates of survival. These high and low Hispanic ethnicity neighborhoods were also negatively correlated with B-CPR in a multivariate logistic regression (adjusted OR:0.11, CI:0.03-0.41, $p < 0.01$).

Conclusion:

OHCA patients in neighborhoods with a higher Hispanic population were less likely to receive B-CPR. These findings underscore the need to further evaluate this disparity and enact solutions tailored to promote neighborhood level interventions in Rhode Island.

Clinical Implications:

Research understanding why individuals in high Hispanic neighborhoods are less likely to perform CPR is a necessary next step.