

00049 Improvements in Bystander CPR Rates and Survival of Out-of-hospital Cardiac Arrests With a Comprehensive Dispatcher-assisted CPR Program in Singapore

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Aims: Out-of-Hospital Cardiac Arrest (OHCA) in Singapore is historically associated with poor survival (3% survival-to-discharge) and low Bystander CPR (BCPR) rates (20.3%). This study evaluates the impact of a comprehensive Dispatcher-assisted CPR (DACPR) program on BCPR rates and OHCA outcomes in Singapore.

Methodology: A comprehensive DACPR program consisting of a dispatch protocol, training, quality measurement and improvement program, and community education was implemented. Data was extracted from the national cardiac arrest registry, dispatch audio-recordings and ambulance notes. A before-after analysis was performed for OHCA cases of cardiac etiology conveyed to hospital by emergency medical services from April 2010 - June 2012 (pre-intervention) and July 2012 - December 2015 (post-intervention) in Singapore. Primary outcomes were survival-to-discharge/30days post-arrest and survival with favorable cerebral performance.

Result: 6365 OHCA cases were analyzed; 2129 pre-intervention and 4236 post-intervention. In the post-intervention group, BCPR rates increased from 24.8% to 53.8% ($p < 0.001$), OR 3.53 (95%CI: 3.14-3.96). OHCA outcomes also improved; survival-to-discharge rates increased from 3.01% to 4.53% ($p = 0.003$), OR 1.53 (95%CI: 1.15-2.04); with favorable cerebral performance increasing from 1.64% to 2.74% ($p = 0.023$), OR 1.68 (95%CI: 1.15-2.47). Compared to no BCPR, survival-to-discharge rates were higher in cases with BCPR without dispatcher assistance (OR 1.55, 95%CI 1.05-2.28), and DACPR (OR 1.32, 95%CI 0.83-2.11).

Conclusion: The comprehensive DACPR program significantly increased BCPR rates, improved survival and good neurological recovery in Singapore. This is a scalable intervention that can possibly be replicated in other EMS systems.