

Bystander cardiopulmonary resuscitation and survival in out-of-hospital cardiac arrest of non-cardiac origin

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Background: Knowledge about the effect of bystander cardiopulmonary resuscitation (CPR) in out-of-hospital cardiac arrest (OHCA) of non-cardiac origin is lacking. We aimed to investigate the association between bystander CPR and survival in OHCA of presumed non-cardiac origin.

Methods: From the Danish Cardiac Arrest Registry and through linkage with national Danish healthcare registries we identified all adult patients with OHCA of presumed non-cardiac origin in Denmark (2001–2014). These were categorized further into OHCA of medical and non-medical cause. We analyzed temporal trends in bystander CPR and 30-day survival during the study period. Multiple logistic regression was used to examine the association between bystander CPR and 30-day survival and reported as standardized 30-day survival chances with versus without bystander CPR standardized to the prehospital OHCA-factors and patient characteristics of all patients in the study population.

Results: We identified 10,761 OHCA of presumed non-cardiac origin. Bystander CPR was associated with an increased 30-day survival chance of 3.4% (95% confidence interval [CI]: 2.9–3.9) versus 1.8% (95% CI: 1.4–2.2) with no bystander CPR, corresponding to a significant difference of 1.6% (95% CI: 0.9–2.3). During the study period, the overall bystander CPR rates increased from 13.6% (95% CI: 11.2–16.5) to 62.7% (95% CI: 60.2–65.2). 30-day survival increased overall from 1.3% (95% CI: 0.7–2.6) to 4.0% (95% CI: 3.1–5.2). Similar findings were observed in subgroups of medical and non-medical OHCA.

Conclusion: Bystander CPR was associated with a higher chance of 30-day survival among OHCA of presumed non-cardiac origin regardless of the underlying cause (medical/non-medical). Rates of bystander CPR and 30-day survival improved during the study period.

Table 1. Patient and arrest characteristics according to cause of out-of-hospital cardiac arrest

	Overall	Medical OHCA	Non-medical OHCA
Patient characteristics			
Total patients	10761	7625	3136
Median age, y	67	70	50
Male, n (%)	6357 (59.1)	4154 (54.5)	2204 (70.4)
OHCA factors			
Witnessed arrest, n (%)	4306 (40.0)	3574 (46.9)	732 (23.3)
Public location, n (%)	6979 (64.9)	5494 (72.1)	1485 (47.4)

OHCA, out-of-hospital cardiac arrest; CPR, cardiopulmonary resuscitation.

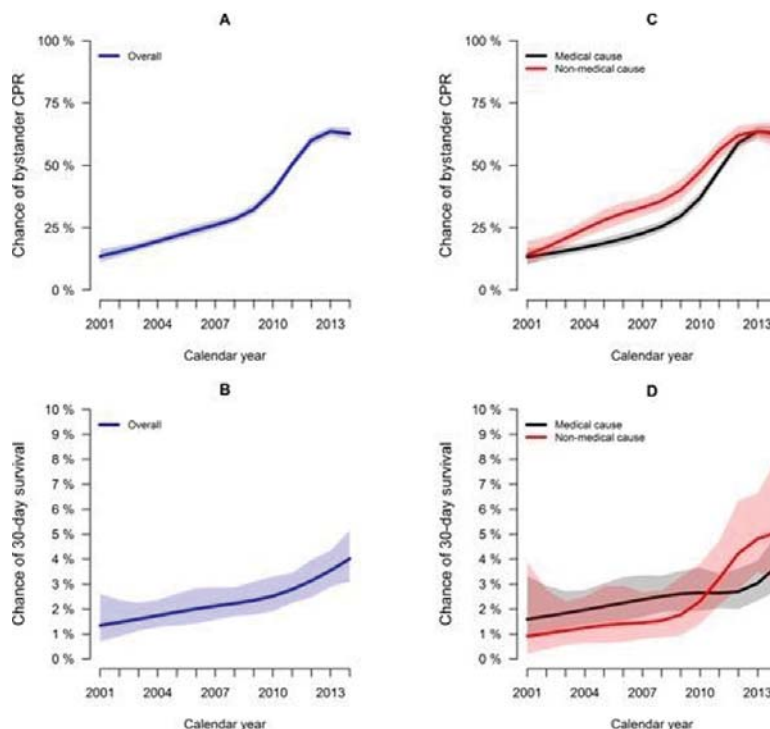


Figure 1. Temporal trends