Bystander Cardiopulmonary Resuscitation and Long-Term Outcomes in Out-of-Hospital Cardiac Arrest According to Location of Arrest

1. Aim: Bystander cardiopulmonary resuscitation (CPR) has increased in several countries following nationwide initiatives to facilitate bystander resuscitative efforts in out-of-hospital cardiac arrest (OHCA). We examined the importance of patient, residential or public location of arrest on temporal changes in bystander CPR and outcomes.

2. Method: From the nationwide Danish Cardiac Arrest Registry, all OHCAs from 2001–2014 of presumed cardiac cause, between 18–100 years of age, were included. Arrests witnessed by emergency medical services personnel were excluded.

3. Results: Of 25,505 OHCAs, 26.4% (n=6,738) and 73.6% (n=18,767) were in public and residential locations, respectively. Bystander CPR increased during 2001–2014 in both locations: from 36.4% (95% CI: 30.6% to 42.6%) to 83.1% (95% CI: 80.0% to 85.8%) in public (p<0.001) and from 16.0% (95% CI: 13.2% to 19.3%) to 61.0% (95% CI: 58.7% to 63.2%) in residential locations (p<0.001). Concurrently, 30 day survival increased in public from 6.4% (95% CI: 4.0% to 10.0%) to 25.2% (95% CI: 22.1% to 28.7%) (p<0.001), and in residential from 2.9% (95% CI: 1.8% to 4.5%) to 10.0% (95% CI: 8.7% to 11.4%) (p<0.001). Among 2,281 30 day survivors, one-year risk of anoxic brain damage/nursing home admission during 2001–2014 decreased from 18.8% (95% CI: 6.6% to 43.0%) to 6.8% (95% CI: 3.9% to 11.8%) in public (p<0.001), whereas the corresponding change was insignificant in residential locations from 11.8% (95% CI: 3.3% to 34.3%) to 17.6% (95% CI: 12.7% to 23.9%) (p=0.52).

4. Conclusion: During 2001–2014, bystander CPR and 30 day survival more than doubled in both public and residential OHCA locations. A significant decrease in anoxic brain damage/nursing home admission was observed among 30 day survivors in public, but not among survivors from residential OHCAs.

5. Conflict of interest: None


Ambulance Over-Conveyance to the Emergency Department: A Large Data Analysis of Ambulance Journeys

1. Aim: Over-conveyance by the ambulance service is a compounding factor of emergency department (ED) crowding. Previous solutions have focused on specific patient groups which have a limited impact when compared to the whole urgent and emergency care system. This study aims to analyse non-urgent conveyances by the ambulance service that could be suitable for discharge on-scene.

2. Results: We analysed a dataset of 1,312,539 patient episodes which linked all pre-hospital emergency and urgent calls to subsequent ED attendance in 2014. The study was set in a large region in England (total population 5.3 million). As well as proportion of avoidable conveyances we also examined the association with patient age, time of arrival, re-attendance and initial triage code from ambulance dispatch.

3. Results: There were 4,043,48 (30.8%) patients transported to ED by ambulance and of these 66,220 (16.4%) were considered potentially avoidable. There were significantly increased odds of a non-urgent conveyance out of hours (OR 1.44, 95% CI: 1.41 to 1.46). Patients aged 16–34 had the largest proportion of avoidable conveyances with 24,500 (37%). There were 13,625 (21%) episodes that were received from another healthcare professional or urgent telephone number. When analysing ED diagnosis, the highest proportion were attending with minor injury and illness, and alcohol intoxication.

4. Conflict of interest: None

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