

had an OR of 12.51[11.12;14.08] and 3.68 [3.30;4.09], respectively. In a time-to-death analysis presented as incidence rate ratios, Mental disorders due to use of alcohol 2.63 [2.39;2.88], COPD and respiratory failure 2.58[2.42;2.74], stroke 1.96[1.82;2.11], cancer 1.76[1.61;1.91], infection 1.71 [1.58;1.85], or diabetes 1.52[1.41;1.63] were important.

**Conclusion** Comorbidities significantly influence survival of OHCA patients. Cardiovascular comorbidities constitute the major part of the disease burden. The influence of comorbidity should be included in future treatment guidelines of OHCA patients.

**Conflict of interest** None.

**Funding** None.

## Cardiac arrest

### 255 CAN MOBILISING AEDS BY INSTALLING THEM IN TAXIS IMPROVE ROSC?

<sup>1</sup>AE White\*, <sup>1</sup>NA Jalil, <sup>1</sup>SJ Poh, <sup>2</sup>DR Mao, <sup>3</sup>V Kang, <sup>4</sup>CR De Souza, <sup>5</sup>NS Ahmad, <sup>5</sup>MEH Ong. <sup>1</sup>Unit for Pre-hospital Emergency Care, Singapore General Hospital; <sup>2</sup>Khoo Teck Puat Hospital; <sup>3</sup>Singapore Heart Foundation; <sup>4</sup>Singapore Civil Defence Force; <sup>5</sup>Dept. of Emergency Medicine, Singapore General Hospital

10.1136/bmjopen-2022-EMS.13

**Background** The automated external defibrillator (AED) can restore normal heart rhythm in cardiac arrest victims. Early defibrillation correlates with increased rate of out-of-hospital cardiac arrest (OHCA) survival. However, AED availability remains a challenge. We aimed to measure key time intervals and observe impact of mobilizing the taxi's AEDs on pre-hospital return of spontaneous circulation (ROSC).

**Method** One-hundred and twenty taxi drivers were CPR and AED trained. They were then assigned to taxis equipped with AEDs, and thereafter alerted to OHCA cases via phone app. A retrospective analysis of this intervention was conducted.

**Results** From November 2015 to December 2017, 4088 phone alerts were sent out to taxis, 374 accepted the cases, and 127 arrived at scene. Of those who arrived on scene, 18 walked 198.6 metres on average, while 104 drove an average of 891.8 metres; 5 are missing data. Average time for drivers to accept a case when activated was 1 minute, 4 seconds (fastest=0, slowest=13 minutes); from activation to arrival at scene was 6 minutes, 22 seconds (fastest=1, slowest=31 minutes), and from acceptance to arrival at scene was 5 minutes, 19 seconds (fastest=0, slowest=30 minutes). Only two cases resulted in pre-hospital ROSC.

**Conclusion** Our data shows that taxis with AEDs arrived on scene within 7 minutes on average, which is faster than the average for EMS ambulances. Taxis can get AEDs on scene before an ambulance arrives, however further exploration into reason(s) and solutions for low response is needed.

**Conflict of interest** None.

**Funding** Singapore Heart Foundation and Temasek Cares.

## Cardiac arrest

### 257 REDUCTION IN EMS RESPONSE TIMES FOR OUT-OF-HOSPITAL CARDIAC ARREST USING DRONE-LIKE FLYING AMBULANCES IN LARGE URBAN AREAS IN FRANCE AND CANADA: AN INTERNATIONAL, QUASI-EXPERIMENTAL STUDY

<sup>1,2</sup>M Heidet\*, <sup>3</sup>KHB Leung, <sup>4</sup>B Grunau, <sup>3</sup>TCY Chan, <sup>5</sup>J Deakin, <sup>6</sup>W Bougoin, <sup>7</sup>H Hubert, <sup>8</sup>D Jost, <sup>8</sup>B Frattini, <sup>9</sup>E Mermet, <sup>2</sup>J Vaux, <sup>4</sup>J Christenson, <sup>10</sup>C El Khoury, <sup>2</sup>E Lecarpentier. <sup>1</sup>Université Paris-Est Créteil (UPEC), Créteil, France; <sup>2</sup>SAMU 94, Henri Mondor University hospital, Créteil, France; <sup>3</sup>University of Toronto, Canada; <sup>4</sup>University of British Columbia, Canada; <sup>5</sup>British Columbia Emergency Health Services, Canada; <sup>6</sup>Sudden death expertise center, Paris, France; <sup>7</sup>Université de Lille, Lille, France; <sup>8</sup>Brigade de sapeurs pompiers de Paris (BSPP), Paris, France; <sup>9</sup>École des hautes études en sciences sociales (EHESS), Paris, France; <sup>10</sup>Resuval, Vienne, France

10.1136/bmjopen-2022-EMS.14

**Background** Shortening EMS response times lead to better outcomes after out-of-hospital cardiac arrest (OHCA). To overcome constraints encountered by ground ambulances, vertical take-off and landing (VTOL) capable flying ambulances are currently being developed. We compared simulated VTOL response to historical ground ambulance response for OHCAs in two large metropolitan areas in Europe and North America.

**Method** We conducted an international, multicenter, quasi-experimental study on adult, non-traumatic, EMS-assessed, non-EMS witnessed OHCA occurring in the greater Paris (France) and Vancouver (Canada) metropolitan areas, over a 2-year span (2018–2020). Data were drawn from Utstein-style, population-based OHCA registries. VTOL response times were simulated based on prototype specifications. Response times were defined from call reception to arrival at scene. Simulation models considered 1–5 VTOL vehicles placed in optimized locations. We determined the proportion of OHCAs for which VTOL response times were at least 1-min shorter than historical response from ground-based units.

**Results** In total, 13,933 cases were included (6,616 in Paris; 7,317 in Vancouver). Simulated VTOL response times were substantially shorter than those of ground-based units, varying from 59% (1 VTOL) to 76% (5 VTOL) in Paris, and 17% (1 VTOL) to 40% (5 VTOL) in Vancouver. In both locations, median response times were reduced by 1–3 minutes, and 90th percentile response times by 1–5 minutes, varying upon model configuration. For OHCAs with improved response, the median improvement was 3–4 minutes, and 90th percentile improvement was 8–10 minutes in both areas.

**Conclusion** Simulation models of VTOL-capable flying ambulances show major theoretical reduction in EMS response times for OHCAs in two large European and North American metropolitan areas.

**Conflict of interest** None.

**Funding** None.