OHCA resuscitation. We investigated the recruiting process and characteristics of the lay volunteers.

Method From September 1 st 2017, lay-persons have been able to download the 'HeartRunner'-application and register as a lay volunteer in the Capital Region of Denmark comprising 1.8 million inhabitants. Recruiting strategies included advertisements outdoor and in newspapers, e-information, and through nationwide television coverage.

Results During the first four months, 14 935 people registered as lay volunteers (=820/100,000 inhabitants); 52.3% were male and 28.3% were health care professionals. Median age at registration was 36 years (27–48). In total, 278 suspected OHCA were registered and 3029 lay volunteers were alerted (mean of 11 volunteers per alarm). Of all alerted lay volunteers, 51.3% (n=1,554) responded to the alarm and 56.9% (n=884) accepted the mission. Of them, 53.7% were male, 32.0% were health care professionals, and median age was 38 years (27–49). The most effective recruiting strategy was nationwide television broadcast, which recruited nearly 6000 volunteers in one day.

Conclusion Lay-persons can be recruited through a smartphone application based response system, and a high proportion accepts to volunteer as first responder in OHCA resuscitation.

Conflict of interest None

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82 SPATIOTEMPORAL AED OPTIMISATION IS GENERALIZABLE

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Aim Mathematical optimisation of automated external defibrillator (AED) placements has the potential to improve out-of-hospital cardiac arrest (OHCA) coverage and reverse the negative effects of limited AED accessibility. However, the generalizability of optimisation approaches has not yet been investigated.

Method We examined the performance and generalizability of a spatiotemporal AED placement optimisation methodology, initially developed for Toronto, Canada,¹ to the new study setting of Copenhagen, Denmark. We identified all atraumatic treated public OHCA (1994–2016) and all registered AEDs (2016) in Copenhagen, Denmark. We then calculated the coverage loss associated with limited temporal accessibility of registered AEDs, and used a spatiotemporal optimisation model to quantify the potential coverage gain of optimised AED deployment. Coverage gain of spatiotemporal deployment over a spatial-only solution was quantified through 10-fold cross-validation. Statistical testing was performed using χ^2 and McNemar's tests.

Results We identified 2149 public OHCA and 1573 registered AED locations. Coverage loss was found to be 24.4% (1,104 OHCA covered under assumed 24/7 coverage, and 835 OHCA under actual coverage). The relative coverage gain from using the spatiotemporal model over a spatial-only

approach was 15.3%. Temporal and geographical trends in coverage gain were similar to Toronto.

Conclusion Without modification, a previously developed spatiotemporal AED optimisation approach was applied to Copenhagen, resulting in similar OHCA coverage findings as Toronto, despite large geographic and cultural differences between the two cities. In addition to reinforcing the importance of temporal accessibility of AEDs, these similarities demonstrate the generalizability of optimisation approaches to improve AED placement and accessibility.

REFERENCE

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83 FOR OUT-OF-HOSPITAL CARDIAC ARREST (OHCA) AT PUBLIC LOCATIONS COMMUNITY BYSTANDER DEFIBRILLATION RESCUE HAS BETTER IMPACT ON PATIENT OUTCOMES COMPARED WITH DISPATCHER-ASSISTED TELEPHONE CPR (DATCPR)

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Aim We compared the outcomes between a community-wide bystander defibrillation rescue program and a DATCPR program in patients after out-of-hospital cardiac arrest at public sites.

Method A prospective 2-year community-wide observational database collected from a metropolitan OHCA Web-based Registry was studied, after a citywide bystander defibrillation rescue program had been launched that public accessed AEDs (automated external defibrillators) were strategically implemented in designated locations and electronically registered; and a DATCPR program had been well run in the dispatch centre. The survival outcomes of OHCA at public locations between the two program interventions were compared. Outcomes included 2-hour sustained ROSC (return of spontaneous circulation) at hospital, survival to hospital discharge, and good CPC (Cerebral Performance Category Scale 1 or 2). All patient prehospital characteristics and outcome relations were evaluated and adjusted by regression analysis.

Results The density of public AEDs distribution increased from 3.96 to 6.24 per square kilometres in the studied 2 years. Among a total of 6,356 OHCA, 627 patients occurred at public locations, including 28 patients (male for 82%, witnessed arrest for 79%) received bystander aid by public AEDs plus CPR rescue and 243 patients (male for 64%, witnessed arrest for 61%) received DATCPR intervention. For these 28 patients, 53.6% (15/28) achieved prehospital ROSC at scene or during transport, 71.4% (20/28) achieved sustained ROSC after resuscitation at hospital, 57.1% (16/28) achieved survival-to-discharge and noticeably all those 16 (100%, 16/16) survival-to-discharge patients achieved excellent neurological outcome of CPC 1 (CPC Scale 1). Their outcomes were