

significantly better (71.4 vs 43.6%, OR: 3.2 [95% CI: 1.4 to 7.6] for sustained ROSC; 57.1 vs 25.9%, OR: 3.8 [95% CI: 1.7 to 8.5] for survival of discharge; 57.1 vs 16.9%, OR: 6.6 [95% CI: 2.9 to 14.9] for good CPC; and 100 vs 65.1% for good CPC among survival-to-discharge) compared with those 243 patients by DATCPR rescue. In 28 patients by bystander defibrillation rescue only one man without prehospital ROSC still achieved survival-to-discharge and good CPC.

**Conclusion** For OHCA patients at public locations, we found that a community-wide bystander defibrillation program were associated with excellent neurological outcome of CPC 1 and survival to hospital discharge that were significantly higher than those associated with DATCPR program.

**Conflict of interest** None

**Funding** None

#### 84 A WORLD RECORD FOR LIFE – A NATIONWIDE CPR INITIATIVE

<sup>1</sup>A Mielke\*, <sup>2</sup>TW Jensen, <sup>3</sup>N Stark, <sup>4</sup>P Weber, <sup>5</sup>G Thomas, <sup>2</sup>F Lippert, <sup>2</sup>F Folke. <sup>1</sup>Department of Cardiology, Gentofte University Hospital, Denmark; <sup>2</sup>Emergency Medical Services Copenhagen, Denmark; <sup>3</sup>Department of Anaesthesiology, Herlev University Hospital, Denmark; <sup>4</sup>University of Copenhagen, Denmark; <sup>5</sup>TrygFonden, Denmark

10.1136/10.1136/bmjopen-2018-EMS.84

**Aim** Bystander cardiopulmonary resuscitation (CPR) is a cornerstone of improving survival in out-of-hospital cardiac arrests (OHCA).<sup>1</sup> TrygFonden's World Record for Life aimed to show the public how easy it is to perform CPR by setting a world record in the number of people nationwide performing quality chest compression during 12 hours.

**Method** The record was set for 12 locations in Denmark over a 12 hour period on 22nd of May 2017. Each contribution was defined as 30 s of compression-only CPR on a Laerdal Q-CPR manikin with a Laerdal compression score of  $\geq 65\%$ .<sup>2</sup> Compression score was based on compression depth, rate, conflict of interest, hands-off time, and placement of hands. Data was stratified by citizens or by attendees at the Emergency Medical Services Congress 2017 (EMS2017) in Copenhagen, and analysed using Wilcoxon rank test.

**Results** Out of 6094 participants, 5707 (94%) reached a compression score 65% or more. Participants with a score of under 65% struggled with all components except compression rate compared to participants that reached 65%. Comparing laypersons and EMS2017-attendees, both groups performed within guidelines. The world record reached 12 different TV broadcasts, 11 radio broadcasts, 30 printed newspapers, and 41 web newspapers from 1 st to 26th May 2017. The world record had approximately 3,739,000 views on all platforms during the media coverage period.

**Conclusion** TrygFonden's World Record for Life showed an entire nation that untrained bystanders are able to provide effective CPR with 5707 reaching a compression score of 65% and 3,739,000 media views.

#### REFERENCES

1. Rajan S, Wissenberg M, Folke F, Hansen SM, Gerdts TA, Kragholm K, *et al.* Association of bystander cardiopulmonary resuscitation and survival according to ambulance response times after out-of-hospital cardiac arrest. *Circulation* 2016;**134**(25):2095–104.
2. [http://cdn.laerdal.com/downloads-test/f3784/Att\\_2\\_to\\_00021778.pdf](http://cdn.laerdal.com/downloads-test/f3784/Att_2_to_00021778.pdf)

**Conflict of interest** None

**Funding** The project was funded by TrygFonden.

#### 85 THE PRE-HOSPITAL MANAGEMENT OF ACUTE HEART FAILURE: A CLINICAL AUDIT OF CURRENT PRACTICE

<sup>1</sup>J Price\*, <sup>2</sup>B Murphy-Jones, <sup>2</sup>T Edwards. <sup>1</sup>Cambridge University Hospitals NHS Trust, UK; <sup>2</sup>London Ambulance Service, UK

10.1136/10.1136/bmjopen-2018-EMS.85

**Aim** There has been a drive towards an increase in community-based management of heart failure. When patients experience acute heart failure (AHF), the complex nature of this condition poses diagnostic uncertainty for first responders. It is widely accepted that all patients should be transferred promptly to hospital, however with the introduction of pre-hospital diuresis, nitrate therapy and more recently non-invasive ventilation (NIV), the debate into the appropriateness and limitations of so-called 'stay-and-play' management strategies for patients in AHF has been re-ignited. We examine the current clinical assessment and management of AHF within the London Ambulance Service.

**Method** Ambulance Patient Report Forms (PRFs) from cases that were coded with heart failure, shortness of breath, cardiac problem and in cases of GTN administration. These cases were further analysed by a clinical review panel to identify patients with suspected AHF.

**Results** 182 patients were included in the analysis between April and November 2016. There was a 68% compliance with national guidelines for clinical assessment (history, examination and ECG). 51 (28%) patients presenting with AHF were appropriately identified and given a primary diagnosis of AHF by the attending clinician. 136 (76%) patients in the analysis received sublingual nitrate therapy. 90 (49%) patients received nitrates where there was no clinical indication. No patients in the analysis received NIV.

**Conclusion** Some aspects of AHF assessment and management are not consistent with national guidelines. Our work has further demonstrated the diagnostic challenges facing pre-hospital clinicians and the potential overuse of nitrate therapy in this patient group.

**Conflict of interest** None

**Funding** None

#### 86 HAEMODYNAMIC EFFECTS OF THE ENTERAL ADMINISTRATION OF TRANEXAMIC ACID IN AN EXPERIMENTAL MODEL OF HAEMORRHAGIC SHOCK

G Babini\*, D Olivari, D de Giorgio, L Staszewsky, R Latini, G Ristagno. IRCCS Istituto di Ricerche Farmacologiche Mario Negri, Milan, Italy

10.1136/10.1136/bmjopen-2018-EMS.86

**Aim** Systemic proteolysis has been proposed as part of the complex pathologic events occurring during haemorrhagic shock (HS). Hypoperfusion may increase permeability of the gut mucosa, promoting intestinal proteases translocation into the circulation and multiorgan failure ('autodigestion hypothesis').<sup>1</sup> The interruption of this cascade of events may improve systemic perfusion and organ functions.

**Method** The present study investigated the effects of the enteral administration of a protease inhibitor, i.e. tranexamic acid (TXA), on hemodynamics in a porcine model of controlled severe acute bleeding, fluid resuscitation and blood transfusion. Six animals underwent HS without any treatment while five animals were treated with enteral TXA.

**Results** Baseline measurements were similar in both HS and TXA groups. Both groups showed a significant reduction in mean arterial pressure (MAP) after bleeding compared to baseline values, however at the end of the fluid resuscitation MAP was significantly higher in the TXA group ( $62.67 \pm 13.17$  vs  $92.20 \pm 22.35$  mmHg,  $p < 0.01$ ). Echocardiographic stroke volume (SV) and left ventricle ejection fraction (LVEF) were higher in the TXA group at the end of both fluid resuscitation and blood transfusion phases (SV:  $32.42 \pm 5.83$  vs  $45.23\% \pm 13.76\%$  and  $35.11 \pm 14.62$  vs  $43.68\% \pm 13.92\%$ ,  $p$  not significant; LVEF:  $65.9 \pm 5.3$  vs  $77.8\% \pm 4.7\%$ ,  $p = 0.05$  and  $61.5 \pm 8.2$  vs  $76.3\% \pm 4.3\%$ ,  $p < 0.01$ ). No significant differences were observed in mixed venous saturation (SvO<sub>2</sub>) and lactate levels, despite SvO<sub>2</sub> remained higher in the TXA group throughout the experiment except at baseline.

**Conclusion** In this experimental model of HS the enteral administration of TXA was associated with a global improvement in hemodynamics; however, only small benefits were observed on mixed venous saturation and lactate levels.

#### REFERENCE

- Schmid-Schönbein GW. 2008 landis award lecture. Inflammation and the autodigestion hypothesis. *Microcirculation* 2009;**16**(4):289–306.

**Conflict of interest** None

**Funding** None

87

#### TRANSPORT, DELAY TO CARE AND PATIENT EXPERIENCE IN PRE-CLINICAL EMERGENCY SYSTEMS IN DHAKA CITY, BANGLADESH: A MIXED METHODS STUDY

<sup>1,2</sup>MM Hossain\*, <sup>1</sup>A Kroeger, <sup>1</sup>H-J Busch, <sup>1</sup>M Wirsching, <sup>1</sup>B Lange, <sup>2</sup>G Norwood. <sup>1</sup>University of Freiburg, Germany; <sup>2</sup>Björn Steiger Stiftung, Germany

10.1136/10.1136/bmjopen-2018-EMS.87

**Aim** Loss of life and ensuing disabilities after medical emergencies due to the lack of proper pre-hospital care is of a global health concern in mega-cities with under resourced and constrained local health systems, also in Dhaka city, Bangladesh. The study aimed at improving the pre-hospital emergency systems in Dhaka.

**Method** To measure transport capabilities, delay times, 1 week observational study each of 4 selected hospitals in Dhaka was conducted in July 2017. Available medical records were analysed. Additionally, 56 emergency patients' relatives and 23 stakeholders were interviewed.

**Results** Cardiovascular diseases, accidents and suicide occurred 46% of total deaths ( $n = 13707$ ) in 2015 in study hospitals in Dhaka. Of the recorded 734 emergency patients in 4 hospitals, 63% arrived by rickshaws/motor-rickshaws and 25.7% by bus/car, while only 11.3% used ambulances. 56% patients arrived after 1 hour or later. 80.4% patient's relatives did not wait for ambulances due to unavailability or not knowing phone number. The median delay (call-hospitalisation) of ambulances was 85 min (day 102, night 45). Ambulances' utilisation rate was only 10% of their total time. Ambulances were equipped with a driver, oxygen and rarely with first aid box. Besides the non-existence of pre-hospital care (detection-hospitalisation), service providers' and managers' concerns were: deficit of policy, no coordination centre and unique phone number, corruption and traffic-jam.

**Results** The long transportation delay and under-use of ambulances were responsible for many deaths and disabilities in

Dhaka. More evidence on determinants of sub-optimal care in this context and effective interventions to improve pre-clinical emergency systems in Dhaka is needed.

**Conflict of interest** None

**Funding** The study was supported by Björn Steiger Stiftung and approved by the Ethic Committee of University of Freiburg, Germany (Approval No. 165/17).

88

#### GOVERNMENTAL IMPLEMENTATION OF COMMUNITY BYSTANDER DEFIBRILLATION PROGRAM AND GOOD NEUROLOGICAL OUTCOME IN OUT-OF-HOSPITAL CARDIAC ARREST (OHCA)

<sup>1</sup>PC Ko\*, <sup>1</sup>MF Yang, <sup>2</sup>YW Chen, <sup>3</sup>SA Ho, <sup>3</sup>SC Huang, <sup>4</sup>CL Shih. <sup>1</sup>National Taiwan University Hospital, Taiwan; <sup>2</sup>Taipei City Fire Department, Taiwan; <sup>3</sup>Taipei City Health Department, Taiwan; <sup>4</sup>Ministry of Health and Welfare, Taiwan

10.1136/10.1136/bmjopen-2018-EMS.88

**Aim** We examined the effect of governmental implementation of community-wide bystander defibrillation program on good neurological outcome in patients after OHCA during a four-year prospective follow-up period.

**Method** A prospective 4 year community-wide observational database collected from an OHCA e-Registry in a metropolitan was studied, after a citywide bystander defibrillation rescue program had been launched by the government that legitimised the strategic provision of AEDs (automated external defibrillators) in certain public locations and electronically registered the devices. 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 0.85 to 6.24 per square kilometres in the studied 4 years. Among a total of 12,368 OHCA, 1210 occurred in public locations, and 52 patients (male for 83%, witnessed arrest for 77%) received bystander aid by public accessed AED and CPR rescue. For these 52 patients, 44.2% (23/52) achieved prehospital ROSC at scene or during transport, 67.3% (35/52) achieved sustained ROSC after resuscitation at hospital, 44.2% (23/52) achieved survival-to-discharge and noticeably all those 23 (100%, 23/23) survival-to-discharge patients achieved excellent neurological outcome of CPC 1. Their outcomes were significantly better (67.3 vs 26.5%, OR: 5.7 [95% CI: 3.2 to 10.4] for sustained ROSC; 44.2 vs 10.1%, OR: 7.0 [95% CI: 3.9 to 12.6] for survival-to-discharge; 44.2 vs 6.6%, OR: 11.6 [95% CI: 6.4 to 21.2] for good CPC 1 or 2, and 100 vs 62.9% for good CPC among survival-to-discharge) compared with those without public accessed AED plus CPR rescue. In all 52 patients, there was one man without prehospital ROSC still achieved survival-to-discharge and good CPC.

**Conclusion** In our study, we found that governmental implementation of bystander defibrillation rescue program was significantly associated with excellent neurological outcome of CPC 1 and higher survival to hospital discharge. It would be noticeably in our community that by this rescue program all patients achieving survival-to-discharge could achieve excellent CPC1.

**Conflict of interest** None

**Funding** None