

## Abstracts

#### 4 PREHOSPITAL RECOGNITION AND ANTIBIOTICS FOR 999 PATIENTS WITH SEPSIS: PROTOCOL FOR A FEASIBILITY STUDY

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**Aim** Sepsis is common; it kills at least 44 000 people every year in the UK. Early recognition and management of sepsis has been shown to reduce morbidity and mortality of people with sepsis. Paramedics frequently come into contact with patients with sepsis, and are well placed to provide early treatment. This feasibility study aims to find out whether paramedics can collect blood cultures from and administer intravenous (IV) antibiotics to patients with sepsis. We will determine the feasibility, safety and acceptability of our trial design and data collection methods.

**Method** Paramedics will receive training to assist them to recognise sepsis using a screening tool, obtain blood cultures, and provide IV antibiotics. If sepsis is suspected, paramedics will randomly allocate patients to intervention or usual care using scratchcards. Patients will be followed up at 90 days using linked anonymised data to capture length of hospital admission and mortality. We will also collect self-reported health-related quality of life at this time. We will interview ten patients and hold a focus group with paramedics, to find out what they think about the intervention.

**Results** An intervention development group agreed upon the clinical protocol and training methods. Sixty paramedics have been trained. Patient recruitment will commence 1st December 2017.

**Conclusion** At the end of this study we will make a recommendation about whether a fully-powered randomised controlled trial is warranted, and if so, we will develop a proposal for further research funding to answer questions regarding safety and effectiveness for patients, and benefit to the National Health Service.

**Conflict of interest** None

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#### 5 PREHOSPITAL ECHOCARDIOGRAPHY DURING CPR IMPACTS TREATMENT DECISIONS IN A DUTCH PHYSICIAN-STAFFED HELICOPTER EMERGENCY MEDICAL SERVICE

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**Aim** Patients in cardiac arrest must receive algorithm-based management such as basic life support and advanced (cardiac) life support (ALS). International guidelines dictate diagnosing and treating any factor that may have caused the arrest or

may be complicating the resuscitation.<sup>1</sup> Ultrasound is recognised to be of potential value in this process and can be used in a prehospital setting.<sup>2</sup> We aim to evaluate the use of prehospital echocardiography during CPR and its impact on treatment decisions in a Dutch helicopter emergency medical service (HEMS).

**Method** From February 2014 through November 2016 we conducted an observational study in cardiac arrest patients, of any cause, in whom the Nijmegen HEMS performed CPR with concurrent echocardiography. The physicians adhered to ALS algorithms. Echocardiography was performed simultaneously with interruptions of chest compressions to allow for heart rhythm analysis.

**Results** In 56 patients 102 ultrasound examinations were documented. Treatment decisions were impacted in 49 patients (88%) and in 62 (61%) ultrasound examinations. Overall, we found 78 changes. The changes were termination of CPR in 32 patients (57%) and continuation hereof in 21 (38%). Other changes were related to fluid management (14%), adjustment of drugs and doses (14%), and choice of receiving hospital (5%). Causes of cardiac arrest were trauma (48%), cardiac (21%), medical (14%), asphyxia (9%), and other (7%).

**Conclusion** In conclusion, prehospital ultrasound during CPR in our HEMS significantly impacts patient treatment. Ultrasound images can help explain futile care to caregivers and relatives, even if the sensible decision already is to terminate CPR.

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**Conflict of interest** None

**Funding** None

#### 6 DEVELOPMENT AND VALIDATION OF A PRAGMATIC PREHOSPITAL TOOL TO IDENTIFY STROKE MIMIC PATIENTS

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**Aim** Stroke mimics (SM) are non-stroke conditions producing stroke-like symptoms. Prehospital stroke identification tools prioritise sensitivity over specificity.<sup>1</sup> It is estimated that >25% of prehospital suspected stroke patients are SM.<sup>2</sup> Failure to identify SM creates inefficient use of ambulances and specialist stroke services. We developed a pragmatic tool to identify SM amongst suspected prehospital stroke patients.

**Method** The tool was developed using regression analysis of clinical variables documented in ambulance records of suspected stroke patients linked to primary hospital diagnoses (derivation dataset, n=1,650, 40% SM).<sup>3</sup> It was refined using feedback from paramedics (n=3) and hospital clinicians (n=9), and analysis of an expanded prehospital derivation dataset (n=3,797, 41% SM (original 1650 patients included)).

**Results** The STEAM tool combines six variables: 1 point for Systolic blood pressure <90 mmHg; 1 point for Temperature >38.5°C with

heart rate >90 bpm; 1 point for seizures or 2 points for seizures with known diagnosis of Epilepsy; 1 point for Age <40 years or 2 points for age <30 years; 1 point for headache with known diagnosis of Migraine; 1 point for FAST-ve. A score of  $\geq 2$  on STEAM predicted SM diagnosis in the derivation dataset with 5.5% sensitivity, 99.6% specificity and positive predictive value (PPV) of 91.4%. External validation (n=1,848, 33% SM) showed 5.5% sensitivity, 99.4% specificity and a PPV of 82.5%.

**Conclusion** STEAM uses common clinical characteristics to identify SM patients with high certainty. The benefits of using STEAM to reduce SM admissions to stroke services need to be weighed up against delayed admissions for stroke patients wrongly identified as SM.

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**Conflict of interest** None declared

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## 7 WE NEED SUPPORT!

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**Aim** New and inexperienced emergency medical service (EMS) professionals lack important experience. To prevent medical errors and improve retention there is an urgent need to identify ways to support new professionals during their first year in the EMS.

**Method** A classical Delphi technique in four rounds was used. A purposeful sample and snowball technique was used and generated an expert panel of 32 registered nurses with 12–36 months of EMS experience. In round one telephone interviews were undertaken to identify what support professionals new to the EMS desire during their first year. Content analysis of the transcribed interviews yielded 70 items which were developed into a questionnaire. In subsequent three rounds the experts graded each item in terms of perceived importance on a 5-graded likert scale. Consensus level was set at 75 percent.

**Results** Desirable support was categorised into eight areas: Support from practical skills exercises, support from theoretical knowledge, support from experiences based knowledge, theoretical support, support from an introduction period, support from colleagues and work environment, support from management and organisation and other support. The experts agree on the level of importance on 64 items regarding desirable support. Of these, 63 items were considered important, graded 4 or 5. One item was considered not important, graded 1 or 2.

**Conclusion** Even with requested formal competence of the professionals, the EMS context poses challenges where a wide

variety of desirable forms of support is needed. Support structures should address both personal and professional levels and be EMS context oriented.

**Conflict of interest** None

**Funding** Academic EMS in Stockholm.

## 8 RAPID ANALGESIA FOR PREHOSPITAL HIP DISRUPTION (RAPID)

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**Aim** Pain relief in prehospital care is a challenge in trauma, especially for those with hip fractures, whose injuries are difficult to immobilise and whose long term outcomes may be adversely affected by administration of opiates. Fascia Iliaca Compartment Block (FICB) is routinely undertaken by hospital clinicians, but has not been fully evaluated for use by paramedics in prehospital care.

**Method** Nineteen paramedics were trained; they randomly allocated eligible patients to trial arms using audited scratch-cards. Patients were followed up to assess availability of outcomes including quality of life, length of admission, pain scores, and adverse events. Findings were analysed against pre-specified progression criteria.

**Results** Seventy-one patients were randomised by paramedics (28/6/16 – 31/7/17); 57 consented to follow up. The only outcome which reached a statistically significant difference between groups was the proportion of participants who received morphine (38% difference between groups 95% CI: –61.88 to –15.79). There was a difference of approximately nine days in the length of admission between trial arms (mean difference 9.12 (95% CI: –20.51 to 2.27)).

**Conclusion** RAPID met its pre-specified progression criteria; a funding application for a fully-powered RCT will therefore be submitted. We will consider the use of length of stay as the primary outcome, as findings indicated a difference between groups without reaching statistical significance.

**Conflict of interest** None

**Funding** Health and Care Research Wales, Research for Patient and Public Benefit.

## 9 THE SAME BUT DIFFERENT – VARIATIONS IN STAKEHOLDERS' PRIORITIES, VIEWS ON RANDOMISATION AND FUNDING OF PREHOSPITAL CRITICAL CARE FOR OUT-OF-HOSPITAL CARDIAC ARREST

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**Aim** Prehospital critical care for out-of-hospital cardiac arrest (OHCA) is a complex and largely unproven intervention. During research to examine this intervention, we noted significant differences in stakeholders' views about research,