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 ≥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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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.

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 scratchcards. 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.

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,

randomisation and the funding of prehospital critical care for OHCA.

Method We aimed to answer the following questions: What are stakeholders' priorities for prehospital research? What are stakeholders' views on randomisation of prehospital critical care? How do stakeholders consider allocation of resources in prehospital care? We undertook a qualitative framework analysis of interviews and focus group with five key stakeholder groups: patients and public, air ambulance charities, ambulance service commissioners, prehospital researchers and prehospital critical care providers.

Results Despite sharing a common appreciation of the concepts of scientific enquiry, fairness, and beneficence, the five relevant stakeholder groups displayed divergent views of research and funding strategies regarding the intervention of prehospital critical care for the condition of OHCA. The reasons for this divergence could largely be explained through the different personal experiences and situational contexts of each stakeholder group. Many aspects of the strategies suggested by the stakeholder groups only partially aligned with principles of traditional evidence-based medicine, but were held with strong conviction.

Conclusion Analysis of the views of five stakeholder groups regarding research and the funding of prehospital critical care for OHCA revealed shared values, but a variety of different strategies to achieve these. This knowledge can help researchers in similar fields in the planning and presentation of their research, to maximise impact on decision making.

Conflict of interest Johannes von Vopelius-Feldt and Jonathan Benger work as prehospital physicians with the Great Western Air Ambulance.

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10   **SYSTEMATIC REVIEW OF THE EFFECTIVENESS OF PREHOSPITAL CRITICAL CARE FOLLOWING OUT-OF-HOSPITAL CARDIAC ARREST**

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Aim Improving survival after out-of-hospital cardiac arrest (OHCA) is a priority for modern emergency medical services (EMS) and prehospital research. Advanced life support (ALS) is now the standard of care in most EMS. In some EMS, prehospital critical care providers are also dispatched to attend OHCA. This systematic review presents the evidence for prehospital critical care for OHCA, when compared to standard ALS care.

Method We searched the following electronic databases: PubMed, EmBASE, CINAHL Plus and AMED (via EBSCO), Cochrane Database of Systematic Reviews, DARE, Cochrane Central Register of Controlled Trials, NHS Economic Evaluation Database, NIHR Health Technology Assessment Database, Google Scholar and ClinicalTrials.gov. Search terms related to

cardiac arrest and prehospital critical care. All studies that compared patient-centred outcomes between prehospital critical care and ALS for OHCA were included.

Results The review identified six full text publications that matched the inclusion criteria, all of which are observational studies. Three studies showed no benefit from prehospital critical care but were underpowered with sample sizes of 1028 to 1851. The other three publications showed benefit from prehospital critical care delivered by physicians. However, an imbalance of prognostic factors and hospital treatment in these studies systematically favoured the prehospital critical care group.

Conclusion Current evidence to support prehospital critical care for OHCA is limited by the logistic difficulties of undertaking high quality research in this area. Further research needs an appropriate sample size with adjustments for confounding factors in observational research design.

Conflict of interest Johannes von Vopelius-Feldt and Jonathan Benger work as prehospital critical care physicians with the Great Western Air Ambulance.

Funding This work is funded by a National Institute for Health Research (NIHR) doctoral research fellowship for Johannes von Vopelius-Feldt (DRF-2015–08–040). The funder is not involved in the design of the study or collection, analysis and interpretation of data, or in writing the manuscript. The views expressed are those of the author(s) and not necessarily those of the NHS, the NIHR or the Department of Health.

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11   **QUALITY OF BYSTANDER CPR BY LAY FIRST RESPONDERS: TRAINING VERSUS REAL-WORLD USE OF A NOVEL CPR FEEDBACK DEVICE IN SINGAPORE**

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Aim Data on the quality of lay person CPR during emergencies are sparse. We present compression quality data derived from use of a novel CPR feedback device during actual cases prior to ambulance arrival.

Method The credit-card sized CPRcardTM device provided visual indication of compression depth and rate in real-time, and stored the data. Median rate, depth; proportion within targets (100–120/minute; depth:4–6 cm); and flow-time were used to determined compression quality. Bystanders' emergency performances were compared to their training performances.

Results Median depth during emergencies vs trainings was 39 mm (95% CI: 30 to 49 mm, p=0.028) vs 55 mm (95% CI: 50 to 57 mm, p=0.028); and median rates were 114 cpm (95% CI: 109 to 120 cpm, p=0.104) vs 109 cpm (95% CI: 105 to 112 cpm, p=0.104). Of total emergency vs training delivered compressions, 6% (95% CI: 0% to 49%, p=0.008) vs 63% (95% CI: 56 to 90%, p=0.008) were within target depth; 54% (95% CI: 32% to 79%, p=0.028) vs 94% (95% CI: 81 to 97%, p=0.028) were within target rate. Of the lay bystanders' during emergencies vs trainings, 4 (50%, p=0.398) vs 5 (71%, p=0.398) met both compression and depth targets. Emergency vs training compression flow-time was 95% (95% CI: 85% to 99%, p=0.099) vs 100% (95% CI: 96 to 100%, p=0.099), respectively. Lay bystanders overall reported positive experience using the card but some