

Preliminary Results Knowledge and understanding comes from colleagues, external sources, and patient interactions. Practice develops informally through trial and error. Clinical guidelines play a minimal role. Empathy and 'soft' interpersonal skills are deemed essential for patient care. Establishing rapport and emotional responses were often reported.

Conclusion This study highlights the experiences of responding to suicide and self-harm and suggests areas for better prehospital education and care.

PP55 **HYPERVERTILATION IN OUT-OF-HOSPITAL CARDIAC ARREST – A SYSTEMATIC REVIEW & NARRATIVE SYNTHESIS**

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Background Resuscitation guidelines recommend delivering ventilations at a rate of 10min⁻¹; however, hyperventilation is commonly reported during out-of-hospital cardiac arrest resuscitation efforts, and the impact of this on patient outcomes is unclear. This review explores the reported rates, causes, and patient outcomes of hyperventilation in the management of out-of-hospital cardiac arrest.

Methods A systematic literature review with narrative synthesis of three databases.

Findings Thirteen papers were identified as meeting the eligibility criteria. These showed ventilations are consistently delivered at a rate & tidal volume higher than is internationally recommended. Hyperventilation can occur due to clinician stress and lack of situational awareness, poor leadership, and a focus on other clinical interventions.

Conclusions Hyperventilation is common during cardiac arrest management. Current human data does not produce sufficient evidence to favour any ventilation strategy; however, a harmful upper limit will exist. This review found no human randomised control studies examining how ventilation rate, tidal volume, or pressure effect patient outcomes and this warrants further research.

PP56 **PILOTING A MECHANICAL THROMBECTOMY RETRIEVAL HELICOPTER TRANSFER SERVICE IN A RURAL UK REGION**

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Background Eighty five percent of strokes are due to an ischaemic event and approximately 10% of these can now be treated with mechanical thrombectomy retrieval (MTR). The benefit of MTR drops by 5.7% for every hour since onset. In Devon, MTR is currently only available at University Hospital Plymouth (UHP). The longest transfer time to UHP is undertaken by patients at North Devon District Hospital (NDDH); approximately 110 minutes by road. A quality improvement project was designed to reduce the transfer

time for these patients and increase the number of patients eligible for MTR.

Methods A collaborative team of Devon Air Ambulance (DAATCL), NDDH and UHP designed a transfer protocol for MTR eligible patients to be airlifted to UHP, reducing the transport time of 110 minutes by land to approximately 20 minutes by air. DAATCL liaised with South Western Ambulance Service (SWASFT) HEMS dispatchers to provide a specific dispatch procedure for MTR transfers.

Results The pilot has now been running for 12 months and 16 patients have been transferred for MTR at UHP. The median transfer time was 25 minutes by air, giving a median time saving of 1 hour 25 minutes compared to a land transfer.

Conclusion Sixteen patients have benefited from this new service, and it is anticipated that numbers will increase as the MTR service expands. MTR is not yet a 24/7 service, however it is hoped this will be achieved within the next few years. MTR is an expensive procedure, however due to reduced hospital stay and social care needs, cost savings can be considerable; and the benefit to patients and their families can be even greater. There is also wider benefit to patients in the region with land resources available to respond to other 999 calls when they would have been otherwise unavailable during the transfer.

PP57 **INDICATORS FOR AVOIDABLE EMERGENCY MEDICAL SERVICE CALLS: MAPPING OF PARAMEDIC CLINICAL IMPRESSION CODES TO AMBULATORY CARE SENSITIVE CONDITIONS AND MENTAL HEALTH CONDITIONS IN THE UK AND CANADA**

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Background Paramedic assessment data have not been used for research on avoidable calls. Paramedic impression codes are designated by paramedics upon responding to a 911/999 medical emergency after an assessment of the presenting condition. Ambulatory Care Sensitive Conditions (ACSCs) are non-acute health conditions not needing hospital admission when properly managed.

Methods The current study focused on paramedic impression codes from the East Midlands Region, UK and from Southern Ontario, Canada and mapped them to existing definitions of ambulatory care sensitive conditions (ACSCs) and mental health conditions. Mapping was iterative first identifying the common ACSCs shared between the two countries then identifying the respective clinical impression codes for each country that mapped to those shared ACSCs as well as to mental health conditions.

Results Experts from the UK-Canada Emergency Calls Data analysis and GEospatial mapping (EDGE) Consortium contributed to both phases and were able to independently match the codes and then compare results. Clinical impression codes for paramedics in the UK were more extensive than those in

Ontario. The mapping revealed some interesting inconsistencies between paramedic impression codes, but also demonstrated that it was possible.

Conclusion This is an important first step in determining the numbers of ASCSs and mental health conditions that paramedics attend to, and in examining the clinical pathways of these individuals across the health system. This work lays the foundation for international comparative health services research on integrated pathways in primary care and EMS.

PP58

CASE MANAGEMENT OF PEOPLE WHO CALL 999 FREQUENTLY – QUALITATIVE STUDY OF THE PERSPECTIVE OF PEOPLE PROVIDING AND RECEIVING CARE (STRETCHED)

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Background Ambulance services use multidisciplinary cross-service case management in some areas to help meet the needs of people who call 999 frequently. The STRETCHED evaluation of case management for this group in four UK ambulance service areas included a qualitative component to explore experience of care, to identify challenges and opportunities associated with using case management models, and develop theories about how case management works in this population.

Methods We conducted semi-structured interviews with key stakeholders involved in case management, and people with experience of calling 999 frequently. All interviews were recorded and transcribed. Analysis took a data driven thematic approach, and was conducted by a sub-group including public contributors working alongside researchers. We analysed by respondent group and by site, before combining and exploring themes across the participant groups.

Results We interviewed 31 stakeholders and 16 people with experience of calling 999 frequently, of which 8 had received case management in one of the study sites. We developed the following themes:

- The work of case management - within and across organisations, administrative and support tasks, resourcing and skill mix, variation between service areas
- Complexity of needs – range of drivers for frequent calling, complex medical and social needs, long term nature of issues for many, tensions between cure (short term) and care (long term) models of service
- Limited availability of support services – as a driver to frequent calling, and as a limitation on case management
- Tolerance of risk and ownership of responsibility – response to needs shaped by local organisational culture and practice.

We used insights from the analysis to refine our logic model describing how case management works.

Conclusion Insight from the qualitative data collection supports interpretation of the STRETCHED quantitative findings and provides insight into how case management might be effective for people who frequently call 999.

PP59

PHYSIOLOGICAL VARIABILITY DURING PREHOSPITAL STROKE CARE – WHAT MONITORING AND INTERVENTIONS ARE USED?

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Background Acute stroke can lead to morbidity and mortality. The time-critical nature of stroke care has led to a greater emphasis on robust prehospital care. Increasingly, stroke triage and consideration for earlier management are the focus of trials. There is growing evidence of early adverse physiological parameters affecting long-term patient outcomes. There is concern amongst prehospital care providers as to how to balance the need for rapid transfer with potential increased monitoring. This systematic review aims to explore existing literature on prehospital physiological monitoring and interventions, and how these may affect patient outcomes.

Methods The systematic review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-analysis (PRISMA) guidelines. Study eligibility was determined by searching across four databases (MEDLINE, EMBASE, CINAHL and CENTRAL): (1) all study types; (2) English full-text studies involving patients with suspected acute stroke receiving prehospital care (≥ 18 years).

Results 741 records met the search criteria, however following screening only 19 records were deemed eligible for full-text review. Records were categorised as physiological monitoring or pharmacological therapy. Studies examining physiological monitoring (n=7) assessed the association between prehospital blood pressure and early neurological deterioration and hematoma volume. One study examined the feasibility of prehospital HRV assessment and its relationship to patient outcomes. In terms of pharmacological therapy, (n=3) RCTs evaluated the effectiveness of prehospital BP-lowering interventions. (n=2) studies investigated the effects of prehospital administration of neuroprotective agents on functional outcomes following stroke.

Conclusions It has been demonstrated that ambulance-initiated stroke patient monitoring and treatment is feasible. Although limited by heterogeneous data, the review highlighted gaps in the existing literature. Furthermore, continuous physiological parameter monitoring is feasible and recommended in future studies to improve available data on patient management and outcomes.