Methods We conducted a retrospective cohort study of patients attended by the Scottish Ambulance Service in 2011 with ambulance clinician attendance codes relating to 'psychiatric emergency' or 'self-harm'. Patients resident in Scotland and ≥ 16 years on first contact were included. We used NHS Scotland's Unscheduled Care Data Mart (1) to link data from: – the ambulance service; emergency departments (ED); general and psychiatric inpatient hospital admissions episodes; and death records.

Results There were 9014 calls from 6802 people. Slightly more males ($n=4708$, 52%) than females ($n=4306$, 48%) were attended. Most were discharged from ED with no known follow-up ($n=4566$; 51%). Some were left at home ($n=1003$ attendances, 11%). Almost half of the people ($n=3238$, 48%) made at least one repeat call. People who self-discharge from ED were more likely to have another ambulance attendance for psychiatric emergency/self-harm within the same year (Pearson chi square=5.24, $p=0.02$). Two hundred and seventy-nine (4%) people died within the study period, 97 (35%) were recorded as suicide. Ethical approval (NRES 15/EM/0260) and other data approvals were received.

Conclusion While linked data analysis may not identify all relevant cases, it provides important information to guide the development and evaluation of evidence-based interventions. Ambulance service and ED are missing opportunities to improve outcomes for people who experience a psychiatric emergency or who self-harm. New interventions could lead to decreases in the number of suicides, episodes of self-harm and levels of patient distress; and ambulance and ED service use.

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Conflict of interest None declared.

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30 A STUDY OF THE PREVALENCE OF IMPAIRED AWARENESS OF HYPOGLYCAEMIA IN PEOPLE WHO HAVE HAD A SEVERE HYPOGLYCAEMIC EMERGENCY AND BEEN ATTENDED BY THE AMBULANCE SERVICE

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Aim To investigate the prevalence of Impaired Awareness of Hypoglycaemia in patients who require ambulance service attendance due to severe hypoglycaemia.

Methods We undertook a national cross-sectional survey of the prevalence of Impaired Awareness of Hypoglycaemia (IAH). An a priori target sample size of 415 was set to allow estimation of proportions of IAH within a 5% margin of error (99% CI). From January–June 2016, patients (>16 years) attended by the Scottish Ambulance Service due a Diabetes related emergency with a blood glucose <4 mmol/L were identified as potential participants. A questionnaire with two standardised IAH measures^{1,2} was posted to potential participants within a month of their severe hypoglycaemic event. Consent to participate was assumed through questionnaire return. Ethical approval was received from the National Research Ethics Service (15/EE/0383).

Results Five hundred and ninety-two questionnaires were returned. The prevalence of impaired awareness of hypoglycaemia in among participants as measured using the two standardised measures was 53% and 57% respectively.

Conclusion IAH is considerably more prevalent among people who have a severe hypoglycaemic emergency and call the ambulance service than in the general Diabetic population, where prevalence is 25%.¹ This knowledge will assist in the development of an intervention to reduce hypoglycaemic emergencies and may lead to improved outcomes and cost savings.

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Conflict of interest This study was funded by the Scottish Ambulance Service who employ Dr. D Fitzpatrick. The ambulance service management had no direct involvement in the design, conduct, analysis or output arising from the study.

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31 INTRAOSSEOUS ACCESS IS EFFECTIVE WHILST WEARING CBRN PROTECTIVE EQUIPMENT

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10.1136/bmjopen-2017-EMSAbstracts.31

Aim A cross over study aimed to determine comparisons of success rates and ease-of-use ratings in achieving intraosseous access in both wearing and non-wearing of Chemical, Biological, Radiation and Nuclear (CBRN) personal protective equipment (PPE) in a cadaver model.

Methods Using a cross over study, 8 experienced paramedics inserted an intraosseous (IO) device (Arrow EZ-IO®) into a cadaver specimen wearing their standard pre-hospital clothing. The sample then crossed over and applied CBRN PPE and repeated IO insertions. IO insertion times were recorded and assessed for clinical accuracy both before and after cross over with wearing CBRN PPE. Data collection involved the sample completing a confidential questionnaire assessing self-perceived ease-of-use scores for IO access measured in Likert scales (0–10). Qualitative data was captured following structured focus group interviews.

Results The results found no statistical difference between ease-of-use scores for IO access between wearing or non-wearing CBRN PPE. No difference in determining land marking for IO insertion (M 9 vs 8.75 $p=0.726$), humeral site insertion (M 9.13 vs 8.75 $p=0.593$), administration of IO saline flush (M 9.25 vs 8.75 $p=0.405$), holding and manipulating driver (9.13 vs 8.75 $p=0.593$) and trocar removal (9.25 vs 8.75 $p=0.405$). The mean ease-of-use scores were found to be lower in CBRN group but not significant, focus group discussions stated that PPE had some restrictions but effective EZ-IO insertion could still be achieved. Insertion times (25secs SD 3.46 vs 34.38secs SD 4.17 $p=0.0002$) were statistically longer with wearing CBRN PPE. However, focus group discussion stated that it would take significantly longer to achieve

intravenous (IV) access and that IO was an effective and faster option compared to IV during a CBRN incident.

Conclusion Intraosseous access can be effectively and promptly achieved whilst wearing CBRN PPE. IO access took an additional 9.4 s whilst wearing CBRN PPE which can provide fast and efficient vascular access during a CBRN incident.

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Conflict of interest The author is an employee for Teleflex Medical Practicing critical care nurse.

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32 TREAT-AND-RELEASE EMS PATIENTS IN THE NORTH DENMARK REGION: IDENTIFICATION AND VITAL SIGNS

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Aim Pressure on emergency medical services (EMS) and the emergency departments is increasing, thus focus is on the possibility to treat and release patients on the scene. However, data on treat-and-release patients is scarce and often incomplete due to lack of identity number. We aimed to identify treat-and-release patients in a regional EMS cohort and to describe the documentation of vital signs and/or Glasgow-Coma-Scale (GCS).

Methods All ambulances dispatched after an emergency call in the North Denmark Region (approx. 5 80 000 inhabitants) from 2007 to 2014.¹ We excluded cancelled ambulances and defined treat-and-release as the ambulances dispatched without subsequent hospital contact, including patients registered dead (registration of prehospital deaths is inconsistent because death declaration requires a doctor consultation). Patients were 'identified' or 'unidentified' based on the civil registration number.

Results We identified 31 087 ambulances dispatched to treat-and-release patients out 2 03 205 ambulance (15.3%). The number of identified versus unidentified patients was 10 272 (33.0%) and 20 815 (67.0%) respectively. A prehospital doctor was sent to 10 690 (34.4%) of the treat-and-release patients, 2354 (22.9%) to identified and 8336 (40.0%) to unidentified patients. Vital signs and/or GCS was registered in 13 678 (44.0%), 8240 (80.2%) of identified and 5438 (26.1%) of unidentified patients.

Conclusion Treat-and-leave patients constituted 15.3% of all emergency ambulances, and the documentation of civil registration number was poor. Vital signs and/or GCS were documented in less than half of the patients, only partly explained by including death on scene.

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Conflict of interest None declared.

Funding None declared.

33 CHARACTERISTICS OF PATIENTS UNDERGOING PRE-HOSPITAL RAPID SEQUENCE INTUBATION BY INTENSIVE CARE FLIGHT PARAMEDICS IN VICTORIA, AUSTRALIA

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Aim Rapid sequence intubation (RSI) is an advanced airway procedure for critically ill or injured patients. The role of RSI in the pre-hospital setting, and who should perform the procedure remains controversial. In Victoria, Intensive Care Flight Paramedics (ICFPs) have a broad scope of practice for RSI, including high Glasgow Coma Score (≥ 10). We sought to describe the success rates and characteristics of patients receiving RSI by highly trained ICFPs in Victoria, Australia.

Methods A retrospective data review was conducted of adult (≥ 16 years) patients who received RSI by an ICFP between the 1st January 2011 and 31st December 2016. Data were sourced from the Ambulance Victoria data warehouse. Patients < 16 years of age and physician retrieval cases were excluded.

Results A total of 777 cases were included in analyses with a mean age of 45 years (SD 19.6). Most patients were male (69.5%) and the majority of cases involved trauma (72.3%). The overall success rate of intubation was 99.4%. Of the five failed intubations (0.6%), two patients were managed via bag valve mask and oropharyngeal airway, and one patient via supraglottic airway. No surgical airways or cardiac arrests occurred. The most common clinical indication for RSI was traumatic brain injury (50.5%), followed by non-traumatic intracranial pathology (9.5%). A total of 226 (29.1%) patients had a pre-induction GCS ≥ 12 .

Conclusion A very high RSI procedural success rate was observed across the study period. This supports the growing recognition that appropriately-trained paramedics/clinicians can perform RSI safely in the pre-hospital environment.

Conflict of interest None declared.

Funding None declared.

34 CHARACTERISTICS OF REPEATED EMS USERS IN THE NORTH DENMARK REGION

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Aim In the light of increasing demand for emergency medical services (EMS)¹ and a scarcity of studies about repeated EMS users,² we aimed to examine the extent of repeated users and