improvements although highly qualified physicians carry out the service.

REFERENCES
1. Brokmann JC, Conrad C, Rossaint R, Bergrath S, Beckers SK, Tamm M, Czaplik M, Hirsh F. Treatment of acute coronary syndrome by telemedically supported paramedics compared with physician-based treatment of acute coronary syndrome: a prospective, interventional, multicentre trial. J Med Internet Res 2016;18(12):e1440.10.2196/jmir.6358
2. Felzen F, Brokmann JC, Beckers SK, Hirsch H, Tamm M, Rossaint R, Bergrath S. Technical performance of a multifunctional prehospital telemedicine system in routine emergency medical care – an observational study. Journal of Telemedicine and Telecare 2016; 22:1357633X16644115.
3. Bergrath S, Reich A, Rossaint R, Rörtgen R, Gerber J, Fischermann H, Beckers SK, Hirsch F, Brokmann JC, Schult JB, Uiber C, Fizet C, Skoring M.Feasibility of Prehospital Teleconsultation in Acute Stroke – a pilot study in clinical routine. PLoS ONE 2012;7(5):e36796.

Conflict of interest None declared.

Funding None declared.

Abstracts

28 THE DIFFERENCE BETWEEN PHYSICIAN ASSISTANTS AND AMBULANCE NURSES AS SOLO EMERGENCY CARE PROVIDERS IN EMS, A CROSS SECTIONAL STUDY
S. Berben*, 1A. Bloemhoff, 2L. Schoonhoven, 3A. de Kreek, 9P. van Gruusven, 3M. Laurent.
1Eastern Regional Emergency Healthcare Network, Radboud University Medical Centre, Nijmegen, the Netherlands; 2Faculty of Health Sciences, University of Southampton, Southampoton, UK; 3Ambulance Emergency Medical Service Veiligheids en Genezingsregio Gelderland-Midden, Arnhem, the Netherlands; 4Ambulance Emergency Medical Service Veiligheidsregio Gelderland-Zuid, Nijmegen, the Netherlands; 5Scientific Institute for Quality of Healthcare, Radboud University Medical Centre, Nijmegen, Netherlands
10.1136/bmjopen-2017-EMSabstracts.28

Aim The aim of the study is to compare the assessment, treatment, referral, and follow up contact with the dispatch centre of emergency patients treated by the physician assistant (PA) and ambulance nurse (RN) in emergency medical services (EMS) in the Netherlands.

Methods In a cross-sectional document study in two EMS regions we included 991 patients, treated by two PAs (n=493) and 23 RNs (n=498). Data were drawn from predefined and free text fields in the electronic patient records and analysed using descriptive statistics. We used χ² and Mann-Whitney U tests to analyse for differences in outcome of care. Statistical significance was assumed at a level of p<0.05.

Results In line with the medical education, PAs used a medical diagnostic approach (16%, n=77) and an exam of organ tract systems (31%, n=155). PAs consulted more often other medical specialists (33%) than RNs (17%) (χ²=35.5, p<0.0001). PAs referred less patients to the general practitioner (GP) or emergency department (ED) (50%) compared to RNs (73%) (χ²=52.9, p<0.0001). Patient follow up contact with the dispatch centre within 72 hour after completion of the emergency care on scene showed no variation between PAs (5%) and RNs (4%).

Conclusion PAs seemed to operate from a more general medical perspective. They referred significantly less patients to the ED.

REFERENCES
1. Bloemhoff, et al. Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine 2016;24:86.
2. Affiliation of presenting author is Eastern Regional Emergency Healthcare Network, Radboud University Medical Centre, Nijmegen, the Netherlands

Conflict of interest None declared.

Funding Ministry of Health Welfare and Sports, the Netherlands

29 INVESTIGATING THE POPULATION CHARACTERISTICS, PROCESSES AND OUTCOMES OF PRE-HOSPITAL PSYCHIATRIC AND SELF-HARM EMERGENCIES IN SCOTLAND: A NATIONAL RECORD LINKAGE STUDY
1E Duncan*, 1C Best, 1N Dougall, 1S Skar, 1D Fitzpatrick, 1J Evans, 2A Corfield, 1G Goldie, 1M Maxwell, 1H Snoeks, 1C Stark, 1C White, 2V Wojcik. 1University of Strirling; 2Edinburgh Napier University; 3Scottish Ambulance Service; 4NHS Greater Glasgow and Clyde; 5Mental Health Foundation; 6Swansea University; 7NHS Highland; 8NHS Lothian
10.1136/bmjopen-2017-EMSabstracts.29

Aim To investigate the demographic characteristics, care pathways, and clinical and service outcomes of people who present to ambulance services with a psychiatric or self-harm emergency
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

E Duncan*, D Fitzpatrick, J Evans. University of Stirling

10.1136/bmjopen-2017-EMSabstracts.30

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 measures1,2 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.

Conclusions 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%.3 This knowledge will assist in the development of an intervention to reduce hypoglycaemic emergencies and may lead to improved outcomes and cost savings.

REFERENCES
1. Gold AE, Macleod KM, Frier BM. Frequency of severe hypoglycemia in patients with type I diabetes with impaired awareness of hypoglycemia. Diabetes Care 1994;17(7):697–703.
2. Clarke WL, Cox DJ, Gonder-Frederick LA, Julian D, Schlundt D, Polonsky W. Reduced awareness of hypoglycemia in adults with IDDM: a prospective study of hypoglycaemic frequency and associated symptoms. Diabetes Care 1995;18(4):517–522.

Conflict of interest None declared.

Funding Scottish Government, Chief Scientists Office

INTRODUCING ACCESS IS EFFECTIVE WHILST WEARING CBRN PROTECTIVE EQUIPMENT

T Collins*, Teleflex Medical

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 it would take significantly longer to achieve