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Registration of prehospital vital parameters

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Conclusion Therapeutic Hypothermia on OHCA patients with underlying kidney dysfunction was less effective than with normal kidney function.

Conflict of interest None

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CHARACTERISTICS OF PAEDIATRIC TRAUMA PATIENTS ATTENDED BY EMERGENCY MEDICAL SERVICES IN VICTORIA, AUSTRALIA

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Aim Few studies have described the epidemiological profile of paediatric trauma patients attended by emergency medical services (EMS). This study describes the characteristics of paediatric trauma patients attended by EMS in Victoria, Australia.

Method A retrospective review was conducted of all paediatric trauma patients (≤ 15 years) attended by EMS in Victoria, Australia between 1 July 2012 and 30 June 2017. Descriptive analyses were conducted.

Results Paediatric trauma patients represented 2.2% of the EMS emergency caseload during the study period. Most patients were male (59.9%), and the median age was 8 years. The most common final paramedic diagnoses were pain (21.4%), lacerations (14.1%) and fractures (12.5%). Falls, sporting injuries and traffic-related trauma were the most common mechanisms of injury. The majority of patients were transported to hospital (69.5%) and 55.9% received clinical treatment by paramedics. A total of 19.3% of patients were transported to the paediatric major trauma facility in Victoria. Analgesia was administered to 57.9% of treated patients, with administration increasing with age. A splint was applied most commonly to patients aged 5 to 12 years, and spinal immobilisation was most commonly used in patients aged 13 to 15 years. Patients aged ≤ 4 years had the highest proportion of patients with an initial pain score of 0 (49.5%), indicating no pain.

Conclusion The characteristics of paediatric trauma patients differ according to age. Pain, lacerations and fractures are the most common reasons for EMS attendance. Understanding the characteristics of paediatric trauma patients may assist in refining protocols to improve patient outcomes.

Conflict of interest None

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EVALUATION OF AMBULANCE DISPATCH WHEN TWO TRIAGE SCALES ARE USED IN THE PRE-HOSPITAL SYSTEM

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Aim Most of the Emergency medical communication centres (EMCC) in Sweden uses the criteria based dispatch protocol (CBD), Medical Index¹ which has three levels of priority. In the ambulance service, RETTS (Rapid Emergency Triage and Treatment System)² is used and consists of four levels. This study evaluates the accuracy of dispatching ambulances, by evaluating the feedback sent from the ambulance crew after the first evaluation of the patients' severity and condition.

Method This is a retrospective study from October 2014 to June 2015. Sensitivity and specificity were used to estimate the agreement of assessed priority levels between ambulance priority Red to EMCC priority 1. The priority level assessed by ambulance crew was considered the 'gold standard.' Over and under triage was described for the six most frequent conditions assessed.

Results There were 66 983 missions during the study period. Sensitivity for detecting highest priority indicated 67.1% correctly identified (95% confidence interval (CI): 65.6 to 68.7) and specificity indicated 61.8% of non-highest priority missions not dispatched as priority 1 (95% CI: 61.2 to 62). Consistency of condition between EMCC and ambulance for the six most common dispatched assignments was: chest pain 82%, minor injuries 81%, stroke 78%, breathing difficulties 74%, abdomen 71%, and undefined problems 29%. The rate of over- and under triage for highest priority was 33.49% and 4.02% respectively.

Conclusion Compared to the first evaluation of the patients' severity and condition by the ambulance crew, EMCC assessment had moderate sensitivity and specificity. The lack of universal metrics is a limitation when concluding dispatch accuracy.

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REGISTRATION OF PREHOSPITAL VITAL PARAMETERS

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Aim The North Denmark Region implemented an electronic Prehospital Patient medical Record (PPR) in 2006. In 2015 a new version of PPR was implemented. Implementation of new technologies can be challenging, including structurally and organisational obstacles,¹ which causes difficulty in achieving data completeness. We aimed to examine registrations of vital parameters in PPR before and after the new version of PPR.

Method The cohort includes all patients to whom an ambulance was dispatched after an emergency 112-call in the North Denmark Region from 2007–2014 and 2016. We examined the distribution and registration of the first measurement of vital parameters.

Results We identified 213.466 patients. Percentage of registrations from 2007 to 2014 vs 2016: Blood pressure (BP) 73%

to 86% vs 81%, pulse 76% to 88% vs 82%, saturation (SAT) 72% to 85% vs 82%, Respiratory Rate (RR) 34% to 82% vs 77%, Glasgow-Coma-Scale (GCS) 54% to 92% vs 80%, VAS for pain 0% to 15% vs 21%. Data from all years showed normal distributions for systolic BP, diastolic BP, pulse and RR with mean (95% confidence interval) on: 141 (100;192), 84 (55;116), 92 (59;133), 21 (12;28), respectively. For SAT median (interquartile range) was: 97 (95–99). The GCS had 82% observations on 15. VAS had outliers scoring above 10 in 2016.

Conclusion Registration increased from 2007 to 2014. A slight decrease except for VAS was seen in 2016 compared to 2014. Overall vital parameters were within normal ranges, however with outliers.

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TRENDS IN LONG-TERM DEMAND FOR EMERGENCY MEDICAL SERVICES IN VICTORIA, AUSTRALIA

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Aim Although emergency medical service (EMS) utilisation is increasing internationally, the factors driving this increase have not been well quantified using a large EMS dataset. We sought to describe long-term trends in EMS utilisation in Victoria, Australia.

Method We conducted a retrospective observational study of consecutive patients presenting to the state-wide EMS in Victoria, Australia between 01/01/2010 and 31/12/2015. We calculated incidence rates of EMS presentations using Victorian population estimates, and conducted time-series regression analysis, adjusted for temporal trends and population size.

Results A total of 2,923,815 EMS patient presentations were included. Patient presentations grew by an average of 4.3% per annum, compared with 2.0% annual growth in the Victorian population. Age-specific incidence was highest among patients aged ≥ 81 years although this did not grow significantly over time (2010: 517 presentations/1000 person-years vs 2015: 533/1000 person-years, $p=0.8$). However, the median age of patients decreased over time (2010: 60.2 vs 2015: 58.7, $p<0.001$). Among emergency ambulance-attended patients, 51.5% were recorded as having no comorbidities according to the Charlson Comorbidity Index, and this proportion remained steady over time (2010: 51.5% vs 2015: 51.8%). The rate of medical intervention by paramedics decreased over time (2010: 59.5% vs 2015: 46.8%,

$p<0.001$), as did the rate of transportation to hospital (2010: 79.1% vs 2015: 77.4%, $p<0.001$). According to adjusted analyses, a population increase of 1000 people aged >65 years was associated with a 0.4% increase in daily EMS demand ($p=0.005$).

Conclusion The profile of patients presenting to EMS is changing over time, with the median age decreasing and fewer patients requiring active intervention.

Conflict of interest None

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THE RELIABILITY OF LACTATE POINT-OF-CARE TESTING IN MOBILE INTENSIVE CARE UNITS FOR TRIAGING SEPSIS PATIENTS?

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Aim Lactate point of care testing (POCT) could be a valuable tool in a prehospital environment for helping mobile intensive care units (MICU) to determine the level of critical care and hospital triage (emergency department [ED] or intensive care unit [ICU]) needed for sepsis patients. StatStrip Lactate Xpress is a handheld POCT lactate monitoring system which is rapid and easy to use on capillary whole blood specimens. We evaluated StatStrip Lactate to determine if the clinical performance and reliability was acceptable for use on MICU's for triaging sepsis patients.

Method We first investigated POCT analytical performance including imprecision and the limits of detection. Using samples collected from 50 identified sepsis patients admitted to the intensive care unit (ICU), we compared lactate values obtained with the device to those obtained with four central laboratory analysers: one whole blood and three plasma-based methods.

Results Results were compared by least squares regression, Bland-Altman plot and by comparing concordance within clinically relevant lactate decision ranges. We observed a reliable analytical performance of the POCT (CVs $<3.8\%$ for repeatability and $<5.0\%$ for reproducibility) an excellent correlation between POCT and central laboratory analysers (R2: 0.96–0.98, slopes:0.83–0.90, intercepts: 0.02–0.03) and an excellent concordance of the POCT results to the central laboratory analyser results (98%–100%).

Conclusion Lactate values are comparable and transferable between POCT and central laboratory analysers indicating that StatStrip Lactate could be a valuable tool in the MICU to evaluate the severity of sepsis patients and to better manage their hospital triage.

Conflict of interest None

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