

compare their characteristics and diagnoses with one-time users. Additional knowledge about repeated users may help identify appropriate alternative interventions.

Methods Population-based cohort study on patients to whom an emergency ambulance was dispatched after an emergency call in the North Denmark Region (5 80 000 inhabitants), 2012–2013. Each patient was included at first ambulance dispatch and followed one year. One-time users (one ambulance dispatched) were compared to repeated users divided into: moderate (2–4), frequent (5–9), and super users (≥ 10). Hospital diagnoses according to ICD-10 were retrieved.

Results We identified 36 210 patients corresponding to 46 203 emergency ambulances dispatched within the one-year follow-up. The results below are presented according to the four groups: one-time, moderate, frequent, and super users. Percentage of patients (ambulances): 83.2% (65.2%), 15.8% (28.9%), 0.9% (4.2%), 0.1% (1.7%). Male gender: 53%, 56%, 59%, 62%. Median age (interquartile range): 55 (29–72), 61 (41–77), 55 (40–71), 52 (37–68). Charlson comorbidity index ≥ 3 : 3%, 12%, 16%, 13%. Percentage diagnosed with mental disorders (ICD-10 chapter 5; $n=2,149$): 4%, 6%, 12%, 19%. Respiratory diseases (ICD-10 chapter 10; $n=3,033$): 5%, 9%, 14%, 25%. Injuries, poisoning, and external causes (ICD-10 chapter 19, $n=11,709$): 33%, 20%, 15%, 9%.

Conclusion Repeated EMS users constituted 16.8% of patients (34.8% of ambulances). Compared to one-time users, repeated users were more often male, had higher comorbidity, were more often diagnosed with mental and respiratory illnesses, and less often with injuries, poisoning, and external causes.

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35 MANUAL VERSUS SEMI-AUTOMATIC RHYTHM ANALYSIS AND DEFIBRILLATION FOR OUT-OF-HOSPITAL CARDIAC ARREST

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Aim Although manual and semi-automatic external defibrillation (SAED) are commonly used in the management of cardiac arrest, the optimal strategy is not known. We hypothesised that SAED would reduce the time to first shock and increase survival compared to a manual strategy.

Methods Between 2005 and 2015, we included adult out-of-hospital cardiac arrests (OHCA) of presumed cardiac aetiology. On October 2012, a treatment protocol utilising SAED was introduced following years of manual defibrillation by paramedics. The effect of SAED implementation on patient outcomes was assessed using adjusted interrupted time series models.

Results Of the 14 776 cases, 10 224 (69.2%) and 4552 (30.8%) occurred during the manual and SAED protocols, respectively. After adjustment for arrest confounders and temporal trend, the odds of delivering the first shock within 2 min of arrival increased under the SAED protocol (adjusted odds ratio [AOR] 1.72, 95% CI: 1.32, 2.26; $p<0.001$). Despite this, the SAED protocol was associated with a reduction in return of spontaneous circulation (AOR 0.81, 95% CI: 0.68, 0.96; $p=0.01$), event survival (AOR 0.74, 95% CI: 0.62, 0.88; $p=0.001$) and survival to hospital discharge (AOR 0.71, 95% CI: 0.55, 0.92; $p=0.009$) when compared with the manual protocol. Although SAED reduced the time to first shock, there was no improvement in the rate of successful first shock cardioversion (AOR 0.73, 95% CI: 0.51, 1.06; $p=0.10$).

Conclusion Although SAED improved the time to first shock, this did not translate into higher rates of successful cardioversion or survival for OHCA patients. Advanced life support providers should be trained in a manual defibrillation protocol.

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36 NOT TRANSPORTING ALL PAEDIATRIC OUT-OF-HOSPITAL SETTING PATIENTS BY AMBULANCE SEEMS TO BE SAFE

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Aim We examined the safety of not transporting all paediatric out-of-hospital (OOH) emergency patients to emergency department by ambulance.

Methods We report observations from a dataset covering all ($n=2387$) emergency medical services (EMS) responses for paediatric patients (age 0 to 15 years) in 2015 in Helsinki, Finland (population 628 208, paediatric population 93 054 during 2015). Time intervals, patient characteristics, vital measurements, diagnoses, medical treatments, procedures and outcomes were analysed.

Results The incidence of EMS-treated paediatric OOH emergencies was 3.8 per 1 000 inhabitants and 25.7 per 1 000 in 0–15 year-old inhabitants. There were 1 069 (44.8%) non-transported paediatric patients. In 926 (86.6%) cases decision of not transporting a patient was made without consulting a doctor. 176 (16.5%) of non-transported patients got to a tertiary university hospital emergency department within 3 days by other means, comprising 184 visits. 115 (62.5%) of the visits were encouraged by emergency medical personnel. Only 3 patients' appearance was other than good at presentation. 90 (8.4%) of the patients were medicated at the emergency department. 21 (2.0%) of the patients were given respiratory support (including any form of inhalations). 28 (2.6%) had to be admitted to the hospital; 11 (1.0%) of them for more than 2 nights. None of the non-transported patients were admitted to the intensive care unit within 3 days following the call or died during the 1 year follow-up period.

Conclusion Transporting selectively those paediatric patients by ambulance, who need transportation the most, appears to be safe in the light of this dataset.