International Journal of Population Data Science

Journal Website: www.ijpds.org

Population-based analysis of the effect of a comprehensive, systematic change in an emergency medical service resource allocation plan on 24 hour mortality

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Introduction

The British Columbia Emergency Health Services developed a new resource allocation plan (RAP) using an evidenced informed methodology and with further clinical input from EMS physicians, paramedics and allied EMS providers. Population-based analysis was used to determine the effect by comparing 24-hour mortality before and after province-wide implementation of the revised RAP.

Conclusion/Implications

Our results demonstrate that a comprehensive, evidence informed reconstruction of a provincial EMS RAP is feasible. Despite considerable change in crew level response and resource allocation, there was significant decrease in 24 hour mortality in a large pan-provincial population based patient cohort.

Objectives and Approach

The primary outcome, 24-hour mortality, was obtained through linked provincial health administrative data. All adult cases with evaluable outcome data were included in the analysis. A pre and post methodology was used to evaluate the effect of post-RAP revision (post-RAP-revision) on 24-hour mortality compared to pre-RAP revision (pre-RAP-revision). Multivariable logistic regression was used to adjust for variations in other significant factors associated with 24-hour mortality. The interrupted time series (ITS) estimated any immediate changes in the level or trend of outcome after the start of the revised RAP implementation (fall of 2013), while simultaneously controlling for pre-existing trends.

Results

The linked data set included some 1500–2000 children per school census classified as having a CP, representing a prevalence of some 0.3%. Provisionally, results show: prevalence of CP is higher amongst children living in relatively deprived areas; around 60% of CP children have a statement of SEN; the SEN type most commonly recorded for CP children with SEN is 'Physical and medical difficulties' and relatively high proportions have profound, multiple or severe learning difficulties; around 30% of CP children are educated in special schools; CP children in main stream (primary, middle and secondary) schools tended to miss more school sessions (~50% more) than other children and lower percentages achieved the expected levels at key stages 2 and 3 and the Level 2 GCSE threshold.