

# Closing five Emergency Departments in England between 2009 and 2011: the closED controlled interrupted time-series analysis



## Background:

Healthcare systems reorganisation occurs for a number of reasons, principally sustainability (largely due to finite financial resources) and patient safety. Reorganisation of care services in the UK is common and this often involves services closing or moving elsewhere. This is at a time when 999 calls and attendances at Emergency Departments have risen drastically, possibly due to an ageing population, an attitude among the younger population to expect services to be provided instantly and limited access to alternative services. Up to this point there has been no data to support the decision to reorganise healthcare facilities in a geographic area. The goal of this report was to provide an evidence base to allow a more informed decision to be made in relation to an extremely emotive topic.

## Methods:

Five closing emergency departments were considered (all based in the Midlands or North of England) with data being compared to five control sites considered similar to the test sites (the locations are not disclosed). Data was gathered for a twenty four month period prior to the closure of the ED and the following twenty four months afterwards. There was a particular focus on the impact on ambulance service attendances, ED attendances and admissions and patient mortality.

## Results:

### **Ambulance incidents and transport times**

The report found that after the closure or downgrade of an emergency department there was an increase in the number of 999 calls in that area (estimated to be 13.9% with a 12.3% increase in RED calls  $p=0.008$  and  $0.006$  respectively) with a combined increase in transport to hospital times. A mean increase of 3.9 minutes transport time was found from the analysis (however, this was measured as 999 call time to arrival at hospital and is therefore questionable due to the possible delay arriving at the patient due to demand at the time).

### **Emergency Department attendances and avoidable admissions**

The report suggested no consistent effect on hospital attendance being found, it described the data as being statistically unreliable despite estimating a reduction in the number of attendances at emergency or urgent care facilities and a decrease in attendances where patients are discharged without treatment or investigation. ( $p$  value for these estimates 0.25-0.27)

## **Patient mortality after service downgrade or closure**

The report highlights a lack of statistically reliable evidence to suggest any change in mortality following the closure of an Emergency Department but suggests a 2.2% increase compared to control sites ( $p=0.63$ ). The report also suggests there was 'some' evidence there was a 'small' increase in 'risk of death' when compared to control sites. However, does not quantify this risk.

### **Summary:**

The report acknowledges an inconsistency in the way data is reported between services and criticises the reliability and accuracy of the data gathered, the term 'no statistically reliable data' is used on numerous occasions.

One clear finding, however, is the increase in demand on ambulance services, both in terms of 999 calls and hospital transport times. Further research is recommended.

**Further information:** <https://www.sheffield.ac.uk/scharr/sections/hsr/mcru/closed>

**Funding:** NIHR Health Services and Delivery Research programme

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