



Effect of increased distance to urgent or emergency care on patient outcomes

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Systematic review: What evidence is there for the effect of increased travel time or distance on patients needing urgent or emergency care?

- Reconfiguration of local health services may **increase travel time or distance** for some patients to reach their nearest hospital or other urgent and emergency care (UEC) facility.
- This systematic review included 44 studies (8 from the UK). For studies of **general UEC populations**, there was **insufficient evidence** to assess the effect of increased travel time following reconfiguration on mortality. Evidence of increased risk was identified from studies of patients with **acute myocardial infarction (AMI)**
- In the absence of reconfiguration, evidence indicated that increased travel time or distance is associated with increased mortality risk for the AMI and trauma populations
- Increases in mortality risk were most likely in the **first few years after reconfiguration**.

What is the problem?

The impact of reconfiguration of health services is important to commissioners, providers, and patients and the public. Some proposed reconfigurations have the effect of increasing travel time and/or distance for some patients to reach their nearest hospital or other urgent and emergency care (UEC) facility.

Many communities value their local services and perceive that planned or proposed changes could worsen outcomes for patients. We performed a systematic review of evidence relating to outcomes for patients following service reconfigurations which change the time/distance to the nearest UEC facility, to examine whether the available evidence supports this belief.

What did we do?

Our objectives were to identify, appraise and synthesise existing research evidence regarding the outcomes and impacts of service reconfigurations which increase the time and/or distance for patients to reach an urgent and emergency care facility. We also aimed to examine available evidence regarding associations between distance to a facility and outcomes for patients and health services, together with factors which may influence (moderate or mediate) these associations.

We performed focused searches of seven bibliographic databases in February 2019, supplemented by citation tracking and reference list checking. Brief inclusion criteria were:

Population: Adults or children with conditions requiring emergency treatment

Intervention/comparison: Studies comparing outcomes before and after a service reconfiguration which affects time/distance to UEC or comparing

outcomes in groups of people travelling different distances to access UEC.

Outcomes: any patient or health system outcome.

Setting: UK and other developed countries with relevant healthcare systems

Because the studies were too varied to compare by quantitative methods, we carried out a narrative synthesis of the included studies. Overall strength of evidence was assessed for each outcome

What did we find out?

We included 44 studies, of which just eight were UK studies. Many of the included studies were at relatively high risk of bias because of their observational design and the absence of an independent control group.

For studies of general UEC populations, there was insufficient evidence to assess the effect of increased travel time following reconfiguration on mortality. This was partly because changes to travel time/distance were generally small and few patients experienced large increases. Evidence of increased risk was identified from studies of patients with acute myocardial infarction (AMI).

In the absence of reconfiguration, evidence indicated that increased travel time or distance is associated with increased mortality risk for the AMI and trauma populations.

Increases in mortality risk were most likely to be observed in the first few years after reconfiguration

What are the implications?

Studies of the effects of ED closures and reconfigurations have provided insights into how change can be managed to minimise any adverse effects on patients

or the stability of the wider health and care system. Important factors include early notification and discussion of planned changes; co-operation between different stakeholders; and appropriate changes to staffing and organisation of the workforce.

Several included studies suggest that the effects of increased travel distance/time on outcomes may be temporary, lasting one or a few years. Health services may be able to minimise the transition period by measures such as investment in emergency medical services (EMS) and by providing capacity elsewhere before any closures take place.

There is a consistent message from both UK and international research about the importance of considering the EMS implications of planned service changes. We also found evidence that people in more deprived areas were less willing/able to travel to attend an emergency department. This suggests that consideration should be given to ensuring

that UEC services are not located far away from socially deprived areas.

Research priorities include work to examine the longer-term effects of service reconfigurations on the whole UEC system and to better understand how local and regional health systems plan for and adapt to increases in travel distance/time.

Sources

Chambers D, Cantrell A, Baxter S et al. Effects of service changes affecting distance/time to access urgent and emergency care facilities on patient outcomes : a systematic review. *BMC Medicine* (2020) 18:117.

Chambers D, Cantrell A, Baxter S et al. The effects of increased distance to urgent and emergency care facilities on patient and health system outcomes: a systematic review. *Health Serv Deliv Res* 2020 (in press)