

Lower bed occupancy linked to lower hospital death rate

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Credit: Anne Lowe/public domain

Lower bed occupancy is linked to a lower hospital death rate and improved performance against the national 4 hour A&E waiting target, reveals research published online in *Emergency Medicine Journal*.

The findings follow in the wake of a series of steps taken to reduce bed occupancy at one large district general hospital in central England, but are potentially reproducible elsewhere, suggest the researchers.

Increasing workload prompted the introduction of a 90% medical, as opposed to surgical, bed occupancy target at Derby Teaching Hospitals NHS Foundation Trust in July 2013.

This was achieved by the creation of daily senior doctor ward rounds, additional availability of beds in community facilities, and planned use of surgical beds for medical patients.

The researchers were therefore able to carry out a 'before and after study' to see if the changes had any impact on death rates and the ability to meet

the national 4 hour waiting target for A&E patients.

So they looked at medical bed occupancy and death rates between 2012 and 2014, and the trust's performance against the 4 hour waiting target during that timeframe.

The number of patients using hospital services between 2012 and 2014 totalled 210,510, with the monthly average rising from 11,695 before the new target to 12,003 afterwards. Similarly, unplanned admissions rose from an average of 2986 to 3263.

Analysis of the data showed that medical bed occupancy fell from 93.7% before the introduction of the new target to 90.2% afterwards. The proportion of weeks the trust met the 4 hour A&E target also rose from 33% to 51.4%.

The death rate was measured by three different indicators: the hospital standardised mortality ratio (HMSR); the summary [hospital](#) level mortality indicator (SHMI); and the monthly crude mortality.

The new target was associated with a fall in all three indicators of between 4.5% and 4.8%.

The researchers caution that association does not equate to causality, and several factors not accounted for may have influenced the findings.

But they say that several studies in different countries point to a link between overcrowding in the emergency department and poorer patient care/experience.

"This paper provides statistical evidence to support the beliefs and experiences of UK and international physicians," they write.

"The tagline that 'crowding kills' is emotive, but important. If our access systems fail and patient harm results then we have a responsibility to monitor and report the data that demonstrates

potential causes and associations, such that the profession, healthcare systems, and patients can explore, understand, and improve care," they say.

In a linked editorial, Professor Steve Goodacre and Mike Campbell of the University of Sheffield sound a note of caution.

For example, they suggest that increased bed availability might have led to less seriously ill patients being admitted who might otherwise have been cared for at home, and although the death rate data were adjusted to take account of influential factors, illness severity was not one of them.

They conclude: "Measures that reduce bed occupancy (increasing bed and senior doctor availability) use up precious health service resources. If this saves lives, then it may be worthwhile, but if it just increases admissions then resources would be better spent elsewhere."

More information: Lowering levels of bed occupancy is associated with decreased in-hospital mortality and improved performance on the 4-hour target in a UK District General Hospital, *Emergency Medicine Journal*, DOI: [10.1136/emered-2014-204479](https://doi.org/10.1136/emered-2014-204479)

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