76

Hospital bed capacity and ED crowding – The impact on patient safety

Björn af Ugglas

Björn af Ugglas is a PhD, researcher at Karolinska Institutet and works as a strategic business developer at the Karolinska University Hospital.

SNS RESEARCH BRIEF | The objective of the SNS Research Brief series is to make research accessible for decision-makers in politics, business and the public sector. Financial support has been granted by the Jan Wallander and Tom Hedelius Foundation. Responsibility for the analysis and the conclusions in the research briefs rests with the authors alone.

The number of hospital beds per capita has decreased in 27 out of 29 European countries since the year 2000. This is mainly a positive development enabled by medical innovations in diagnostics and treatments, thus reducing the need for inpatient care. However, reducing the number of hospital beds not based on the introduction of new innovations will lead to an increased bed occupancy rate followed by crowded emergency departments (EDs) and poor patient outcomes.

Sweden is leading this movement and has the lowest number of hospital beds per capita among EU countries. This development has resulted in increased bed occupancy and a higher workload in the EDs. The question is if we have gone too far and whether the lack of hospital bed capacity and the resulting ED crowding have an impact on patient safety as indicated by an increased risk of mortality.

This policy brief is based on a PhD thesis consisting of unique studies of multiple EDs in multiple regions, evaluating the outcome of millions of ED patient visits. High-quality data from national registries and robust statistical methods enable controlling for potentially confounding factors.

The results show that a relative increase in hospital bed occupancy is not necessarily associated with increased mortality among patients seeking care in an ED. It is, however, associated with additional workload and increased crowding in EDs.

The association between crowding and mortality varies by hospital, and there are statistically significant associations in some, but not all, hospitals. This is alarming but also promising since the association is not universal, it may be possible to avoid.

Based on my research and a recent study from New Zeeland, I present a well-grounded hypothesis: that a high hospital bed occupancy rate may modify and reinforce the association between ED crowding and mortality. If this is the case, patients exposed to a combination of high hospital bed occupancy and ED crowding are at risk of poor outcomes.

How is it possible that we have come so far in terms of fewer hospital beds per capita, higher bed occupancy and crowded EDs that we exhibit measurable risk increases in mortality? How do we reverse this trend, and who is to lead this work?

ED crowding is a systemic issue, and exactly who is responsible is currently unclear and shared between stakeholders. To change this situation, my recommendation is to investigate and establish who is responsible for the poor patient outcomes resulting from insufficient hospital bed capacity and ED crowding.

Furthermore, to better align objectives between policy stakeholders and clinicians, I propose improving and replacing current key performance indicators with new measures putting more emphasis on patient safety while focusing less on availability and service level.

To follow up progress and enable further research, national reporting and business development of ED processes and outcomes, we need to expand the scope of existing national registries. I recommend that the Swedish Emergency Registry (Svenska Akutvårdsregistret in Swedish, abbreviated as SVAR) is made mandatory and that the National Patient Register is enhanced with further information regarding ED patient visits.