Letters to the editor

OVERVIEW

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A systems approach can help improve patient flow in the NHS this winter and beyond

DOI: 10.7861/fhj.Let.10.1.1

In his compelling promotion of a systems approach for the NHS, Bharadwaj Chada is quite right to underline the importance of whole system flow and how for any 'attempt to change any single component of the system, one must first understand its dependencies and bottlenecks'.[1] This is especially important for ensuring fluidity in the acute to community route for the many older and frail individuals who need ongoing support following their hospital stay. In the NHS in England, these are known as the 'discharge to assess' (D2A) pathways.[2] Well-performing community D2A services can both improve patient outcomes and reduce acute 'bed blockages', which otherwise lead to emergency department overcrowding and, in turn, the unprecedented ambulance handover delays and response times seen of late.[3] Reducing these bottlenecks is particularly important in the winter months, when healthcare demands are greater.

As well as the operational imperative to respond to transient peaks and troughs in demand, a strategic systems approach is required to support decision-makers in determining the longer-term resource allocation. To this end, systems modelling and simulation have a proven track record, not least given their ability to capture sources of variability in demand and service use.[4] As Chada remarks: 'There are few industries operating with more complexity and uncertainty than the NHS'.[1] While there has been a deficit of research interest in modelling D2A, this has recently been addressed through the IPACS project *Improving the flow of patients between acute community and social care*.[5]

This modelling takes into account the variability of acute patients becoming ready for discharge to community D2A care, the variability of community length of stay, and various levels of community capacity. Different combinations of these will affect the number of patients delayed in acute beds, and thus available hospital resources. Combining these factors in a mathematical queueing model can help determine the resource and performance implications of different scenarios relating to demand and capacity.[6]

Using this published mathematical model, updated with the latest 'bed blocking' data (for December 2022),[7] we can estimate the number of acute beds which would be freed as a result of additional D2A capacity (Fig 1). This is based on an assumption that a large healthcare system serves a one million population, and a medium and small healthcare system are 75% and 50% the size of a large system. As in the authors' (large) healthcare system in and around Bristol, these results help surface to managers that even a relatively small increase in downstream community capacity can reduce overloading and create the much-needed 'slack' to significantly reduce pressure on the acute bed base. Such efforts demonstrate the need for a systems approach and conveniently illustrate the importance of Chada's point that 'to change any single component of the system, one must first understand its dependencies and bottlenecks'.[1] ■

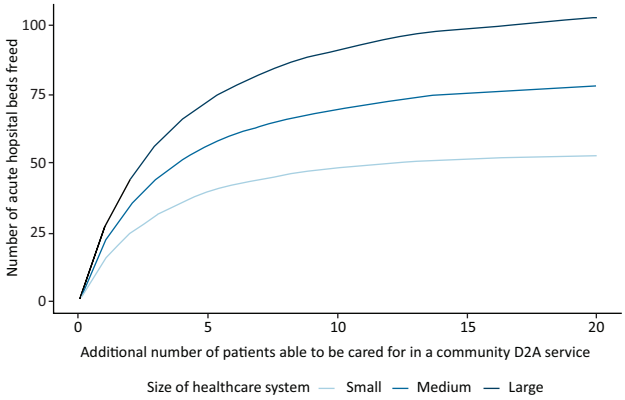

Fig 1. Impact of additional community D2A capacity on the acute bed base for typical large (1m population), medium (0.75m) and small (0.5m) healthcare systems in England's NHS.

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