

Hospital beds: a primer for counting and comparing

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The noisiest issue in the public debate on health care rests on questions that seem so simple. How many hospital beds are there in Australia and are there enough?

The community remains fixated on capital infrastructure (hospitals and beds). Doctors and patients want more hospital beds, official reports vary on the need for more beds, and governments and political leaders of all persuasions promise more. In response to the perceived crisis in health care and the pressure of access block on emergency departments, many jurisdictions have begun to expand bed numbers.

It is apparent, however, that, at least in the public arena, there is lack of clarity about what is being counted and compared, and “furniture” is often confused with capability. We would like to add clarity by defining hospital bed capability, evaluating Australia’s bed capability against international standards and considering the impact of demographic and clinical changes on future demands for beds in Australia.

What is a hospital bed?

In making any comparison of bed numbers, it is important to be comparing the same thing. However, in practice, this is difficult to achieve. Traditionally, the hospital bed count was a simple enumeration of the number of beds in the wards of a hospital at a point in time. However, the count was “flexible”, or even “rubbery”. Spaces with capacity for beds might be included. Some hospitals counted only beds they considered to be funded, others only those they could fully staff.

The Australian Institute of Health and Welfare defines an “available bed” as a “bed which is immediately available to be used by an admitted patient or resident if required”. It specifically excludes surgical tables, recovery trolleys, delivery beds and emergency stretchers, which are not generally used for inpatient care.¹ However, from a clinical operations perspective, what is relevant is “bed capability” — a concept that incorporates not just the physical item of furniture but also the services to accommodate and support a patient.

Such capability is not uniform throughout the day, week or year. Many hospital beds in both the public and private health sectors, particularly those in day procedure units, are only in routine use during normal working hours, so the physical count is different to the operating capacity. Many facilities vary their capability in accordance with demand on a daily or seasonal basis. Turnover for a day-hospital bed is higher than for an overnight bed (a number of patients may be treated in a single day-hospital bed on any given day).

In addition, beds are not equal. Specialty beds (eg, intensive care unit beds) form subsets of the overall bed capability that have their own particular demand-and-supply profile.^{2,3} There are times when the particular type of bed capability is not available to meet the need. For example, if elective surgery requires a postoperative intensive care bed, then increasing ordinary overnight beds alone will not necessarily increase productivity (ie, efficient throughput of patients to achieve health outcomes). Similarly, many patients could be transferred during their stay to lower intensity but more appropriate subacute beds with dedicated rehabilitation capacity, thereby increasing overall

ABSTRACT

- There is considerable public, political and professional debate about the need for additional hospital beds in Australia. However, there is no clarity in regard to the definition, meaning and significance of hospital bed counts.
- Relative to population, there has been a total decline in bed availability in Australia over the past 15 years of 14.6% (22.9% for public hospital beds). This decline is partly offset by reductions in length of stay and changes to models of care; however, the net effect is increased bed occupancy which has in turn resulted in system-wide congestion.
- Future bed capability needs to be better planned to meet growing demands while at the same time continuing trends for more efficient use. Future planning should be based in part on weighted bed capability matched to need.

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See pages 291, 298 and 311.

productivity. The efficient use of hospital beds is also linked to the availability of community care services that vary in type and capacity between jurisdictions.

It is also important to distinguish bed capacity that is fully utilisable from that which is not. Beds are not evenly distributed across Australia, with higher bed-to-population ratios in rural and remote areas than in urban areas. In rural areas, there are significant numbers of hospital beds that cannot be fully utilised because of lack of local demand and clinical capability.

National and international trends

Despite the counting difficulties, it is evident that there has been a decline in bed availability throughout almost all developed countries.⁴ After taking the population level into consideration in Australia, there has been a real reduction in available hospital beds of 14.6% over the past 15 years — equivalent to a 22.9% reduction in public hospital beds (Box 1).^{5–7}

This decline was in part driven by a reduction in relative demand for inpatient beds because of improved clinical technology, changed models of care including greater use of day procedures, and enhanced community-based services and support.^{8,9} These changes resulted in significant reductions in length of stay that initially produced a decrease in demand for overnight inpatient beds. However, this component of reduced demand has probably now been overtaken by the increased demand associated with population ageing and increased patient acuity.

The distribution of demand throughout the system is uneven, further aggravating problems with access. Of the 762 public hospitals in Australia, 29% are described as medium or larger (generally more than 50 beds). These hospitals account for 80% of public hospital beds.¹⁰

Complicating this picture further is the relationship between acute, subacute and long-term residential aged care bed capability. At 30 June 2008, there were 175 472 residential aged care places nationally and a further 48 483 community aged care support

1 Bed capacity in Australia, 1993–94 and 2007–08⁵⁻⁷

	1993–94	2007–08	% Difference
Hospitals			
Public	746	762	2.1%
Private	440	552	25.5%
Total	1186	1314	10.8%
Available or licensed beds			
Public hospitals	61 260	56 467	-7.8%
Private hospitals	21 241	27 768	30.7%
Total	82 501	84 235	2.1%
Population (000s)	17 760	21 237	19.6%
Beds per 1000 population			
Public hospitals	3.4	2.7	-22.9%*
Private hospitals	1.2	1.3	9.3%*
Total	4.6	4.0	-14.6%*

* Calculated using non-rounded values. ◆

2 Length of stay, separations and bed numbers in Australian hospitals compared with international averages, 2009⁴

Indicator	Australia	OECD average
Average length of stay (days)	5.9	6.5
Average length of stay, acute myocardial infarction (days)	6.2	7.4
Separations (per 1000 population)	162	158
Separations, circulatory diseases (per 1000 population)	17	20
Beds (per 1000 population)	3.5	3.8

OECD = Organisation for Economic Co-operation and Development. ◆

packages being administered.¹¹ While the number of residential aged care places increased between 1995 and 2008 by 40 662, the number of places per 1000 people over 70 years of age declined from 92.2 to 87.7. With the addition of community-based packages, the number of people covered has increased substantially, but community packages are not always a reasonable substitute for acute care beds. Projections suggest shortages of aged care beds between 2010 and 2020 before relative demand declines.¹² This shortfall has immediate impacts on acute care hospitals, with acute beds being used to accommodate patients requiring residential aged care.

These trends are consistent with changes in similar countries. Australia's current average length of stay is slightly less than the Organisation for Economic Co-operation and Development average;⁴ however, when data are matched by diagnosis groups to minimise differences attributable to variation in the complexity of conditions, the differences are more significant. Australia has a slightly higher rate of hospital separations per 1000 population (that does, however, become lower when matched by diagnosis groups) and fewer beds per 1000 population (Box 2).

While the reduction in bed availability in Australia accords with international trends and improved efficiency, the impact of population growth and ageing has resulted in increased demand that has outstripped the rate of efficiency improvements. This increased demand has an impact not only on total bed demand but on specialist services such as intensive care units that have been created specifically to enhance quality of care. The overt expression of this reduced availability of inpatient beds (access block) is emergency department congestion and undesirable waiting times for elective surgery.

Projecting need for beds

Probably the most important and underestimated factor in projecting bed demand is the impact of ageing of the Australian population. People over the age of 65 years account for 13% of the population but 39% of all hospital admissions.¹³ This factor alone probably accounts for the majority of the observable variance in

bed demand over the past 15 years. However, the picture is unclear, and detailed analysis is necessary to separate the impacts of acute, subacute and long-term residential capacity for planning future bed capability. While forecasting the number of hospital beds does not have the same complexity as modelling climate change, it is subject to many of the same influences. Future planning will depend on predictions of changing clinical practice and the ability of our society to provide community alternatives that meet patients' needs. We also need to plan within an environment made up of a market-driven private system and a managed public sector.

There are many factors that need to be taken into consideration in future health planning, and hospital bed numbers are only part of the picture. It would be highly beneficial if planners were to step away from a fixation on capital infrastructure and focus more on efficient pathways of care and the patient's experience within the health system.¹⁴

Finally, total bed numbers do not reflect availability. Simplistic overall occupancy rates (eg, 85%) do not necessarily reflect the complexity of the underpinning science or the planning and management required to deliver an efficient and effective health system.¹⁵

Conclusion

Activity-based funding as proposed by the National Health and Hospitals Reform Commission and the Labor government will fund a given level of activity, weighted for complexity, that will convert into funded bed capability. While additional beds are needed to reduce the current system-wide pressures, it is also necessary to continue to correct or adjust the bed capability, to improve bed access and reduce the level of "noise" that this issue creates in the system. We may also need to consider more flexible work practices so that peaks in demand may be accommodated.

The public discussion needs to move from bed numbers to funded bed capability, including the concept of "weighted" bed capability dependent on the proportion of time that beds are occupied. Only then will there be a common metric for debating how much governments have or have not met certain needs and what the likely future needs are. We need a well considered and planned approach to bed capability that avoids the mistakes of the past two decades.

Competing interests

Andrew Wilson is a board member of Health Workforce Australia and former Deputy Director, General Policy Strategy and Resourcing, Queensland Health (to Jan 2009).

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