State of the health system
Beds in the NHS: Wales
## Contents

1. Introduction ................................................................. 2
2. Bed pressures: causes and consequences ......................... 3
3. Our asks ........................................................................... 5
4. Bed data ........................................................................... 6
Annex A – Definitions .......................................................... 13
Annex B – Technical note ...................................................... 15
Introduction

Pressures on NHS hospital beds are well documented. Our members report substantial problems and strains within the bed system; recent media coverage has also raised similar concerns. Although not the only indicator, data on how beds are used within the NHS provide an excellent insight into the healthcare system.

This shortened paper presents NHS bed data from Wales. The full paper presents data from across the UK. The data demonstrates the increasing pressures on the system. It provides evidence of the underlying cracks within the NHS, such as funding constraints, changes and increases in demand, disjointed care and workforce pressures. The evidence will inform the debate and help build a sustainable future for the NHS.

The first section of this paper identifies core themes from a literature search on beds within healthcare systems. This section provides context for the data and should therefore be read alongside the data section to improve understanding of the evidence. The next section sets out our asks on how beds are used within the NHS. The main section of the paper sets out the bed data. A technical note on the data and a glossary of the definitions used can be found in the annex.
Bed pressures: causes and consequences

Bed numbers across advanced economies have fallen throughout the last three decades. Improvements in healthcare have greatly reduced the length of hospital stays and increased the number of day-case patients. However, even supported by well-funded, integrated primary and community care, and an appropriate mix of health care staff, hospital beds remain a fundamental resource that underpin all health systems.

The use of beds within healthcare systems is inherently complex, with multiple overlapping causes of pressure points. The discussion below summarises the main themes that arose from a literature search on beds within healthcare systems. It provides context for the data presented later in the paper, highlighting the mismatch in the supply and demand for beds. It explains the concept of bed occupancy and factors that impact this, such as variations in demand and length of stay, before describing current occupancy levels. The section concludes by outlining the major implications that bed pressures cause for doctors, patients and the quality of their care.

Bed pressures: causes

In the UK, at a time when demand for NHS care is growing, the number of beds has continued to decline significantly. Overall, the number of people attending emergency departments, and from there being admitted into hospital, is increasing. Increased demand, which is closely linked to the rising prevalence of long-term conditions, is coupled with a growing number of older people – the highest users of beds – who often have multiple, complex conditions, including dementia.

Bed occupancy – the percentage of beds in use – is a key consideration when thinking about hospital beds. Hospitals cannot operate at 100% occupancy, as some spare bed capacity is needed to accommodate natural variations in demand and ensure patients can ‘flow’ through the system. If hospitals only planned their bed requirements against the average demand level, then whenever demand increased above the average there would be a shortage of beds. Variations in staffing must also be taken into account, as beds cannot be safely filled without appropriate staffing levels.

To minimise the impact on occupancy, there must be sufficient beds to accommodate variation. Demand for beds peaks at different times of the day, week and year. To minimise the impact on occupancy, there must be sufficient beds to accommodate these peaks. In most hospitals there is a mismatch between peak arrival times (morning) and peak discharge times (late afternoon). This means there must be enough beds during the day for both new patients and those being discharged later that day. Very few patients will be discharged overnight, so there must also be sufficient beds to manage this. Across the week there is variation too, with the most arrivals on a Monday and fewer discharges at the weekend. Finally, there is seasonal variation, with the well-known challenges that winter presents resulting in higher numbers of emergency admissions.

There is a time delay every time a bed is vacated, while the bed is cleaned, prepared for a new patient and transfer and admission processes are completed. This is known as the turnover interval time. Maximising the efficiency of the process is key. As occupancy on wards increases this becomes harder and harder for staff, but factors such as early discharge planning and early review by a senior clinician can help. Patients with the shortest length of stay (the majority of patients) are more resource intensive, as the same turnover interval occurs regardless of length of stay. Minor changes to their length of stay or turnover interval can have a major effect on overall bed availability.

Average length of stay has fallen considerably due to improvements in surgical procedures, technology and community-based care. However, it does vary significantly between patients, with older people experiencing notably longer stays.
Long stays can also be exacerbated by delayed discharge (or transfer of care). This is where patients remain in hospital when they are medically fit to be discharged. It commonly affects older people.15 While delayed discharges only account for a relatively small percentage of beds overall, the number of days each hospital bed is unnecessarily occupied is one of the factors driving up bed occupancy rates.16,17,18 Unnecessary longer stays also lead to worse health outcomes for older people and can increase their care needs after leaving hospital.19

Delayed discharge is increasingly caused by delays in securing a residential or nursing home bed, or community care, including care to be delivered in a patient’s own home.20 These trends highlight the well-documented challenges facing social care, although awaiting access to other in-hospital services remains a considerable problem.

Returning to bed occupancy, hospitals are commonly told to aim for a rate of 85%. This follows a study in the late nineties, which found that bed shortages and periodic crises were increasingly likely to put health services above this rate.21 Others have pointed out this research was based on a particular set of circumstances – an emergency bed pool of around 200 beds – and therefore generalising the findings to all acute hospitals must be done with care, as different sizes and types of bed pools have different optimum average occupancy levels.22 Smaller bed pools and more critical beds, such as those in intensive care, must operate with a lower average occupancy level to maintain availability.23

However, regardless of the specific target, the key point is that hospitals are increasingly operating at very high levels of occupancy, particularly during the winter months.24 Furthermore, the main measurement of occupancy is recorded at midnight — not the peak time for demand — so in reality many hospitals are frequently operating close to or above 100% occupancy during the day.25

Bed pressures: consequences

The implications of this are widespread. A lack of available beds creates backlogs, contributing to the widely reported delays in emergency departments. This affects both patients waiting to be seen, and so-called trolley waits – patients who have been seen and need to be admitted, but have to wait for a bed to become available. Indeed, recent research shows that hospitals with the highest occupancy rates are furthest from the four hour waiting time target.26 The demand for beds also leads to cancellation of elective operations; while this frees up beds, it delays the care that other patients need and have often been waiting for many weeks.27,28

Patients who do get a bed can still suffer adverse consequences from high occupancy rates. When there is excess demand for beds, patients are commonly placed on clinically inappropriate wards.29 This can affect patients’ experience and the quality of care they receive, while placing extra demands on healthcare staff. In order to juggle bed availability, patients can be moved to a number of different beds during their stay in hospital, which can be distressing, particularly for older people.30 Each bed move adds an extra turnover interval and adds an extra day to patients’ length of stay.31 The pressure that shortages create also has a damaging impact on staff morale, recruitment and retention, which in turn impacts negatively on patient care.32

There is a range of evidence that high occupancy increases the rate of hospital acquired infections, which had in recent years reached a more stable level, and has been highlighted by doctors as a particular concern.33,34 Infections are not only a risk to patients, but inevitably lead to temporary bed or ward closures, furthering the occupancy problem.

Finally, there is a concern among doctors and other healthcare professionals that staff may feel pressured to free up beds.35,36 In the worst case scenario this can lead to patients being discharged before it is safe or appropriate to do so.37 Not only does this compromise patients’ care at the time, but evidence suggests it leads to an increased chance of emergency readmission, which is something that has increased notably in recent years.38,39,40 Bed shortages are not just affecting patient care and experience; as doctors on the front line report, shortages are risking patient safety.31,41

The optimum occupancy level varies between different healthcare settings.

However, occupancy levels are increasingly high across the UK.

But, delayed discharge is a major issue, particularly for older people.
Pressures within mental health services are particularly acute

Service and bed availability is a substantial problem within mental health care, with substantial reductions in the number of beds over the last two decades. Mental health bed occupancy is increasingly high. Delayed discharge is a notable issue for patients with mental health problems, many of whom can have long stays in acute care settings. The main reasons for delayed discharge are a lack of suitable community services or facilities to support patients at home, or the lack of an available bed within a community or specialist facility. Bed shortages can result in mental health patients, including young people, being sent far away from their home and support network. ‘Out-of-area’ placements are costly for the NHS and doctors are deeply concerned about the impact they can have on vulnerable patients. Indeed, the added distress can have profound, and unfortunately fatal, consequences. Similarly distressing is the fact that in some cases young people are placed on adult wards.

There is also an association between the reduction in mental health beds and the increase in the number of patients admitted following detention under the mental health act. Evidence suggests that some patients are being sectioned in order to secure a bed, which would be otherwise unavailable to them.

Our asks

The BMA has previously raised concerns about the impact of bed pressures on patient safety and care in the NHS across the UK. Our members remain deeply worried and their concerns are supported by the available data: the reduction in bed numbers needs to stop until clear bed plans are in place.

The BMA is calling for NHS bed plans that:
- account for future service demands and changes in the population health needs
- are sustainably funded and staffed, not driven by financial targets and ensure resource reflects the priorities of the NHS
- are focused on quality care, safety and the patient experience
- support health professionals by introducing measures to avoid premature discharge as a result of bed resource constraints
- take a holistic approach to care, where the health and social care systems work together to deliver a joined up service for the patient — for example, ensuring there is appropriate funding and support for community care so patients can leave hospital without delay
- prioritise providing mental health care close to patients’ home. Care close to home means patients have access to their local support network of friends and family

We also ask that clear consistent data is collected within the NHS. This project has identified significant gaps and inconsistencies in the data collected on beds within each nation. For example, the lack of data on cancelled operations because of bed shortages or the number of patients being placed in clinically inappropriate wards. Without data it can be difficult to fully understand how the NHS is functioning, where the pressure points are and what mitigating actions can be taken.

a For example, ensuring NICE guidelines are fully implemented to improve the transition between inpatient hospital setting to the community with social care needs.
Bed data

The following section presents the bed data available in Wales. The full version of this paper presents data from each nation across the UK. The data will be vital for informing discussions on how to build a sustainable future for the NHS. It is important however that the bed data is reviewed within context. The data therefore should be considered alongside the section on bed pressures, causes and consequences, so the context and implications can be fully understood.
In 2000 there was an average of 5 beds per 1,000 people in Wales. In 2015 this had dropped to 3.5.

There was a 20% reduction in mental health beds between 2009/10 and 2015/16.

An increasing percentage of patients admitted to hospital are older people.

In March 2016 23% of patients spent more than 4 hours in A&E. Almost 5% of patients were there between 8 and 12 hours.

The turnover interval has fallen from 1.7 days in 2004/05 to 1 day in 2015/16.

Average length of stay has fallen from 8 days to just under 7 days between 2005/06 and 2015/16.

Over the same time period that equates to a 25% reduction in total beds.

In 2005/06 people aged over 85 accounted for 8% of hospital admissions. In 2015/16 this had grown to 10.2%.

Average bed occupancy in 2015/2016 was 86.9%, the highest recorded level to date.
Graph 1 – The number of hospital beds

The total number of hospital beds in Wales is decreasing, while the average occupancy rate has increased markedly. Source: StatsWales; published 04/10/16

N.B. The data anomaly in 2009/10 may be related to the NHS restructure at this time.

Graph 2 – The number of hospital beds by region

The number of beds has decreased in all health boards, although the size of the decrease does vary across Wales. Source: StatsWales; published 04/10/16
Bed occupancy has increased in all but one health board. Occupancy reached the highest level on record in 2015/16 in the three largest health boards (Betsi Cadwaladr, Abertawe Bro Morgannwg and Hywel Dd), which together are responsible for over 50% of beds in Wales. Source: StatsWales; published 04/10/16

The number of overall A&E attendances has remained stable, although there is a clear seasonal pattern. Waiting times follow the same seasonal pattern, but have deteriorated, meaning more patients spend more than four hours in A&E. Source: StatsWales; published 15/11/16

N.B. A change in methodology between 2011/12 and 2012/13 means care should be taken when comparing data published before and after these dates.
The overall number of hospital admissions increased by 53,500 between 2005/06 and 2014/15. Over this period the percentage of emergency and elective admissions has remained broadly stable. Source: NHS Wales Informatics Service; published 11/01/17

Overall, the average length of stay for patients has fallen. However, it has increased for elective patients. Source: NHS Wales Informatics Service; published 11/01/17
Having stabilised after a period of decline the number of patients experiencing a delayed transfer of care stabilised has increased slightly over the last three years. There is also a degree of seasonable variability. Source: StatsWales; published 08/12/16

Graph 7 – Delayed transfers of care

Graph 8 – Reasons for delayed transfers of care

Issues relating to healthcare (e.g awaiting medical assessment) and community care (e.g home-care packages) remain the most common reasons for delayed transfers. The selection and availability of care homes are also notable causes of delay. Source: StatsWales; published 12/01/17
Graph 9 – Mental health beds

The number of available mental health beds has been steadily decreasing. Source: StatsWales; published 04/10/16

Graph 10 – Turnover interval

The turnover interval between the discharge of one patient and the admission of the next patient to the same bed is reducing. Source: NHS Wales Informatics Service; published 11/01/17

N.B. StatsWales ceased publishing these figures after 2011/12 – figures for the following years were therefore calculated internally
Annex A – Definitions

The purpose of this annex is to define a number of key terms which appear in the paper. Some definitions are consistent within all four nations, while some are nation-specific. Included within the latter category are a number of terms that appear broadly similar for every nation; however, small but crucial differences mean that they must be treated differently. The annex has been organised to reflect this fact.

The following definitions are consistent across all four nations:

**Day case**
A patient admitted electively to hospital with the intention of discharging them on the same day.

**Elective admission**
Patients admitted electively are those patients for whom treatment or care has been organised in advance. They are admitted to a hospital at an appointed time, as opposed to unscheduled admissions (eg emergencies or maternity patients). Subdivided into elective ordinary admissions (patients who occupy beds overnight) and elective day case admissions.

**Emergency readmission**
The number of people who returned to hospital as an emergency within 30 days of the last time they left hospital after a stay as a percentage of all admissions. Admissions for cancer and obstetrics are typically excluded as they may be part of the patient’s care plan.

**FCE (finished consultant episode)**
A finished episode of care under a consultant for either an inpatient or a day case, after which the patient is either transferred to another consultant or discharged.

**Length of stay**
The amount of time between the admission of patient and their discharge.

**Occupied bed day**
For wards open overnight an occupied bed day is defined as a bed which is occupied at midnight on the day in question. For wards open day only an occupied bed-day is defined as a bed in which at least one day case has taken place during the day. Occupied bed days are used to quantify the availability and use of beds over time. They are calculated by counting the number of days between the date of admission associated with the beginning of a patient’s spell of treatment and the date of discharge associated with the end of the same spell of treatment.

**Turnover interval**
The time between the discharge or transfer of a patient from a bed and the admission of a different patient to the same bed.
The following definitions are specific to Wales:

**Admission episodes**
The first episode in a patient’s spell of care under a given provider.

**Available beds**
Average number of staffed beds in which inpatients are being or could be treated in without any change in facilities or staffing being made.

**Delayed transfer**
Instances of people experiencing a delay in the arrangements for them to leave hospital. For example to go home, or to move to another more appropriate facility within the NHS, eg from an acute bed to a rehabilitation bed.

**Formal/informal admissions to mental health facilities**
People who are compulsorily admitted to hospital are called ‘formal’ patients and people who are admitted to hospital when they are unwell without the use of compulsory powers are called ‘informal’ patients.

**Hospital/provider spell**
A continuous period of time that an admitted patient (using a bed) spends in the care of one NHS health care provider. The care starts with an admission episode and ends in discharge, transfer to another NHS provider or death. Hospital/provider spells are subdivided into FCEs.

**Occupancy**
Average number of beds occupied by inpatients under the care of a consultant in a particular specialty.
Annex B – Technical note

The purpose of this annex is to highlight various issues and limitations that exist in relation to the data that has been used to compile this paper, as well as to try to pre-empt questions or observations that readers might have. All issues known to the authors of this paper are addressed in the following pages.

The variation in the quality of the data typically stems from changes in methodology and collection, significant restructures to the geographical makeup of services, or alterations to definitions or terms. As in the definitions annex, some of these points affects data across the UK, while the rest are specific to particular nations.

UK data issues

Comparability
Though there has been some work to improve comparability of data between nations (for example, episode based data in Northern Ireland can be compared with the equivalent hospital episode statistics data published annually in England), substantial differences in methodologies and data collection still remain; consequently it is inadvisable to attempt comparison between datasets from the four UK nations. Though in some instances an indicator might be defined in very similar terms, there are still likely to be fundamental differences underlying the way in which the data has been collected and presented (for example delayed transfers of care in England and Scotland: the English data concentrates on transfers and discharges, and thus includes patients delayed while awaiting further acute care; the Scottish data is limited to patients awaiting discharge, a fundamental difference in scope and focus).

Midnight census
National data on bed occupancy is based on whether the beds are occupied at midnight. Trusts and boards across the UK use the same measure, although some address this issue by counting patients at other times as well. Nonetheless, this raises the question to what extent the occupancy data is truly representative. At least one study argues that peak occupancy usually occurs at around 8am16, and thus a midnight census is misleading, and does not account for an occupancy level that ebbs and flows throughout the day with the rise and fall of demand – hospitals can therefore approach and indeed exceed 100% occupancy during the day.

Population data
National population data is published by the Office for National Statistics, and mid-year estimates of the calendar year. Bed data, however, covers the financial year (April to March). In this report we have combined data covering two slightly different periods (January to December and April to March) – the figures of bed numbers per thousand population included in the report are therefore intended as guidelines to give a general sense of the figures only.
**Wales-specific data issues**

**Community medicine beds**
Compared with other specialties or sectors, the number of community medicine beds in Wales is relatively small (there were fewer than 50 NHS-managed community beds from 2012/13 onwards). They have therefore been excluded from some charts as they represented a proportionally insignificant number. A link to the data can be accessed in the footnotes.4

**Delayed transfers of care**
The data for Wales looks at the number of people experiencing delayed transfers of care, rather than the number of delayed days. This method does not differentiate between delays of a day and much longer delays. Consequently, the Welsh data can only present a limited sense of the extent to which delayed transfers of care are a problem for NHS services.

**Indicators**
From 2012/13, several indicators were no longer included in the data released by StatsWales, specifically average length of stay, turnover interval and bed use factorb. This was due to inconsistencies in how hospitals and local health boards were reporting their data. Average length of stay was still reported in the PEDW (patient episode database for Wales), which is therefore the source of the length of stay data included in the paper. The PEDW does not include data on turnover interval however, so figures for the years 2012/13 – 2014/15 were calculated internally using the widely agreed formula (see Turnover Interval under the England section of Annex B for more information about the calculation and use of this indicator).

**Known data issues**
Past data analyses in Wales have revealed various inconsistencies in the way in which data have been reported, notably in relation to AU (assessment unit) activity. Assessment and clinical decision units are often used as a potential alternative to admission — however, some local health boards were including AU activity within their bed data, while others were not. Though this inconsistency was only identified recently, there is a possibility that historic data could also have been affected. For further information, please consult the Wales Informatics Service technical note in the footnotes.70

**PEDW (patient episode database for Wales)**
Before 2012/13, the PEDW classified episodes of care in the data according to the speciality of the consultant that patients had received care from; from 2012/13 onward, this was changed to the speciality under which patients had been treated. This restricts comparability of those indicators that make use of the broad specialty groups in the data (in particular length of stay — of note, there are anomalous variations in the length of stay for elective patients across this timeframe, which could be a consequence of the changes to the data publication).

**Regional data/restructure**
In October 2009 there were substantial reforms across the NHS in Wales. Twenty-two LHBs (local health boards) and seven NHS Trusts were replaced with seven integrated LHBs, responsible for all health care services. Comparisons can therefore not be made between regional data published before and after 2009.

StatsWales publishes Welsh bed data, as well as several other key indicators. Relevant information is included in the metadata section.71
Endnotes

2. BMA (2016) State of the health system — Beds in the NHS: UK. London: BMA (See England graphs 3, 8; Northern Ireland graph 3; Scotland graph 8; Wales graph 6).
3. BMA (2016) State of the health system — Beds in the NHS: UK. London: BMA (See England graph 1; Northern Ireland graph 1; Scotland graph 1; Wales graph 1).
4. BMA (2016) State of the health system — Beds in the NHS: UK. London: BMA (See England graph 5; Northern Ireland graph 7; Scotland graph 5; Wales graphs 4, 5).
15. BMA (2016) Growing older in the UK London: BMA.
20. See England graph 10; Wales graph 8.
24. BMA (2016) State of the health system — Beds in the NHS: UK. London: BMA (See England graph 2; Northern Ireland graph 1; Scotland graph 2; Wales graph 1).
34. BMA (2009) Tackling healthcare associated infections through effective policy action. London: BMA.
That this conference is concerned about the continued reduction in the number of in-patient hospital beds and the enormous pressure to discharge patients too early which may lead to patient harm. We urge the BMA to ask the DoH and any other relevant authorities to halt any further reduction in bed numbers and put measures in place to avoid any premature discharges. (Staff and associate specialists conference 2016).


BMA (2016) *State of the health system – Beds in the NHS: UK*. London: BMA (See England graph 1; Northern Ireland graph 9; Scotland graph 4; Wales graph 9).


www.communitycare.co.uk/2015/07/15/mental-health-patients-sent-hundreds-miles-beds-area-placements-rise-23-per-cent

Royal College of Psychiatrists (2012) *A guide to good practice in the use of out-of-area placements*. London: Royal College of Psychiatrists’ Faculty of Rehabilitation and Social Psychiatry

That this meeting deplores the fact that our most vulnerable young people are being sent to inpatient units far from their local support networks, because of the continuing bed shortage, and demands i) that councils and providers work together with a sense of urgency for care closer to home and; ii) that funding for this purpose be an immediate priority. (ARM 2016).


www.communitycare.co.uk/2014/02/20/mentally-ill-children-sent-hundreds-miles-care-due-bed-shortage


That this meeting believes that trends in reducing hospital beds have gone too far and need to be urgently re-evaluated (ARM 2016)

That this conference is concerned about the continued reduction in the number of in-patient hospital beds and the enormous pressure to discharge patients too early which may lead to patient harm. We urge the BMA to ask the DoH and any other relevant authorities to halt any further reduction in bed numbers and put measures in place to avoid any premature discharges. (Staff and associate specialist conference 2016).

That this conference insists that the Government tackles the bed crisis with more hospital beds and proper funding for care in the community.(Policy group, consultants 2016)

That this meeting believes that further reduction in NHS bed numbers will be counterproductive in providing optimal healthcare and lead to staff and patient dissatisfaction and or adverse outcomes (ARM 2010).

That this conference insists that the Government tackles the bed crisis with more hospital beds and proper funding for care in the community (Consultants conference 2016).

That this conference is concerned about the continued reduction in the number of in-patient hospital beds and the enormous pressure to discharge patients too early which may lead to patient harm. (Staff and associate specialists 2016).
