The Balance of Care Group

PA Consulting Group

Acute Hospital Bed Review:

A review of acute hospital bed use in hospitals in the Republic of Ireland with an Emergency Department

(Summary, conclusions and recommendations).

Introduction and overview of approach

As an integral part of its Transformation Programme 2007-2010, the Health Service Executive (HSE) is committed to ensuring that patients are treated in the health care setting most appropriate to their needs while at the same time, maximising the use of its resources.

PA Consulting Group (PA) and Balance of Care Group (BOC) were commissioned to undertake a review of acute hospital bed utilisation in those hospitals with an Emergency Department (ED) throughout the country. The aim of the study was to assess:

- the extent to which patients occupying adult medical and surgical acute beds had been inappropriately admitted to these beds; and
- the extent to which patients occupying adult medical and surgical acute beds could have been treated in a more appropriate setting and identification of these more appropriate settings.

The review was undertaken using the Appropriateness Evaluation Protocol (AEP) tool, one of a number of tools designed to assess bed utilisation. The AEP is a validated tool for utilisation review which was originally developed in the US but has also been widely used in Europe. The AEP determines whether a particular patient:

- was appropriately admitted to an acute bed in the first place and
- was appropriately occupying an acute bed on the day of the survey (or should have been discharged to an alternative setting).

The types of criteria used include those related to admission (severity of illness, intensity of service) and services on the day of care (medical, nursing and patient condition). The assessment itself is based on an examination of patient records by appropriately trained and clinically qualified staff.

This review was conducted across the eight hospital networks (37 hospitals) between November 2006 and February 2007. A total of 3,035 patients were randomly sampled out of a patient population of 8,322 (36%). Acute medical and surgical inpatients were the focus of the review – obstetrics, paediatrics, psychiatry and day case patients were not considered.

For the acute hospital survey sites, the AEP tool formed the core of the survey around which other information was sought, including questions about potential alternative care settings, whether they were currently available or not. A key feature of the process was the feedback sessions with each of the eight hospital networks to discuss the results and the underlying issues that influenced them.

The complete report is available to download from www.hse.ie

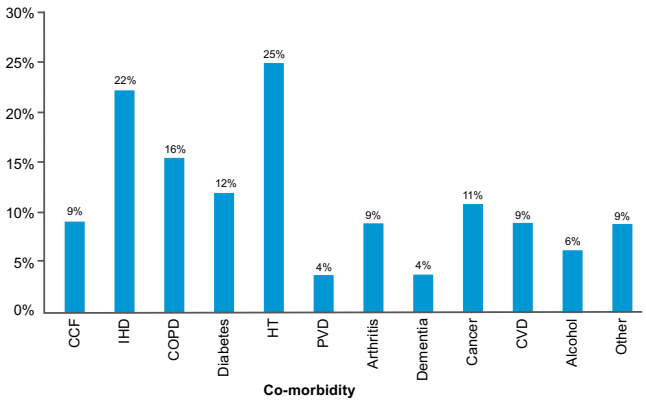
Key Findings:

(a) Patient Profile

The patients surveyed, who were randomly selected, were predominantly older and living at home with chronic illness and on multiple mediciations.

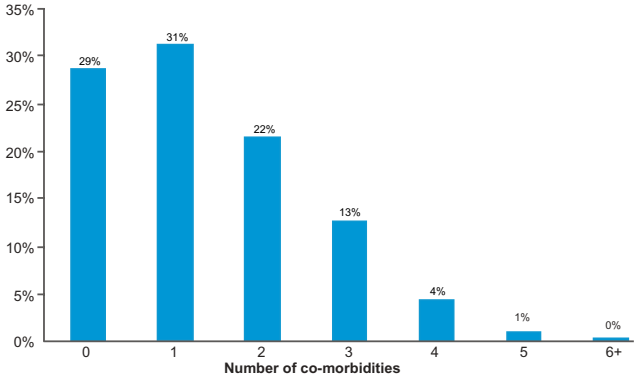
The patient data gathered during the survey provide a rich profile of admitted patients in Irish acute hospitals. Understanding the age profile, patient speciality, prevalence of co-morbidities, time of patient arrival and source of referral is essential to informing a view of the strategies that would improve bed utilisation.

Figure 1(a)
Patients presenting with co-morbidities: (Types and %)



CCF Congestive Cardiac Failure
IHD Ischaemic Heart Disease
COPD Chronic Obstructive Pulmonary Disease
HT Hypertension
PVD Peripheral Vascular Disease
CVD Cerebrovascular Disease

Figure 1(b)
Percentage of patients presenting with co-morbidities



It was found that 62% of patients were 65 years or over. In addition, 52% were on multiple medications. A high proportion (71%) had one or more co-morbidities on admission, hypertension, ischaemic heart disease and chronic obstructive pulmonary disease being the main three identified. Figure 1 shows the principal co-morbidities and their frequency.

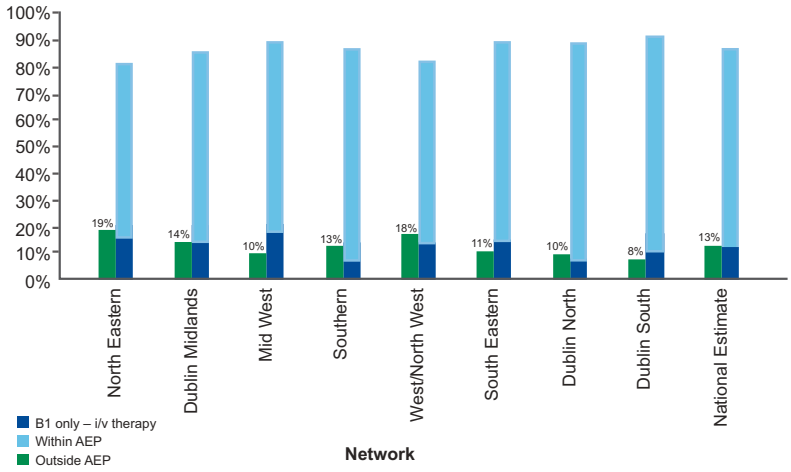
The majority of patients (76%) were admitted from their own home. The principal referral source was the GP (36%) with 30% of patients self referring to the acute hospital.

(b) AEP Review – Day of Admission

At a national level 13% of patients were outside the AEP criteria on admission and could potentially have been treated outside an acute setting. There was variation across the networks with the highest rates in the North East (19%) and the lowest rate in Dublin South (8%).

Intravenous therapy (medication or fluids) was the only AEP criterion met for 12% of all patients surveyed. Professional opinion now suggests that many of these patients could receive such therapy outside an acute location (eg i/v in the home).

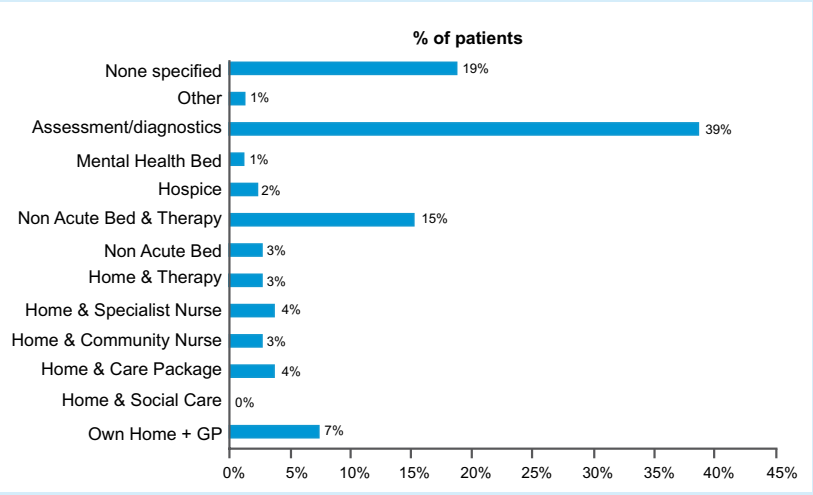
Figure 2: AEP Results – Day of Admission



The principal alternatives to acute admission identified for these 13% of patients were, in order of priority:

- Access to assessment/diagnostics without acute admission
- Access to a non-acute bed with therapy support eg physiotherapy
- Home-based patient care including GP support, therapy, specialist nursing, community nursing and home care packages.

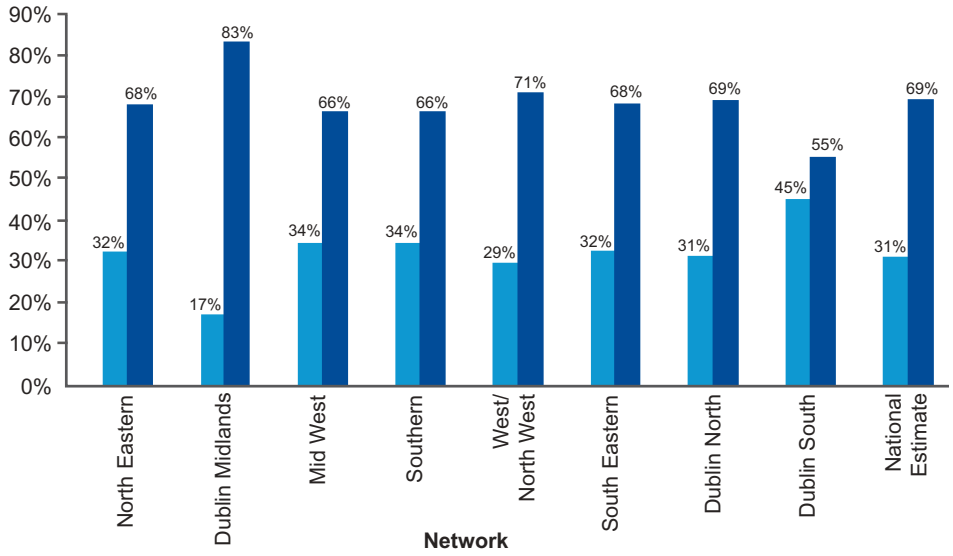
Figure 3:
Alternatives identified to admission for patients outside AEP on admission



Elective surgical patients

Of the elective surgery patients surveyed, 75% were admitted to hospital earlier than necessary and 31% of them were both (a) admitted to the acute hospital earlier than necessary (timeliness criteria) and (b) could have had their surgery on an ambulatory basis if an alternative were available (location criteria).

Figure 4: Categorisation of elective surgery patients

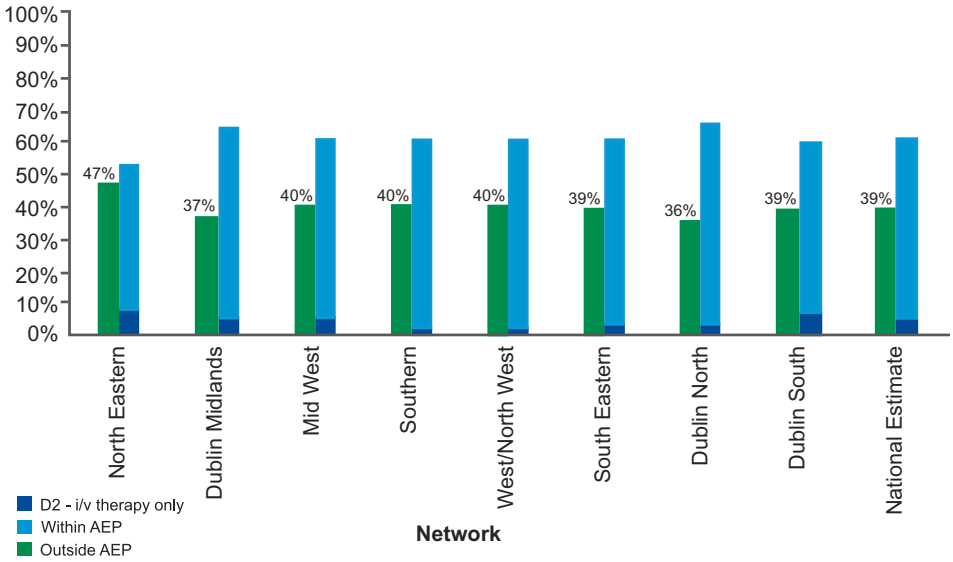


*Outside both timeliness and location criteria

(c) AEP Review – Day of Care

Nationally 39% of patients surveyed were outside the AEP criteria and could have been treated in an alternative setting on the day of care, if appropriate alternatives were available. This varied across networks, ranging from 47% in the North East to 36% in Dublin North.

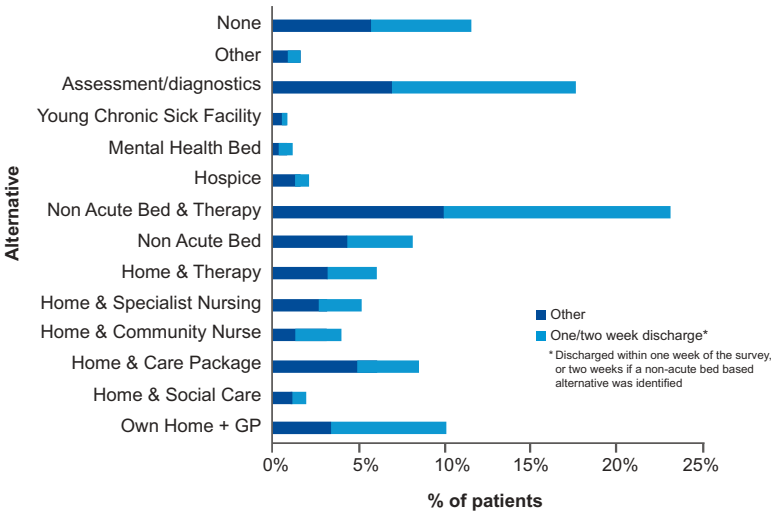
Figure 5: AEP Results – Day of Care



The key alternatives to acute care identified for these 39% of patients were, in order of priority:

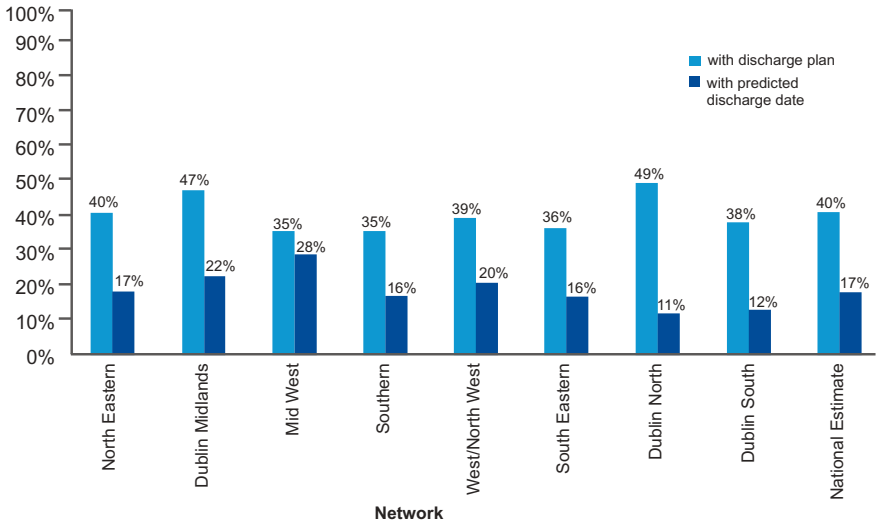
- Access to assessment / diagnostics
- Access to a non-acute bed with therapy support
- Home-based patient care including GP support, therapy, specialist nursing, community nursing and home care packages.

Figure 6: Alternatives identified for patients outside the AEP on day of care



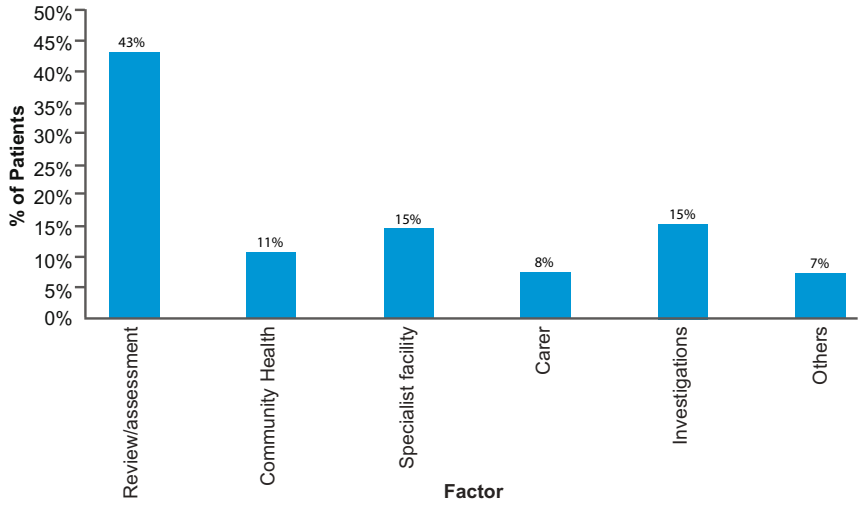
Discharge planning was in evidence from the notes for 40% of all patients surveyed. 17% of patients had a predicted discharge date.

Figure 7: Percentage of patients with evidence of discharge planning



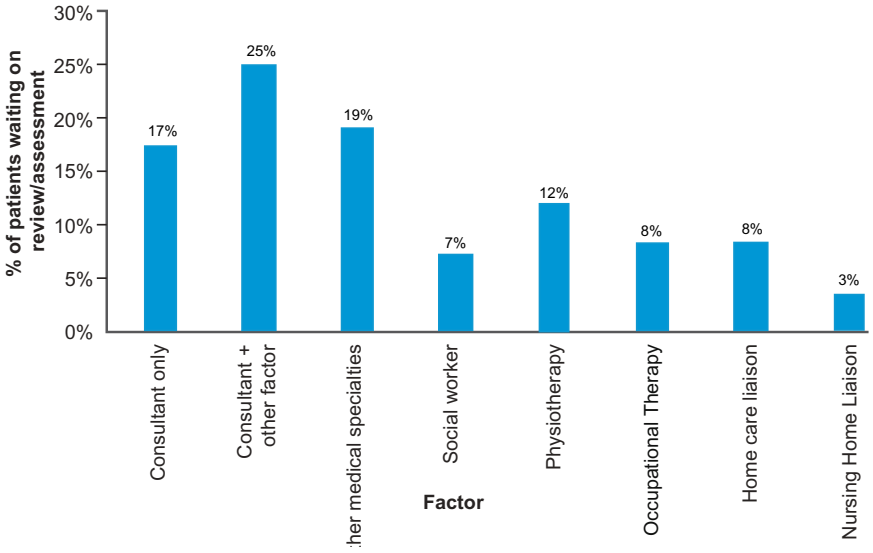
Analysis of the factors affecting discharge for patients outside the AEP criteria shows that 43% are linked to ongoing review and assessment by clinical staff.

Figure 8: Factors affecting discharge for patients outside the AEP



Of the 43% of patients awaiting review or assessment (see Figure 8 above), 61% of these were waiting to see one or a number of clinical staff.

Figure 9: Breakdown of the review / assessment of factors affecting discharge



Implications of survey findings for healthcare delivery in Ireland

The study shows that 13% of hospital admissions and 39% of hospital days were considered to be inappropriate based on the AEP criteria. Whilst these percentages are high and are not sustainable, they are consistent with the results of similar surveys undertaken in Ireland and in other countries facing similar challenges. These studies have been used to drive hospital performance improvement and re-configuration of servcies to increase the levels of appropriate placement of patients and to reduce inappropriate admissions.

It should be emphasised that it might not be obvious to the clinician at the time of admission whether a patient should be admitted. Each hospital requires a certain level of 'inappropriate' admissions. This is to reduce the risk of non-admission of appropriate patients. The size of this buffer is determined by the acceptable level of risk defined by the hospital and the balance between demand and capacity.

The data, whilst collected in an acute setting, indicate a need for transformational change in the way care is delivered to patients across the health system.

Detailed analysis of the data shows that the most important factor influencing appropriate placement of a patient is the system of care delivery rather than the patients themselves.

Although initial univariate statistical testing indicated associations between certain factors such as county of residence/ patient age and inappropriateness, more complex regression models showed that these associations were not strong enough to allow us to predict the types of patients that are more likely to be admitted to or placed in hospital inappropriately.

In other words it is not the complex nature of the patient condition or the fact that the patient is old or lives alone, but the way local health systems are configured to treat and care for that patient that results in inappropriate occupancy of an acute bed.

The findings suggest that change across three main areas would reduce the number of patients deemed 'inappropriate' based on AEP criteria :

- The prevention and management of chronic illness to reduce demand on the acute setting
- The nature, capacity and availability of responsive community based services, to avoid unnecessary admissions to acute care and to facilitate earlier discharge and a return to independence
- The internal organisational factors within hospitals that can influence length of stay, bed occupancy and bed utilisation.

Improvements in illness prevention and management

The resource impact of chronic disease is high – these patients use over 60% of hospital bed days. It is estimated that 5% of patients account for 40% of bed days used, and many of these patients have complex chronic disease.

The growing volume of literature links the prevalent co-morbidities, such as heart disease, chronic obstructive pulmonary disease and hypertension to a handful of personal health behaviours. This emphasises the role for prevention in current medical practice in changing the personal health behaviours of patients long before clinical disease develops.

The emergent picture of the patient population – over 65, on multiple medications, likely to have co-morbidity, underlines the importance of strategies to prevent illness and manage chronic disease, which in turn will promote independence and reduce demand for acute care.

Increasing access to alternatives to acute admission and acute care

The survey results highlight the need to focus on strengthening healthcare capacity outside of the acute setting. The diversity of the alternatives identified confirms the demand for the close to home patient care espoused by international best practice. A broad range of community and home-based care options are needed to ensure patients are placed in the most appropriate setting. By far the most significant alternative to admission identified was access to assessment and diagnostics. This was followed by 'non-acute bed and therapy' and 'own home and GP'. A range of options based at home – 'home and therapy'; 'home and specialist nurse'; 'home and community nurse' as well as 'home and care package' featured consistently across the networks.

A definite 'capacity gap' with regard to non-acute beds was identified, particularly in the Dublin North and South. Consideration of this issue in light of international best practice confirms the requirement to think about a varied spectrum of non-acute care, with a strong focus on the ultimate return to independence of most patients, rather than continuing to meet demand by increasing the volume of non-acute beds, which is not a sustainable option.

Improving utilisation of existing bed capacity

The review highlighted the need to improve the internal hospital organisational factors that influence length of stay, bed occupancy and bed utilisation.

In particular, improving the planning and management of discharge and patient review and assessment would maximise the utilisation of existing beds.

The review confirmed difficulties in accessing the non-acute beds and community support required for some patients to be discharged from hospital. This issue was particularly severe in Dublin North and Dublin South.

Delayed discharges:

Reducing delay and length of stay for the majority of patients, who can be discharged to their own homes without complex support arrangements, would free bed capacity and improve the flow of patients through acute beds. Discharge planning was in evidence for just 40% of all patients and 17% of all patients had an estimated date of discharge.

Analysis of the factors affecting discharge for patients outside of the AEP shows that 43% are linked to ongoing review and assessment by clinical staff. It was confirmed at the network consultation sessions that there is potential to improve internal processes to reduce such delays.

The need for change has been recognised by the Health Service Executive. Its Transformation Programme sets out an ambitious programme of change to be undertaken by the Irish Health Service. The vision is defined as "everybody will have easy access to high quality care and services that they have confidence in and staff are proud to provide." It is clear the course for change set by the Irish Transformation Programme is aligned with the international best practice healthcare delivery. Our consideration of systems working towards best practice in healthcare delivery reveals a striking consensus on the direction of change across reform agendas and service blueprints in countries such as Australia, the UK, New Zealand, Canada and the United States.

Conclusions and Recommendations

Conclusion 1:

This review concludes that the most influential factor determining appropriateness of bed utilisation is how the care system in place manages the patient, rather than the characteristics of the individual patient.

Recommendation:
The recommended changes to service configuration and care delivery in this report to increase appropriate placement of patients should be taken forward as part of the HSE Transformation Programme.

Conclusion 2:

The data confirm that additional and different capacity is needed if patients are to be more appropriately placed. In particular, the data support the shift towards a wide spectrum of home and community based care, and away from the acute, inpatient setting. Acute hospital admissions and acute length of stay could be reduced if access to the following alternatives was improved:

- Assessment / diagnostics
- Non-acute beds with therapy support
- Home-based patient care including GP support, therapy, specialist nursing, community nursing and home care packages

Recommendation:

1: Increase provision of a broad spectrum of community and home-based care to avoid admissions, facilitate timely discharge and ensure convenient, patient-centred care. These care options include:
- Improved access to specialist nursing eg to support management of chronic diseases outside of the acute hospital
- Resources to support provision of i/v therapy in the home
- Improved access to home care packages and community nursing to support self-care, anticipatory care and co-ordinate access to services.

2: Increase access to diagnostics and assessment without admission to the acute hospital setting. Based on the survey data, this includes:
- Extended hours access to diagnostics and assessment
- Creation of community based diagnostic capacity
- Roll-out of MAUs to facilitate assessment without admissions where clinically appropriate and protocol based access to diagnostics
- Improved GP access to hospital and community diagnostics to reduce delays and avoid unnecessary admissions.

3: Increase the range of non-acute bed-based alternatives available.
- Confirm the scale of the capacity gap for long-term care and other non-acute beds at Hospital Network level
- Identify opportunities to improve access to non-acute beds through better utilisation
- Increase non-acute bed capacity in the context of the role of the non-acute bed as one aspect of the spectrum of non-acute care.

Conclusion 3:

The survey confirms there is significant opportunity to use the current complement of acute beds more efficiently through changes in hospital practice. The review highlighted the need to improve the internal hospital organisational factors that influence length of stay, bed occupancy and bed utilisation. This includes the configuration of ward rounds, introduction of discharge planning and management and multi-disciplinary working to reduce delay in assessment and discharge.

Recommendation:

1: Implement protocol-based discharge planning and use of estimated dates of discharge. Based on the findings of this review, this should include:

- Implementing protocol-led discharge
- Early involvement of PCCC in the planning of patient discharge and transition to non-acute care.
- Identifying lead-in times required, eg test, and test result availability, medicines, transport, social services and planning around the lead-in times
- Multi-disciplinary, team-based working to reduce delay during care and at discharge
- Establishing regular decision making ward rounds at least once a day
- Matching time of discharge with time beds are required on an hourly basis.

2: Review internal hospital processes to reduce patient delay.

- Revising processes for patient assessment and review to ensure timely access to senior decision-making
- Support the provision of timely access to assessment and diagnostics.

Conclusion 4:

The review signals a need for the re-orientation of services to ensure more appropriate placement of patients, which demands far greater integration of care delivery across health providers at a local level. Optimising any one aspect of the patient pathway in isolation will not deliver optimum care across the whole system as all of the above factors interact with each other in a systematic way. These interactions are often complex, but they can be predicted and managed.

Recommendation:
Adopt an approach of joint-working across providers within and outside of the acute setting to implement the recommendations of this review at local level.

Conclusion 5:

There is a need to increase the focus on illness prevention and management
Greater identification and management of high-risk populations and those with chronic disease is necessary to minimise admissions and optimise use of additional home and community based support.

Recommendation:
Accelerate the implementation of the National Chronic Disease Management Strategy.

Conclusion 6:

The HSE now has the trained staff, tools and supporting materials necessary to undertaken acute bed utilisation review. Such review should become an integral part of HSE business as usual activity.

Recommendation:
Undertake the survey at hospital level to inform detailed local planning and performance improvement and to assess the impact of changes made as a result of this study.

This table presents the detailed survey results for each network and each hospital. The relative proportion outside the AEP on admission and day of care for each hospital should not be interpreted as a performance measure. The level will depend on types of service provided by the hospital, the complementary services in the community and neighbouring hospitals as well as internal organisation of the hospital. The hospital and network results are explored in detail in the full report.

Table 1: Hospital AEP Results for Admission and Day of Care

Network	Name	Outside AEP On Admission %	Outside AEP On Day of Care %
1 – North Eastern	Average	19	47
	Cavan	19	49
	Drogheda	22	38
	Louth	22	54
	Monaghan	22	58
	Navan	11	47
2 – Dublin Midlands	Average	14	37
	Tullamore	15	44
	Mullingar	17	45
	Portlaoise	30	54
	Naas	19	39
	AMNCH	10	28
3 – Mid West	Average	10	40
	Dooradoyle	6	41
	St Johns	26	46
	Ennis	15	35
	Nenagh	8	38
4 – Southern	Average	13	40
	Mercy	10	22
	SIVU	21	48
	Mallow	16	39
	Cork	11	40
	Kerry	7	44
	Bantry	34	54
5 – West / North West	Average	18	40
	Letterkenny	8	24
	Sligo	13	35
	Roscommon	28	44
	Portiuncula	13	43
	UCHG	19	42
	Mayo	20	42
	Merlin	29	55
6 – South Eastern	Average	11	39
	Waterford	9	32
	St. Luke's	8	44
	Wexford	19	50
7 – Dublin North	Average	10	36
	MMUH	13	37
	Connolly	13	51
	Beaumont	5	30
8 – Dublin South	Average	8	39
	St. Columcille's	8	59
	St. Vincent's	6	41
	St. Michael's	20	42
	St. James's	8	33

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