

health

The role of Medical Assessment and Planning Units in Victorian health services

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Purpose

The purpose of this document is to:

- describe the development of Medical Assessment and Planning Units (MAPU) in Victoria
- explore the roles of MAPUs and identify characteristics integral to their effectiveness.

Background

Since 2004, emergency medical separations have been the largest and fastest-growing group of admitted patients in Victoria, with an annual growth rate of 4.12 per cent compared to 3.48 per cent annual growth in total emergency department (ED) presentations. Analysis shows that emergency medical admissions are a significant driver of demand for inpatient beds in Victoria's acute hospitals. Some of these beds are occupied by patients who have a very long length of stay.

Emergency medical patients can be streamed into two groups: those expected to have a short inpatient stay and those expected to have a long inpatient stay. The former group are those for whom alternatives to emergency department care are likely to deliver the greatest benefits. The volume of this cohort (70 per cent of emergency medical inpatients) also means that diversions from ED can have a positive impact on reducing emergency demand. The latter group tend to have complex resource-intensive health problems and can benefit from comprehensive care planning, tailored or individualised care that is integrated across care settings.

Emergency medical inpatients are particularly vulnerable to a number of factors known to impact on quality and outcomes of care, such as delays in processes and flow through the emergency department and inpatient wards, care not consistent with best practice, discharge delays and preventable harm (Runciman et al. 2003). Evidence shows that access to earliest definitive care can reduce length of stay and subsequently reduce deterioration, particularly in older patients. For this cohort there is a strong case to analyse the role of general medicine and to explore options that will appropriately substitute care in the ED with the necessary period of assessment, investigation or observation to aid decisions about definitive care and access the ideal care destination.

Alternative models of care targeting the emergency medical patient have the potential to:

- provide access to earliest definitive care and appropriate care pathways for this cohort
- reduce length of stay for acute medical inpatients in emergency departments and in acute inpatient wards.

Reducing avoidable admissions and improving the effectiveness of transfer of care practices are key components of provision of care for the emergency medicine patient as well as contributing to reduction in demand more generally. Each of these is the subject of separate but related pieces of work.

Medical Assessment and Planning Units

The emergence of observation medicine has provided a platform for a range of models and structures that are designed to better manage growth in ED presentations. Medical Assessment and Planning Units (MAPUs) are one such mechanism adopted by a number of Victorian health services seeking to access earliest definitive care for the emergency medical inpatient. Selection of patients for the MAPU will vary according to the purpose for which the health service has established the unit. Whatever the intent, an agreed process for streaming patients with medical conditions away from the emergency department at the earliest appropriate time to expedite comprehensive diagnosis and care is integral to the effectiveness of the MAPU.

Increasingly MAPU function is broadening to provide care for the shorter-stay acute medical inpatient in addition to undertaking assessment and planning. One of the benefits of care in MAPUs, particularly those located close to the emergency department, is timely access to diagnostics and allied health services.

In the *Report of the Acute Medicine Taskforce* the Royal College of Physicians contends that in large acute hospitals the 'front door' should comprise an emergency floor with collocation of the ED, an acute medicine unit (AMU), critical care and key support services (Royal College of Physicians 2007, p. ix). In such a setting, patients have access to diagnostic and other usual ED services while receiving care from clinicians most relevant to their ongoing care needs. This report goes on to state that the AMU will provide the optimal environment for acute medical care, consolidating the appropriate clinical and support services in a 'fit for purpose' single setting.

The 2006 position statement of the Internal Medicine Society of Australia and New Zealand (IMSANZ) (Henley et al. 2006) on MAPUs identifies benefits for patients, staff and health services when the underlying objectives of expediting access to definitive care for medical patients are achieved. For patients, the principal benefits included more appropriate and timely care and reduced length of stay. For staff these benefits included greater interdisciplinary interaction and improved access to diagnostics. Some of the gains for health services were reduced bed block and more streamlined admission processes. In the IMSANZ document, evidence of these benefits is principally drawn from one New Zealand and two Australian interstate hospitals.

More generally, Australian and international evidence is inconclusive about the impact of MAPUs, despite broad-ranging clinical support for the concept. It could be argued that the practical need for MAPUs to play a role in managing emergency department flows and demand while also providing early appropriate care and assessment for the medical patient requires a change in focus on a needs basis. This in turn makes analysis of the impact for either purpose quite difficult and health services need to account for these different functions when evaluating the effectiveness of their MAPU.

The implementation of MAPU-like services seems to have been reasonably well accepted in the UK but poses specific challenges for Victorian ED clinicians, particularly around cultural change. This could be attributed to the well-developed and comprehensive role undertaken by emergency departments in Victorian health services when compared with those in the UK.

Medical Assessment and Planning Units - the Victorian Journey

In 2000 the Department of Health (then the Department of Human Services) funded the Hospital Demand Management Strategy to address demand and access issues in hospitals. This included the introduction of MAPUs. A unit at Austin Hospital was established in early 2000 and over the following 10 years another 15 units have been established in metropolitan and regional hospitals.

Expectations of the role of MAPUs and what they would deliver for the health system has shifted over the years, as has the relative importance of the different drivers of this service model.

In 2004 an evaluation of short-stay models of care, including MAPUs, was commissioned (Clinical Epidemiology and Health Service Evaluation Unit 2004). This evaluation identified that the purpose of a MAPU service was to ease the pressures on emergency departments by streamlining the transfer of medical patients for review by a general physician. Initially the patients targeted for MAPUs were those expected to be ultimately admitted to a ward bed, with the minority being discharged home.

In 2007, the department's *Better faster emergency care* report stated that 'Medical assessment planning units (MAPUs) ... are aimed at more complex patients who are likely to require multi-day inpatient stay. ... By providing intensive multidisciplinary assessment including in the first 48 hours of the patient episode, the MAPU aims to reduce total length of stay. ... Evidence suggests that front loading of resources for accurate assessment and appropriate management can significantly reduce the patient's length of stay' (Department of Human Services 2007, p. 62).

In 2011, the Acute Medical Inpatient Advisory Committee described MAPUs as providing 'earliest definitive care in a physician-led unit that delivers short term (up to 48 hours) assessment and care for emergency medical admissions. The MAPU provides an alternative or substitution for ED or multi-day inpatient care for high volume non-urgent acute medical patients' (Department of Health 2011, p. 16).

These subtle shifts in purpose, together with the sometimes competing priorities of selectively streaming patients and addressing ED demand, demonstrate the evolving structure and function of MAPUs. A further factor accounting for the changing nature of MAPUs is their need to shape the service to complement local circumstances such as suitability of physical infrastructure for co-location or readiness of clinicians to provide care differently.

Four Victorian Health Services – Alfred Health, Barwon Health, Eastern Health and Southern Health – have recently completed redesign projects specifically focussing on models of care and processes for managing emergency medical patients who come through their emergency departments. These projects explored significant changes in practice and emergency department organisation to divert general medical patients not requiring emergency care to more appropriate care locations. The four projects were completed in June 2011 and data on the outcomes is expected to be available by October 2011.

Structure and function of Victorian MAPUs in 2010

In 2010, 14 hospitals¹ were invited to undertake a self-evaluation of their MAPU service. Department of Health representatives visited participating health services in the course of this process. From this self-evaluation and a parallel analysis of data, there is emerging evidence about the features of MAPUs that contribute to expected benefits at individual health services.

Victorian health services currently operating a MAPU model of care identified the key functions as:

- risk screening and decision making
- early definitive care
- assessment and planning for ongoing care.

These functions vary between hospitals and are not mutually exclusive. They are described under the following broad headings:

Decision making

Decision making facilitates timely placement of patients into the best care location, the first time, to minimise risks of subsequent moves or accommodation in an outlying ward. It is also useful for effective grouping of patients with similar health needs into different care streams (for example identify short and long stay patients) for definitive care.

Delivering definitive care for selected medical inpatients

Usually paired with decision making, this function is designed to support rapid patient flow and high patient turnover for a specified patient group. Most often, it delivers the whole episode of acute care for high volume patient groups with short-term acute care needs. Patients receive all their care in the MAPU and are discharged from the acute service.

Assessment and planning

This function was the most prevalent (in 8 MAPUs). It anticipates that many patients transition to another acute inpatient care location or sub-acute setting for ongoing care. The assessment and planning undertaken aims to facilitate ongoing care delivered in another care location and to reduce overall length of stay.

There is significant variation in how MAPU services are delivered across the 14 hospitals and there is no prevailing typology. The primary purposes of MAPUs vary across health services but fall into three principal categories:

- providing access to early screening and assessment for patients who are expected to have an extended inpatient stay

¹ The MAPU at Goulburn Valley Health was changed from an EMU and a new MAPU at Sunshine Hospital was opened in late 2010. Neither were visited as part of this process, hence are excluded from the report.

- providing early treatment for patients expected to need less than 72-hours stay and who are able to be discharged to home or other residential setting
- providing a mechanism to move patients out of ED to alternative care settings with a view to improving ED flows and addressing ED targets.

In some settings the MAPUs move between these three purposes which can be counter-productive and jeopardise the capacity of the MAPU to achieve its primary goals.

Continuity of patient care is important for promoting good patient outcomes such as reducing length of stay. Some units report that this can be achieved by implementing:

- documented care protocols or patient pathways
- an effective communication system for discharge or transfer of patients.

Ensuring the patient receives the right care, in the right place, at the right time avoids multiple handovers, which is linked with a longer length of stay, increased costs and safety risk. Less successful implementations tended to result in the MAPU increasing the complexity of patient flows by introducing process steps rather than streamlining them.

Attachment 1 provides a full list of MAPUs and their specific characteristics. These units range in size from 8 to 28 beds. Unit size is most often determined by availability of space rather than an analysis of likely demand. MAPU expansion potential is often limited by physical infrastructure constraints. All MAPUs operate 24 hours and seven days per week with limited services provided by allied health staff on weekends. All sites report challenges associated with reduced staff cover on weekends and public holidays.

MAPU patients often require access to a range of diagnostic tests. MAPUs that are co-located with the emergency department or which have priority access agreements with diagnostic services are better able to achieve the earliest definitive care objective. Appropriate patients are sometimes not discharged to the MAPU because they need diagnostics. While co-location with EDs is desirable, the essential synergy relates to the proximity and processes that expedite access to diagnostic services and senior clinicians.

Most health services have engaged in iterative processes to refine and dynamically change the functional model for their MAPU. The services offered in each MAPU are generally guided by:

- staffing arrangements for each discipline: medicine, nursing and allied health
- facilities, including availability of single rooms, capacity and location
- service configuration
- targeting of patients for MAPU care.

Continuous process improvement and redesign of the clinical practice environment aim to ensure that the MAPU model reduces process waste (duplication of tasks, delays waiting, repeat work to correct errors, reducing and simplifying clinical hand-overs, and to reduce the amount of transport). In a number of health services there is a move away from the label of MAPU because many of these units offer treatment with discharge to home rather than just undertaking an assessment and planning function.

Staffing of the MAPU

Health services with MAPUs have adopted either rostered medical consultants in their EDs to identify and transfer emergency medical patients to wards or have established processes for relevant patients to be admitted directly to MAPUs for assessment and earliest definitive care. To a large extent, whether a health service substitutes care in an ED with care in a MAPU is determined by the proximity of the MAPU to the ED, clinical practices and the inter-relationship of ED and general medicine staff.

The practice of front loading resources to ensure that senior clinicians, especially medical specialists, attend to patients early in the admission is common and generally considered to be critical to the effective functioning of the MAPU. The rationale for this practice is twofold:

- reduce delays in initiation of medical interventions, to facilitate effective flow through a fast-admission stream
- reduce delays in diagnosis of patients presenting with undifferentiated problems, to facilitate efficient transfer or discharge to appropriate care settings.

There is variation in the way allied health professionals operate in MAPUs. Physiotherapy, occupational therapy and social work disciplines are in high demand in these units. As with other components of MAPUs, use of allied health staff is influenced by the organisational structure, location of the MAPU, the seniority of staff, the size of the workforce, volume of patient throughput and service demand. In most settings, there are limited or no allied health services available on weekends.

Some units have a strong multidisciplinary focus with allied health staff well-integrated into the patient care team. In these units, common assessments are often shared across disciplines and staff regularly attend multi-disciplinary wards rounds. This is most common where the main functions of the unit focus on assessment, planning and discharge. Many MAPUs now have visual patient journey communication tools to highlight allied health care needs and monitor the progress of management.

In some settings, a consultation service for allied health is used in response to a risk screen, referral or request in which allied health professionals worked independently of other professionals. This approach is less conducive to streamlined coordination of care.

Using data-driven analysis and monitoring to inform staff of operational effectiveness is essential for successful implementation of the MAPU model.

Patient selection

Defining the emergency medical group of patients who would benefit most from the model of MAPU care and developing admission or exclusion criteria to support good flow through their unit are essential components for an effective MAPU. Having designated medical staff who can identify these patients and facilitate their movement to the appropriate point of care plays a significant role in the MAPU achieving its function. Patients with well-differentiated care needs are usually better managed by early access to the service most appropriate to their care needs. However, patients with conditions that are not well differentiated can benefit from MAPU care that facilitates transfer to the best destination for their ongoing care.

There is a widely held belief that MAPU services assist in achieving good patient flow for complex general medicine patients. This view was particularly evident in units that targeted patients presenting with commonly occurring conditions and those who required a short episode of acute care that could be completed in the MAPU before transfer home or to another care setting. However, currently, in Victoria most MAPUs see all (or many) of the general medicine patients admitted to the hospital. The most common diagnosis-related groups seen in the MAPU vary between health services, and most cater for patients with a wide range of medical diagnoses. Under this model, many patients are subsequently transferred for ongoing care in another inpatient ward or sub-acute setting. There is a risk that this introduces additional process steps rather than streamlining them, resulting in longer lengths of stay.

Where all general medicine patients are admitted to MAPU, this usually occurs on a first-come basis and is prone to the effects of bed block, although it may relieve immediate pressures in the emergency department. Admitting patients with short and predictable length of stay reduces the risk of bed blocking the unit and supports implementation of standardised care processes to assist with controlling the acute episode of care. MAPUs function most effectively where health services are clear and resolute about the focus of MAPU care.

Some Victorian MAPUs do use criteria to select patients most suitable for the specific model of care provided in their MAPU. This approach creates a relatively homogeneous patient population, supports standardised care processes and balances capacity and demand by streamlining care. Patient selection most often occurs during the assessment time in the emergency department using criteria such as:

- conditions (for example non-urgent, complex, specific diagnosis-related groups)
- expected length of acute hospital stay
- high probability for direct discharge
- likely care destination (for example inpatient ward, unclear, sub-acute setting).

The ability of MAPUs to facilitate access to earliest definitive care, whether in the MAPU or after admission to a ward, is significantly enhanced where there is priority of access for their patients to the inpatient services identified in the assessment and care planning process.

Measuring MAPU performance

The diversity of MAPUs and the complex nature of their clients means that any attempt to provide analysis of overall impact of MAPUs across the system risks being too one-dimensional. However, it is important that there is analysis of the extent to which system and individual health service investments in MAPUs are realising benefits for patients and efficiencies in health services.

Length of stay and readmissions

Using length of stay as a measure of the impact of MAPU is problematic due to the variation in purpose for which MAPUs have been established or are used within each health service. While early literature suggests that MAPUs can reduce lengths of stay, this is most likely to occur in services that rigidly stream patients into the MAPU based on their likelihood of being short stay and discharged to home. Reductions in length of stay are less discernible where MAPUs are used for early planning and assessment before transfer to a ward. This could be attributed to the additional process steps associated with a move to a new accommodation type or to the fact that some of these patients are sicker and require more complex care. Clearly, patient selection confounds length of stay, so more rigorous prospective studies or case controls are required before the impact of these models on length of stay can be determined.

Earliest definitive care is in the best interest of patient outcomes but may not automatically translate into shorter length of stay. However, given the risk of functional decline after 72 hours for older patients, early definitive care which includes priority access to diagnostics and allied health services needs to be a demonstrated outcome of a MAPU or similar service.

Tables at Attachment 2 show average length of stay for MAPU only, MAPU plus ward and non-MAPU patients across common diagnosis-related groups from 2009–10 to 2010–11. The tables also include data on readmission rates and subsequent lengths of stay in 2009–10. At face value these tables pose questions about:

- the relationship between MAPU purpose in health services and length of stay
- the appropriateness of MAPU care for specific patient cohorts, especially given readmission rates.

The significance of the higher readmission rate at 28 days is not yet known. It is possible that the readmission may be for an unrelated condition or for a further complication of a chronic condition.

Health services are encouraged to examine their individual length of stay and readmission data in the context of their local MAPU model, its intended purpose and the outcomes for patients.

Discharge and transfer of care

Contrary to expectations outlined in *Better faster emergency care* (Department of Health 2007) that few MAPU patients would be discharged directly to home, statewide VAED data shows that proportion of patients departing home from a MAPU has been relatively stable at 70–72 per cent since 2004–05 while the volume of patients has varied. Other common MAPU departure destinations include transfer to acute or sub acute (11 per cent), residential aged care (5 per cent), and death (4 per cent). A small number (3 per cent) depart to other destinations.

The experiences of MAPUs in relation to discharge practices are consistent with discussions in health services more generally on this topic. Identified improvement strategies relate to the need to implement criteria-led discharge, increase staffing to better enable weekend discharge and explore the ways in which electronic communication systems can facilitate the discharge processes.

Developing performance measures

MAPU-specific measures that reflect performance, outcomes and patient experience are important as a mechanism to guide ongoing improvement and system-wide change. The collection and review of specific measures is also important for determining whether this model of care is achieving improved patient outcomes, which is currently difficult to measure.

In the majority of MAPUs, hospital-wide clinical governance and quality assurance programs collect and report indicators. These indicators are useful to evaluate the impact of changes and monitor local operation, service quality and timeliness of care and commonly include:

- percentage of general medicine patients admitted from the emergency department to the MAPU
- percentage of patients discharged home from the MAPU
- length of stay for general medicine patients in emergency department
- eight-hour access for patients admitted from the emergency department
- length of stay in MAPU and in acute medical wards
- unplanned readmission rates at seven and 28 days.

Data relating to access to allied health and to tests and investigations may also provide a useful picture of the effectiveness of MAPUs. Analysis and subsequent conclusions about the effectiveness of MAPUs in each setting needs to be cognisant of the dual purpose which MAPUs commonly fulfil within the health service.

Further useful comparisons may be found in those services that have adopted a model of care for the emergency medicine patient without necessarily having a physical structure of the MAPU. These services have implemented deliberate processes to draw these patients away from the emergency department in order to focus on accessing medical care at the earliest possible point in their care journey.

Conclusions

Each of the Victorian MAPUs report ongoing evolution and recent redevelopment of their MAPU models within the preceding two years. This changing landscape means that there are some limitations to longitudinal data analysis for individual health services. This evolution and adaptation of practices appropriate to the culture or capacity of each health service has provided some local solutions, although system-wide the transferability and lessons are less clear at this stage.

The following characteristics are common in MAPUs that demonstrate improvements in providing earliest definitive care for emergency medicine patients:

- the MAPU is staffed by a dedicated multi-disciplinary team
- there is access to early senior medical decision making about patient care pathways
- there is 24-hour access to general medicine physicians and consultants
- the service functions fully seven days per week
- there is clarity about the patients targeted for MAPU care
- there is recognition that the greatest gains for patient flow are where MAPU patients are clearly identified as needing less than 72-hours acute care
- the MAPU is co-located with emergency departments
- a philosophy of substituting general medicine care for emergency department care is adopted.

The relative importance of these characteristics changes according to the primary purpose of the MAPU in different locations.

These conclusions are consistent with the IMSANZ position statement (Henley et al. 2006) which provides more detailed guidance for services about organisational and operational characteristics most conducive to effectively functioning MAPUs. Dissemination of specific guidance to health services about the optimal structure of MAPUs for each of the different purposes would be of benefit to the sector.

Even without co-location or a specific MAPU structure in place, health services that implement practices delivering earliest definitive care for the defined group of emergency medical inpatients and bypass ED care have the capacity to contribute to better outcomes for patients and the health service. To date it seems that MAPUs provide a focal point for refining and improving the care given to emergency medical inpatients as well as contributing to the capacity of health services to meet emergency department targets. The challenge is the extent to which these two outcomes are mutually exclusive or can co-exist.

The constantly changing nature of MAPUs over the years has not provided an adequate basis for definitive statements about their impact more generally. The analysis does point, however, to key features which are likely to be successful in removing emergency medical patients from the ED and providing appropriate assessment and care through other mechanisms or structures. Information gathered indicates the potential for MAPUs to contribute to either the management of increasing pressures from emergency medical admissions or providing prompt and appropriate care to these patients.

Health services need to carefully analyse the impact on MAPUs of strategies implemented to achieve the four-hour targets; in turn, there is a need for health services to clarify the primary purpose of their MAPU and commit to the organisational and operating arrangements most conducive to that purpose as much as possible.

There is a sound case for more focused and rigorous review of the outcomes of MAPU care and functions.

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Attachment 1: MAPU features in Victoria, 2010

Please note that since this analysis was done, Northern Health has revised its model of care for medical inpatients and no longer has a MAPU

Hospital	Alfred	Austin	Ballarat	Bendigo	Box Hill	Dandenong	Frankston	Geelong	Maroondah	Monash	Northern	RMH	St Vincent's	Western
Year established	2010	2000	2002	2008	2007	2010	2010	2008	2009	2009	2007	2001	2006	2005
Planning														
Objectives/manual and quality plan	✓		✓	✓				✓		✓	✓			✓
Clinical protocols					✓					✓	✓			✓
Leadership														
Director General Medicine	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Medical director supervisors MAPU	✓	✓			✓	✓		✓		✓				
Clinical leadership by general medicine	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Service parameters														
Bed modelling	✓					✓		✓		✓		✓		✓
General medicine registrar rostered to ED	✓	✓						✓		✓		✓	✓	
General medicine provide MAPU care		✓	✓	✓			✓		✓		✓	✓	✓	✓

Hospital	Alfred	Austin	Ballarat	Bendigo	Box Hill 2007	Dandenong	Frankston	Geelong	Maroondah	Monash	Northern	RMH	St Vincent's 2006	Western
Year established	2010	2000	2002	2008	2007	2010	2010	2008	2009	2009	2007	2001	2006	2005
Dedicated MAPU staff	✓				✓	✓				✓				
Combination medical model								✓					✓	
Load levelling		✓							✓					✓
Facilities and equipment														
Dedicated ward near ED	✓						✓			✓		✓		
Dedicated ward near a general medicine ward	✓				✓	✓		✓	✓		✓			✓
Geographical area within general medicine ward			✓	✓									✓	
Nominated beds within general medicine		✓												
Model of care functions:														
Decision making	✓					✓				✓				
Definitive care for selected patients	✓					✓		✓		✓				
Assessment and planning	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Hospital	Alfred	Austin	Ballarat	Bendigo	Box Hill	Dandenong	Frankston	Geelong	Maroondah	Monash	Northern	RMH	St Vincent's	Western
Year established	2010	2000	2002	2008	2007	2010	2010	2008	2009	2009	2007	2001	2006	2005
Patient selection:														
All general medicine eligible for admission		✓	✓	✓	✓		✓		✓		✓	✓	✓	✓
Criteria to select patients	✓					✓		✓		✓				
Multidisciplinary:														
Dedicated allied health	✓	✓		✓		✓		✓		✓	✓			
Shared allied health	✓	✓	✓		✓					✓	✓		✓	✓
Discharge														
Physician led weekend discharge rounds	✓	✓				✓				✓				
Electronic communication system								✓						
Quality Improvement														
Measure/monitor patient experience			✓							✓				
Monitor specific KPIs or conduct clinical audits	✓	✓	✓	✓	✓			✓	✓	✓				✓

Goulburn Valley and Sunshine Hospital MAPUs not included. GVH significantly changed its model of care and Sunshine Hospital MAPU was only established in 2010.

Attachment 2: Length of stay and readmission data

**Length of stay and number of separations for stay including MAPU accommodation grouped by DRG
2009-10 data for acute medical inpatients in hospitals offering MAPU accommodation**

	Average length of stay (days)			Number of separations		
	MAPU only	MAPU plus other	No MAPU stay	MAPU only	MAPU plus other	No MAPU stay
Chest pain	1.2	5.0	1.1	353	25	13,001
Other digestive system diagnoses	2.8	9.3	2.0	101	80	8,143
Abdominal pain or mesenteric adenitis	1.6	9.1	1.5	53	12	7,985
Oesophagitis and gastroenteritis	2.3	7.3	1.8	166	55	6,737
Respiratory infections/inflammations	3.8	8.1	4.4	449	484	5,767
Injuries	2.6	8.7	1.5	94	58	6,370
Kidney and urinary tract infections	3.9	8.1	2.9	225	200	4,802
Arrhythmia, cardiac arrest and conduction disorders	2.7	7.9	2.4	227	107	4,881
Poisoning/toxic effects of drugs and other substances	1.7	6.7	1.6	158	47	4,414
Chronic obstructive airways disease	3.5	7.6	4.6	463	335	3,586
Non-surgical spinal disorders	2.8	9.6	2.6	138	86	4,129
Bronchitis and asthma	2.1	6.2	1.7	99	44	4,189
Cellulitis	3.3	9.6	3.5	106	114	4,089
Heart failure and shock	4.1	9.1	5.0	397	361	3,338
Syncope and collapse	2.7	6.8	1.9	145	66	3,790

**Length of stay and number of separations for stay including MAPU accommodation grouped by DRG
2010-11 data for acute medical inpatients in hospitals offering MAPU accommodation**

	Average length of stay (days)			Number of separations		
	MAPU only	MAPU plus other	No MAPU stay	MAPU only	MAPU plus other	No MAPU stay
Chest pain	1.2	5.0	1.1	556	33	14,383
Other digestive system diagnoses	2.0	8.7	2.0	190	100	8,595
Abdominal pain or mesenteric adenitis	1.6	6.8	1.4	117	30	8,726
Oesophagitis and gastroenteritis	2.8	8.0	1.8	237	85	7,472
Injuries	2.1	9.9	1.4	162	75	7,309
Respiratory infections/inflammations	3.7	8.3	4.4	560	622	6,216
Kidney and urinary tract infections	3.4	7.8	2.9	308	280	5,286
Arrhythmia, cardiac arrest and conduction disorders	2.2	8.3	2.2	250	131	5,063
Non-surgical spinal disorders	2.9	9.6	2.3	142	117	4,756
Bronchitis and asthma	2.3	5.2	1.7	154	53	4,608
Poisoning/toxic effects of drugs and other substances	1.6	6.8	1.4	162	27	4,607
Chronic obstructive airways disease	2.9	7.6	4.6	572	471	3,661
Syncope and collapse	2.2	7.2	1.8	261	107	4,316
Headache	1.4	5.7	1.3	67	17	4,509
Cellulitis	3.2	8.4	3.5	143	176	4,216

Stay length of acute medical inpatients with and without an unplanned readmission in 2009-10
Data for hospitals reporting MAPU accommodation

	MAPU only stay on primary admission				MAPU plus ward stay on primary admission				No MAPU stay on primary admission			
	No readmission	Readmit in 7 days	Readmit 8-14 days	Readmit 15-28 days	No readmission	Readmit in 7 days	Readmit 8-14 days	Readmit 15-28 days	No readmission	Readmit in 7 days	Readmit 8-14 days	Readmit 15-28 days
Number of separations	5,504	185	215	342	4,210	46	162	309	172,449	6,819	4,384	7,297
Mean stay length	3.1	2.0	3.4	3.4	9.3	3.6	6.0	8.1	2.7	1.3	2.5	3.2
Mean stay of multi-day patients	3.3	2.1	3.5	3.5	9.3	3.7	6.0	8.2	3.7	1.4	2.8	3.6
Percentage of same-day stays	9%	9%	1%	4%	0%	22%	19%	16%	39%	32%	29%	29%