

Managing access block

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Abstract

There is pessimism regarding the ability of the Acute Health Sector to manage access block for emergency and elective patients. Melbourne Health suffered an acute bed crisis in 2001 resulting in record ambulance diversions and emergency department (ED) delays. We conducted an observational study to reduce access block for emergency patients whilst maintaining elective throughput at Melbourne Health. This involved a clinician-led taskforce using previously proven principles for organisational change to implement 51 actions to improve patient access over a three-month period. The primary outcome measures were ambulance diversion, emergency patients waiting more than 12 hours for an inpatient bed, elective throughput and theatre cancellations.

Despite a reduction in multi-day bed numbers all primary objectives were met, ambulance diversion decreased to minimal levels, 12-hour waits decreased by 40% and elective throughput was maintained. Theatre cancellations were also minimised. We conclude that access block can be improved by clinician-led implementation of proven process improvements over a short time frame. The ability to sustain change over the longer term requires further study.

Access block

Access Block for emergency and elective patients to inpatient beds is becoming an increasing problem both in Australia and internationally. (Baggoley 1998, McCabe 2001, Richardson 2001, Schneider 2001, Schull 2001). The causes of this phenomenon vary in different regions. Clearly there is an association with decreased acute hospital beds, decreased aged care beds, financial restrictions on service provision, and availability of staff (Cameron 2001). There are also underlying social issues such as the aging of the population, increased participation of females in the paid workforce, improvements in technology and changing community expectations. Many see this problem as being insoluble without huge increases in acute health care funding (Rees 2001).

In October 2000 the Victorian Government identified it as a system-wide problem and set up a Hospital Demand Management Strategy which included a health industry led taskforce to examine potential solutions and a designated demand management program (Patient Management Taskforce 2001). The taskforce attempted to establish the best available evidence for interventions that may improve access block and coordinate responses between the various health services in metropolitan Melbourne. In response to the Victorian Government initiative, Melbourne Health established its own clinician led Patient Access Taskforce. The objectives of this taskforce were to improve access block for emergency patients whilst maintaining elective throughput. The Patient Access Taskforce was given three months to achieve these goals. The effect of this three-month intervention is described below.

Methods

The Government-sponsored Patient Management Taskforce was established in late 2000 to report on potential improvements that could be made to the Victorian health system to improve patient access to the acute health sector. The findings and recommendations of this taskforce were completed in April 2001 and are described in 6 reports that are available to the public (Patient Management Taskforce 2001). In response to this, Melbourne Health developed a set of interventions, which the organisation believed would improve access for patients within Melbourne Health. Melbourne Health consists of Royal Melbourne Hospital (RMH), Melbourne Extended Care and Rehabilitation Service (MECRS), Victorian Infectious Diseases Reference Laboratory (VIDRL), North Western Dialysis, North Western Mental Health and Shared Services. RMH is the only acute hospital in the health service. It has a statewide referral function including neurosurgery, cardiothoracic medicine, trauma, infectious diseases and oncology.

Melbourne Health's plan included a total of 51 interventions grouped under the following headings: emergency demand management, elective surgery, capacity management, and subacute processes. These interventions are listed in Table 1. Over a two-month timeframe senior clinicians coordinated the development of these interventions into priority objectives. Following the development of the initiatives listed in Table 1, a senior clinician was appointed with the authority to implement these changes and was directly accountable to the Chief Executive for implementation. Funding of \$10.44 million was provided by the Victorian Department of Human Services (DHS) under the Hospital Demand Management Strategy for components of the plan. The Melbourne Health taskforce commenced at the beginning of June 2001 and the main components of the 51-point plan were completed three months later in September.

The taskforce was composed of the chair (seconded from clinical duties), two project officers, and an extended advisory group consisting of senior doctors and nurses, finance and administrative support personnel. The taskforce focussed on key performance indicators (KPIs) relating to process outcomes rather than financial imperatives. The specific objectives of the taskforce, which were explicitly stated were:

- reduction of ambulance bypass to DHS targets
- reduction of 12-hour waits for emergency patients awaiting admission to the ward to DHS targets
- maintenance of elective surgical throughput, measured using weighted inlier equivalent separations (WIES)
- decreased theatre cancellations.

Internal communication strategies were extremely important in engaging hospital staff and included weekly progress meetings, sharing performance results via e-mail and frequent briefings of clinical groups.

Results

At the completion of the three-month period the primary goals of the taskforce had been met. This was despite industrial action affecting the availability of staffed hospital beds from July 20 to August 14. Following the settlement of the industrial action the number of staffed acute hospital beds settled to 340-350 multi-day beds which was 50 less than at the same time the previous year and 10 less than April/May 2001.

Ambulance bypass

During the three-month period, ambulance bypass remained at historically high levels of 50-60 two-hour episodes per month. Following the settlement of the industrial action and the reopening of beds to 340-350 multi-day beds, bypass levels for September, October and November had been reduced by more than 50% to within DHS target levels (see Figure 1).

12 hour waits

The number of patients waiting more than 12 hours in the ED to be admitted to a hospital ward bed had reached historically high levels in May/June 2001. Following completion of the taskforce, 12-hour stays had been reduced to within DHS targets and appear to be falling further (see Figure 2).

Elective throughput

Despite a significant decrease in staffed multi-day beds in the hospital, elective throughput has been maintained and in fact increased following the introduction of the taskforce initiatives. This has been achieved by increasing day of surgery admissions (DOSAs), increased day surgery, increasing day plus one surgery, and more orderly arrangements for booking patients through the Pre-admission Clinic. It is important to note that the waiting list has not increased (Figure 3); however the average complexity weighting (WIES) for elective in-patient admissions has decreased slightly. The elective work (measured by WIES) was maintained during the severe restrictions in multi-bed-day access resulting from the industrial action. Since the conclusion of the industrial action, this activity is beginning to increase. Over two years there has been no overall growth in elective WIES (Figure 4).

Some surgical patients have been particularly affected by restrictions on elective activity – those patients who are not Category 1 (ie, require an operation within 30 days) and those who are not able to be managed as short stay electives. The taskforce realised that these patients needed to be identified and managed in a targeted way. For example, orthopaedic surgery had a large number of these patients and the ward quarantined 10-12 multi-day beds that the orthopaedic unit managed. The throughput and length of stay were closely monitored with positive results.

Theatre cancellations

With improved booking of theatre cases through the Pre-admission Clinic and a more orderly queue for elective admission, the number of theatre cancellations decreased significantly. This was seen as important from a patient perspective, avoiding the frustration of preparing for a hospital admission and then being cancelled at short notice. This was also less frustrating for surgeons and bed management staff as they were not frustrated by frequent cancellations and uncertain theatre lists.

Secondary aims

Although the results arising from the primary objectives of the taskforce were impressive, there were many secondary objectives that had to be met in order to reach the primary goals. For example, day of surgery admission rates, which had been traditionally low for specialities such as cardiac surgery and vascular surgery, averaged over 85% at the end of the three-month period. The number of patients staying in hospital for more than 14 days decreased significantly. This was used as a surrogate measure of inefficiencies surrounding discharge planning, assessment for institutional placement, inability to place patients in residential care and indecision relating to definitive placement. At the beginning of the taskforce period the average number of patients in hospital for greater than 14 days was 120, and by the end of this period it had decreased to 70. Although some patients in this group (~50) were medically appropriate for long stays, eg bone marrow transplant patients with treatment courses lasting longer than two weeks, this proved to be the most useful measure of issues relating to delays in aged care placement and rehabilitation.

Hospital in the Home (HITH) admissions increased by 50% (from an average of 15 patients up to an average of 25 patients per day managed in HITH), through increased capacity and changes in patient management. Short stay unit admissions rose to 5-10% of emergency attendances as the unit opened beds. Increased use of community agencies, for example using contracted nurses to provide percutaneous endoscopic gastrostomy (PEG) tubes and catheter insertions in residential care facilities, prevented some emergency attendances. Planning and coordinating care following discharge from the ED by dedicated care coordinators in the ED, reduced demand for inpatient hospital beds and decreased readmission rates for patients who were more appropriately managed in the community.

Discussion

There is extreme pessimism amongst clinicians, administrators and politicians regarding potential to improve access block. It is an international problem requiring a focussed, scientific approach. No single solution will fit all hospitals or health services. Melbourne Health was placed in a difficult situation with increasing demand for emergency and elective patient services and no ability to expand inpatient multi-day beds because of nursing shortages. There had been a 20% increase in the ED attendances and ward admissions over the previous 5 years

(Patient Management Taskforce 2001). This experience was similar to other metropolitan health services and international reports (Capewell 1996, Kendrick 1997, Morgan 1999). The expectation from the Victorian Government's Hospital Demand Management policy was that in response to specifically targeted funding of \$10.44M ambulance diversion of emergency patients should be limited, whilst elective activity was maintained. There are a number of principles, which have emerged from our experience in trying to manage this change.

Clinicians are best placed to drive innovative practice and encourage other clinicians to change practice. There is no doubt that in all areas of medical practice, clinicians are most affected by other influential colleagues who are experts in the field (Moulding 1999).

Funding models for health service provision often restrict innovative practice. The success of this taskforce was dependent on specific funding, which allowed experimentation in providing services using new models of care. There must be an expectation that some of the 'experiments' will fail. Funding should not penalise health providers for trialing new processes. The DHS provided \$10.44 million worth of targeted funding for specific interventions, including development of a short stay ward, care coordination etc. The DHS also encouraged the use of community treatments such as HITH, Post Acute Care Facilities Unit (PACFU) and community rehabilitation packages through funds over and above WIES revenue.

An important function of the Patient Access Taskforce was to maintain and report accurate data back to clinicians. For most clinicians it was the first time that reliable data had been made available on a regular, easily accessible basis. The transparency of data provided allowed clinicians to openly question accepted practice in areas outside their particular expertise. Measurement and regular reporting has proven to be a consistent feature of successful clinical change strategies (Solberg 2000).

Resistance to change was possibly less because of a collaborative approach by colleagues to solve the problem of access block. This contrasted with previous attempts, which were seen as administrative interference with 'good' clinical practice.

The traditional model of hospital beds staffed with nurses, being readily available for medical treatment of illnesses, is unlikely to be sustainable into the future. Clinicians must devise clinical pathways that minimise the usage of hospital beds. The lack of availability of nurses, the structured nature of hospital nursing practice and increasing expectations of the nursing workforce with regard to entitlements mean that traditional pathways of care are no longer relevant. It is possible that hospitals of the future will be little more than operating theatres, recovery areas, critical care areas, day ward areas and emergency assessment areas with significantly reduced inpatient bed availability. Convalescence and rehabilitation will be community based.

The availability of aged care accommodation varies widely throughout Australasia. The number of aged care beds per thousand population over 75 years of age is dramatically different in different states. There appears to be no direct relationship between the availability of beds and the length of the waiting lists for aged care placements. The number of acute hospital beds per head of population also varies between the states. Again there is no direct relationship between objective parameters, such as meeting waiting list targets, emergency access indicators and the availability of beds. This suggests that the number of beds available is less important than the manner in which they are used.

Within the emerging health care system the traditional experience based learning, with consequent variability in processes and outcomes is inappropriate. High junior staff turnover makes tightly controlled and highly refined patient processing impossible. Training of a highly skilled and flexible workforce will emerge as a key issue. All members of the hospital work team must learn about the interconnected nature of the work they do.

Concurrently with the Patient Access Taskforce, a parallel project was being undertaken to develop a computer-based systems dynamic model of patient flow through a simulated hospital with the characteristics of the Royal Melbourne Hospital. The model was used to analyse the impact of the various interventions such as DOSA, short stay beds and interim care beds on ambulance bypass, 12-hour waits, total patient throughput and elective surgery throughput and cancellations. The modelling exercises proved useful in the process of gaining the support of clinicians and informing decision-making. The fact that the impact of various interventions followed predicted outcomes was reassuring and helped clinicians realise that solving the problem of Access Block was similar to the scientific approach to solving clinical problems. Informed clinician involvement was the key to major changes in clinical practice. In general, it could be stated that clinicians are in the service delivery business

and hospital inpatient services are in the business of timely provision of bed-days. Until the crisis in bed-day availability that arose from nursing industrial activity, clinicians had no ownership of the need to constrain demand for bed-days. In order to continue service delivery, clinicians had to develop a systems perspective and take ownership of the problem of reduced bed-day availability and initiate innovative clinical practice.

Computer modelling of the dynamics of hospital bed management has been undertaken by other authors (Huang 1995). Bagust (1999) used a stochastic simulation model to test the ability of a hospital system to accommodate new emergency admissions. They showed that at hospital occupancy rates of greater than 85% there was a significant risk of not having a bed available for acute hospital admissions and at greater than 90% occupancy, regular bed crisis began to develop. Occupancy of staffed acute beds at Melbourne Health is essentially 100%. The flexibility in bed availability required to avoid bed crisis would require approximately 40-50 beds according to this mathematical simulation model. Some of this flexibility has been provided by using short stay unit beds. However, tight central bed control and monitoring may have reduced the magnitude of spare capacity necessary to avoid bed crises.

Melbourne Health has made important changes to clinical practice over a short time frame. The sustainability of this change will need to be monitored. Monitoring of key indicators may, in itself, ensure sustainability as provision of accurate information and clear targets were a central component of the taskforce-related activities. Surgical colleagues felt that their group was most severely affected by the changes. Within the surgical patient group there were certainly some patients given less access than others. Active monitoring of elective waiting lists to ensure balanced prioritisation is essential. Further research into the major components of the taskforce interventions is necessary to evaluate the most cost-effective approaches to improving access. It is not clear whether the clinician involvement and taskforce approach were the key to improvements or whether these improvements were due to the sum of a number of targeted interventions.

Conclusion

Over a three-month period Melbourne Health was able to execute dramatic changes in clinical practice through a clinician led, well-funded initiative. The issue of access to acute hospital beds for elective and emergency patients will not be helped by a pessimistic attitude to this worldwide problem. Funders of acute health care need to be reassured that improvements in acute health care will result from well-funded and focussed initiatives, which will allow clinicians to dramatically change the way they deliver acute health care.

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Table 1: access initiatives

Strategy	Status at 3/12
<i>ED Demand Management</i>	
Short stay unit ED	8 beds open
Establish dressing clinic transit lounge/plastics ward	Complete
Additional clerical staff ED	Complete
Additional medical staff ED	Complete
Additional telephones ED	Complete
PEG tubes / IDC insertion in community	Complete
ED bed card HITH	Complete
HITH in the nursing home	Complete
Hospital policy on direct admits to ward (centralise coordination)	Complete
Streamline ED to in-patient referrals	Complete
Determine RMH boundary line for primary referrals	Complete
Review timeliness & establish KPIs for psychiatric review	Complete
Review timeliness & establish KPIs for radiological procedures in ED	Complete
Additional ICU beds	Suspended due to staffing deficit
Review bed management function	Complete
Emergency review clinic in outpatients for each speciality	Complete
Increase care coordination function in ED	Complete
<i>Elective Demand</i>	
10-12 orthopaedic quarantined elective beds (25% of orthopaedic beds)	Complete
Increase use of day beds on plastics, , radiology	Complete
Increase emergency theatre availability	Complete
Recovery - 2 extra bays KPIs re collection of patients from wards	Complete
Equipment inventory	Complete
Increase DOSA To > 85%	Complete
Review theatre utilisation	Complete
Review delays in theatre set up	Complete
Review theatre mix & start times	Complete
Review theatre scheduling	Complete
Seasonalise demand	In progress
Review elective/emergency mix	In progress
Review pre-admission clinic processes	Complete
Central elective waiting list	Complete

Table 1: access initiatives (cont)

Strategy	Status at 3/12
<i>Capacity Management</i>	
Day beds - neurology ward	Suspended due to staffing deficit
Discharge coordinators for wards	Complete
Improved Allied Health cover	Complete
<i>Mixed/direct HITH (utilisation efficiency)</i>	
Review scope for expansion	Complete
GP liaison officer to coordinate discharge and support admission substantiation by GPs	Complete
Length of stay project (studying reasons for long inpatient stays)	In progress
Disease management project (studying CCF & COAD case mix strategies)	In progress
Frequent flier package (studying reasons for frequent representations)	In progress
Workforce planning review	In progress
Review outpatient structure / booking system	In progress
Review waiting times for the following:	
Ultrasound	-2nd ultrasound to be installed
Magnetic resonance imaging	-2nd MRI to be installed
CT scan	-ED CT installed
<i>Sub-Acute</i>	
Orthopaedic rehabilitation unit within orthopaedic ward	Suspended
Integrated medical staffing across acute/subacute	In Progress
Tracheostomy unit/service to coordinate management plan	Commenced
Establish KPIs for time from referral to assessment	Established
PEG management team	Established
ACRRAT Project - electronic referral & assessment software to overcome process blockages between RMH & Aged / Rehab facility	Commenced
Stand-by system for transfer of sub-acute patients from RMH to Aged / Rehab facility	In progress
Establish dialysis rehabilitation unit Aged / Rehab facility	
Suspended	
Develop policy around admission of in-region patients only	Complete
Increased subacute capacity:	In progress
Additional beds for aged care	
Additional home rehabilitation beds	
In-home transition packages	
Sub-acute precinct RMH	

Figure 1: number of ambulance by pass episodes for each month, January 1999- November 2001

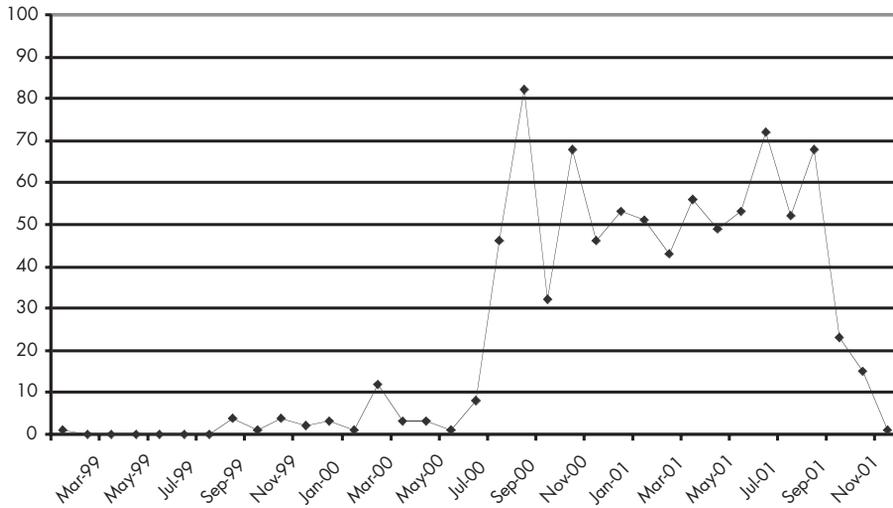


Figure 2: percentage of patients admitted to ward bed waiting longer than 12 hours in ED

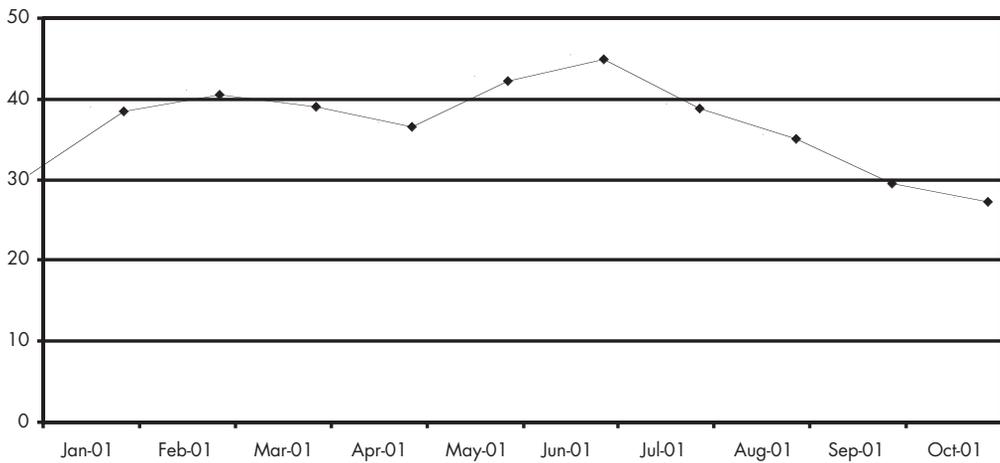


Figure 3: total number of patients on waiting lists, January 1999 - October 2001 (Target 2904) *Audit of waiting lists

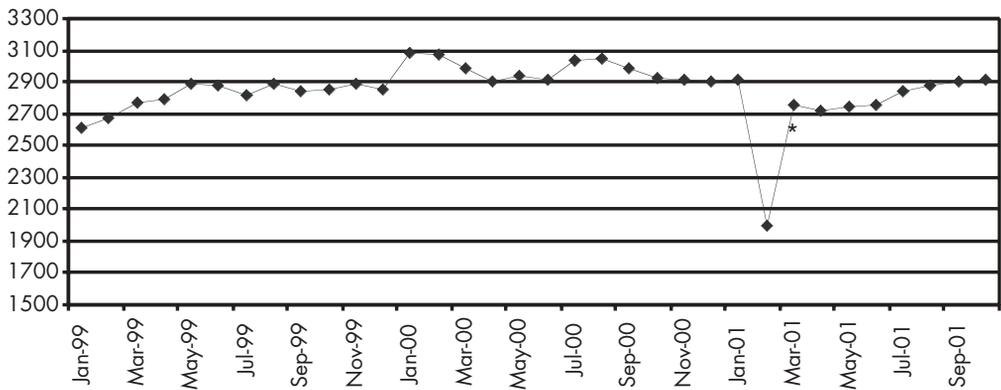


Figure 4: elective / emergency WIES for 1st quarter 2000 to 1st quarter 2002 Weighted-inlier-equivalent-separations (WEIS) derived from Victorian admitted episode data set

