Managing emergency demand in public hospitals

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Under the provisions of section 16AB of the *Audit Act 1994*, I transmit my performance audit report on *Managing emergency demand in public hospitals.*

Yours faithfully

JW CAMERON
Auditor-General

26 May 2004

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Foreword

Hospital emergency departments are one of our community's most important safety nets. They provide expert care and access to advanced medical services when we need it most. In 2002-03, around 950 000 Victorians called on the services of an emergency department.

World wide, emergency departments report that they are experiencing pressures from growing demand. Pressures in the health system such as difficulties accessing a General Practitioner, and an ageing population, are felt in growing demands for urgent care in emergency departments.

This study concludes that Victoria's metropolitan health services are responding effectively to continuing high demand for emergency care. Innovative approaches, reducing demand on emergency departments and managing the total flow of patients through the hospital system, are making a difference. Some of the signs of pressure, such as excessive periods when ambulances are asked to bypass hospitals, and long waits in the emergency department for an inpatient bed, have shown improvement.

However challenges remain and improvements are still needed. Clinical supervision of waiting room patients needs attention, and many patients register for attention then leave before they have been treated. Hospitals need to better understand the needs of this latter group, and identify those who may be at risk. While the total number of long staying patients in emergency departments has been reduced, a small number of patients still stay for very long periods.

In order to address these issues, the work that has commenced needs to continue.

I urge you to read this audit report, and take note of how Victorian health services are responding to significant challenges.

JW CAMERON
Auditor-General

26 May 2004

1. Executive summary

1.1   Introduction

During 2002-03, around 950 000 people attended an emergency department at a Victorian public hospital. The bulk of these, around 540 000, attended one of the 13 major metropolitan emergency departments. The number of patients presenting to metropolitan emergency departments has grown significantly during the past 6 years, with presentations increasing by 27 per cent between 1997-98 and 2002-03.

In response to the growing demand and signs of pressure on the health system (such as increased instances of hospital bypass by ambulances, congested emergency departments and long waits for inpatient beds) during 2001-02 the Department of Human Services (DHS) implemented its Hospital Demand Management Strategy (HDMS). The HDMS is a 6-year funding strategy to address the increasing demand on the acute health system.

Increasingly health policy makers and hospital managers understand that problems with access to emergency departments are symptomatic of restrictions to patient flow through the wider health system. Their responses to symptoms such as hospital bypass and long waits in the emergency department for an inpatient bed are to address the underlying issues – increasing overall system capacity, diverting and containing demand through better management of patients with chronic conditions and improving patient "flow" from one part of the health system to another. The HDMS is grounded in this system-wide approach to managing access to the health system.

This audit does not attempt a full evaluation of the HDMS, but many of the initiatives examined in the audit were funded under the strategy.

1.2   Conclusion

The audit found that work by DHS and metropolitan hospitals to manage growing demand, prevent hospital bypass, enhance patient flow within the emergency department and to move patients out of the emergency department (either to an inpatient bed or home) is making a difference. DHS and hospitals have implemented many initiatives to improve patient flow at all stages of the patient journey and the results are shown in improvement in some of the key measures of access.

However, challenges remain:

- management of waiting room patients needs improvement

- some hospitals have high proportions of patients who register for treatment and do not wait for attention – currently there is little solid information on this group to identify which of these patients may be medically at risk
- the roles of the emergency department workforce and the physical environment of some emergency departments have not kept pace with changing models of clinical care provided
- while the number of long staying patients in emergency departments has declined since 2000, a small number of patients still wait for excessively long periods in emergency departments
- as models of medical care change, the emergency department plays an increasing role in conducting assessments and complex care planning for patient care which is then delivered in the primary and community care sector. As a result, better linkages with the community health and GP sector need to be developed.

These issues do not have simple solutions, and the complex and interconnected nature of the health system means that solutions often create other issues that need to be managed.

The approach that has been undertaken by DHS and hospitals to date is sound, and needs to continue. It is crucial for DHS and hospitals to rigorously evaluate the initiatives implemented to date, embed successful initiatives in mainstream practice, and share the lessons learned throughout the system.

1.3   How effectively are hospitals managing presentations to emergency departments?

Management of presentations to emergency departments occurs at 2 levels – strategic planning to meet future demand (and contain it where possible), and day to day management of presentations as they arrive.

In examining the effectiveness of planning to meet future demand, we considered whether hospitals have effective demand management planning and review processes in place and diversionary strategies are effective at reducing the potential growth in demand.

Around 30 per cent of patients come to emergency departments by ambulance, and diversion of non-urgent ambulance presentations is one of the few ways that hospitals can manage situations where they are temporarily overloaded. Our evaluation of hospital bypass[1] considered whether procedures and trigger points for bypass were clear, and whether processes are in place to minimise instances of bypass. For most of their operating time, hospitals are not on bypass. We also considered how well the Metropolitan Ambulance Service (MAS) and hospitals collaborate to manage ambulance presentations during normal operations.

1.3.1 Is hospital planning to manage demand effective?

Health services and DHS have undertaken a significant volume of work in demand management planning for emergency departments and in developing projects to increase capacity and reduce demand. Individual projects are generally well planned and targeted to areas of need.

However, the complexity of the system makes it difficult for health services to make comparative assessments and to evaluate which projects offer the greatest overall benefits in managing patient flows. As individual initiatives are "proven" it will become more important for health services to be able to make comparative assessments between initiatives in order to guide investment. Computer-based patient flow modelling tools may assist with this, but further development is required before these tools are fully operational.

The funding made available under the HDMS has allowed hospitals to develop and trial a number of innovative strategies for reducing and diverting demand for emergency department services. The next challenge for hospitals and for DHS is to consolidate this work, identifying best practice models, and building greater commonality of procedures and performance criteria.

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[1] Hospital bypass occurs when an emergency department meets its maximum capacity. In this situation hospitals can go on "bypass" and for a 2-hour period request non-urgent ambulances to bypass them and proceed to the next nearest hospital. Ambulance paramedics have discretion to take patients to the nearest emergency department even during periods of bypass. Patients with time sensitive conditions, such as cardiac presentations, will always be taken to the nearest emergency department

Recommendations

1. **DHS should lead the development of computer based simulations for patient flow modelling to assist hospitals with demand management planning.**

2. **DHS should conduct further research on the issue of primary care type[2] patients and their impact on demand for emergency services.**

3. **DHS and hospitals implementing diversionary programs should collaborate on developing common procedures and performance criteria in diversionary programs.**

4. **DHS should pursue the implementation of a unique patient identifier across the acute health system as a priority.**

1.3.2 Are ambulance presentations adequately managed?

Significant progress has been made in preventing ambulance bypass, and addressing the problems identified by the Patient Management Task Force in 2000. Hospitals have made major improvements, systematising their internal processes for managing and preventing bypass. This is reflected in substantially improved bypass performance across the system.

The one area that some hospitals observed had not yet fully addressed was developing objective criteria for knowing when to commence bypass or hospital early warning system (HEWS[3]). The Alfred Hospital's MARC[4] system shows what can be done in this area.

The implementation of HEWS seems to have been successful in mobilising hospital resources to prevent bypass. However, some hospitals note that overuse of HEWS may potentially undermine its effectiveness as an internal escalation procedure. There is also a risk that HEWS may be used as a substitute for bypass. Joint review by hospitals, DHS and MAS would enable identification and sharing of good practices in this area.

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[2] Primary care type patients are patients with conditions that could be treated by a General Practitioner.

[3] HEWS is an internal escalation process designed to increase patient flow through the hospital and prevent a progression to bypass.

[4] MARC – measured actual resource calculator, a spreadsheet based system used to assess emergency department patient load and calculate the probability of the emergency department reaching a situation of overload and needing to go on bypass.

Implementing better coordination of ambulance presentations to better distribute the load of ambulance arrivals during normal operations is the next challenge for MAS and hospitals. MAS' planned implementation of real time destination display for duty team managers will assist in this area. There are also other opportunities to improve collaboration between hospitals and MAS. While processes are in place for communication, the implementation of shared quality management processes, including issues tracking and resolution processes, would systematise the relationship.

Recommendations

5.   **DHS, hospitals using HEWS and MAS should review HEWS implementation and current practices to develop and share best practice models.**

6.   **Hospitals should work to develop more systematic methods of determining trigger points for HEWS and bypass, incorporating EMS information.**

7.   **DHS should work with hospitals and MAS to develop collaborative process performance monitoring for ambulance presentations.**

1.4   How effectively are patient flows managed within the emergency department?

In assessing the way that hospitals manage patient flows in the emergency department, we considered whether triage processes appropriately prioritise arriving patients for care, whether fast-track initiatives are in place to quickly move patients with straightforward conditions through, and whether key resources – appropriately qualified staff, a functional working environment, and access to pathology, pharmacy and diagnostic imaging – are in place.

1.4.1 Is triage and waiting room management effective?

Generally, the strategies implemented for triage consistency are working effectively. Triage nurses are applying consistent principles and effectively managing the initial prioritisation of patients for treatment.

Waiting room management in the hospitals observed was minimal. The lack of attention to this in some emergency departments represents a risk. At busy times, waiting room patients may wait for significant periods without adequate monitoring of their condition and without being re-triaged when they have passed the recommended waiting time for their original triage category.

It is likely that minimal supervision and feedback given to waiting room patients is one reason that patients leave the emergency department without waiting for attention. However, the lack of useful data on this group limits current understanding of the problem and the development of strategies to address it. More information is needed so that hospitals can better differentiate between patients who leave because they seek alternative sources of care, and patients who may be medically at-risk.

Recommendations

8. **Hospitals should develop, document and implement procedures for monitoring and communicating with waiting room patients in the interval between triage and treatment and re-triaging patients when they have passed the recommended waiting times for their triage category.**

9. **Hospitals and DHS should collaborate to develop business rules for consistent information gathering on the presenting problem at triage, and investigate the value of collating this data in the Victorian Emergency Minimum Dataset (VEMD).**

10. **DHS and hospitals should develop protocols to identify and follow-up with patients who do not wait and who are in clinical groups identified as high-risk.**

1.4.2 How well are "fast-track" initiatives working?

Fast-track programs have great potential to reduce both the time it takes to receive medical treatment and the length of stay for patients with minor medical conditions. This is provided that the hospital has sound eligibility criteria, dedicated staff and that the program operates in periods of key demand. Not all emergency departments examined currently met these criteria, and it is likely that this is impacting on the efficiency of their fast-track operations.

Without local review, hospitals cannot be certain that they are maximising the benefits of fast-track programs, or that there are no unintended consequences (e.g. increasing numbers of inappropriate presentations attracted by the provision of a fast and free medical service).

Recommendation

11. **Hospitals should conduct local evaluation of fast-track programs to determine their impact on length of stay and time to treatment, their impact on the number of patients who do not wait and the use of the service by patients meeting criteria.**

1.4.3 Do emergency departments have key resources in place?

As demands on emergency departments increase and models of patient care change, the workforce needs to be both skilled and flexible. The number of medical and nursing staff with specialist qualifications in emergency medicine has increased over time, and medical and nursing roles are changing to meet the evolving needs of the emergency department. Clerical and clinical support roles are moving at a more uneven rate, with some hospitals successfully implementing workforce flexibility, and others making less progress. The DHS emergency department workforce study will assist in this area.

Strategies for nurse recruitment are gradually addressing nurse shortages in emergency departments at the hospitals visited, although some continue to experience difficulties recruiting permanent staff. However, determining nurse numbers based on cubicle numbers fails to reflect the current needs of many emergency departments. Cubicle ratios do not take into account patient acuity, the significant demands some hospitals experience from waiting room patients and changing models of emergency department care.

Not all emergency departments have the space required for the growth in patient numbers. Re-developing and enlarging emergency departments takes time and forward planning, and the needs are being addressed over time. As redevelopment occurs, it is important that emergency department design supports the implementation of emerging models of care as well as meeting space requirements.

In addition to the constraint placed on some emergency departments in meeting demand because of space limitations, one hospital examined had further reduced its emergency department's capacity by closing cubicles. This decision was initially taken in 2001 during a period of extreme staff shortage, because of the high cost of agency staffing. However, the closure has continued and the hospital did not have plans to re-open the cubicles in spite of significant demand pressures, including high levels of bypass and large numbers of patients who do not wait.

While the DHS monitors the average number of inpatient beds that hospitals have open each month, hospitals are not currently obliged to advise DHS of the closure of emergency department cubicles.

While facing high levels of demand from service users, pathology, diagnostic imaging and pharmacy provide an effective level of service to the emergency department in most instances. The close proximity of these services to the emergency department can assist in reducing delays and enhancing access.

Recommendations

12. **Emergency department nurse staffing models should consider patient presentation patterns and care needs, not simple cubicle ratios.**

13. **As DHS reviews and finalises facility planning benchmarks, the new guidelines should take into account emerging models of care.**

14. **DHS should implement reporting by hospitals on the number of emergency department cubicles that are open.**

1.5   Is management of patient movement out of emergency departments effective?

Once treatment in the emergency department is completed, it is important (both for patients and for the efficient operation of the emergency department) that patients are able to move to their next destination – an inpatient bed or home – quickly.

In considering how effectively hospitals manage movement of patients out of the emergency department after completion of initial treatment we considered the way hospitals manage emergency department length of stay, initiatives they have in place for safe and timely discharge of patients home, and hospital wide initiatives to facilitate patient flow and prevent access block from the emergency department.

1.5.1 How well are emergency department long stays managed and prevented?

The current Victorian reporting target for long stays is longer than a number of other jurisdictions. While the target might have been considered appropriate in the past, emerging evidence indicates that the current target exceeds an optimal length of stay for the best clinical outcome. In addition, the current reporting only monitors long staying patients who are admitted to an inpatient bed at that hospital, as a result, around 45 per cent of emergency department long stayers are not included in the framework.

DHS and hospitals have made progress in reducing the number of long stay patients in emergency departments since 2000-2001, in spite of continuing pressure from increasing presentations.

The greatest progress has been made in reducing the number of patients waiting for more than 12 hours for an inpatient bed, i.e. those who fall under the current incentive framework. The current incentive framework can also encourage dysfunctional outcomes as hospitals have less incentive to find beds for patients who have passed the 12-hour threshold than they do for those who are approaching it.

Progress in addressing long stays before transfer or discharge home has not been as good as progress in reducing long waits for patients who are admitted. This may be linked to the fact that the current incentive system focuses on patients who are admitted. It is also likely to be because hospitals have less direct control over the factors causing delays for these patients. Monitoring and reporting the length of stay of these patients is essential if system factors contributing to long stays are to be addressed.

Recommendations

15. **DHS should review the use of the performance indicator of "Number of patients admitted to a bed in 12 hours" and implement a performance indicator, or indicators, that takes into account:**
   - **length of stay of all emergency department patients**
   - **average patient length of stay in the emergency department.**

16. **DHS should sponsor further work, including needs analysis into the issue of psychiatric presentations and long stays in emergency departments.**

1.5.2 How well are hospitals managing discharge home from the emergency department?

The use of care coordination staff in the emergency department to prevent hospital admissions is a promising initiative that is enhancing patient care and reducing pressure for hospital beds. Hospitals examined were making good progress in this area. However, the next challenge for some is to gather more systematic performance data on numbers of potentially preventable admissions, establish performance targets and identify barriers to improved performance.

Support by emergency departments for "routine" discharge (where patients were not identified as at-risk) is inconsistent. Until simple, automated means of providing discharge summaries are in place, emergency departments are unlikely to make this a priority. However, building continuity of care with the primary care and community sector is an important element in preventing re-presentations to the emergency department.

1.5.3 How effectively do hospitals prevent access block?

Bed management and admission practices at some hospitals examined currently impact on patient access from the emergency department. The failure of some hospitals we examined to establish clear policies on admission priorities can place undue pressure on operational staff when decisions need to be made on priorities for access.

Hospitals examined do not have robust systems for providing real-time information on available beds, planned admissions and planned discharges. While bed management staff were generally experienced with a strong sense of task, the current lack of IT infrastructure inhibits the effectiveness of this function, and makes it difficult to match available capacity with demand. It is unfortunate that this issue is not directly addressed in the current DHS IT strategy, however it needs to be considered as a future priority.

Available research suggests that if hospitals run at occupancy rates above 85 per cent, then periodic episodes of access block will occur. This means that even if the other factors contributing to access block from the emergency department are addressed, access block will continue to occur during periods of peak demand unless occupancy rates are reduced, or hospitals identify ways to temporarily increase their capacity to meet surges in demand.

Some progress has been made in addressing discharge issues identified by the Patient Management Task Force. All hospitals visited were working on increasing the rate of weekend discharge, and all had pockets of excellence within the hospital. This work needs to continue.

Recommendations

17. **Hospitals should have clear admission and discharge policies specifying priorities for admission and escalation steps to be taken at times of bed shortage.**

18. **DHS should take the lead in developing capacity management systems.**

1.6   Data management and data quality

Accurate data on emergency department presentations is important for informed service planning and performance monitoring and improvement. We assessed the accuracy of currently reported data and the robustness of information systems used to manage emergency department data.

1.6.1 Are emergency department management systems effective?

The DHS Health*SMART* strategy is making a significant investment in hospital IT infrastructure, and will provide a major opportunity to improve the management and quality of emergency department data. However, without work practice improvements in Health Services, and the implementation of systematic security planning and change management processes, the full benefits of the strategy may not be delivered.

Control procedures over emergency department management systems need to be improved and more resources allocated to them. In particular:

- weaknesses identified in the systems' security increase the risk that an unauthorised person could access or change sensitive patient information
- the lack of IT disaster recovery planning by 3 of the hospitals represents a significant risk to their operations
- without a more formal approach to managing changes to emergency department management software, errors or faults may be introduced that could impact the integrity of the data.

Improvements to both system validation procedures and patient management system integration would allow better capture of data upon entry. These would increase the quality of the data as well as improve the efficiency of emergency department operations.

🜨 Recommendations

19. **Hospitals should develop and implement specific security guidelines for emergency department management systems based on a formal threat and risk assessment. These should limit the use of generic and shared user accounts and passwords, define security access roles and requirements for monitoring of security-related activity.**

20. **Hospitals should develop IT disaster recovery plans for all critical hospital IT systems, including emergency department management systems. These plans should be regularly updated and tested.**

21. **Replacement programs for computer hardware should be established. Computer hardware used for running critical systems should be given a high priority on the replacement schedule.**

22. **Procedures for upgrading emergency department software should be improved and documented. Particular attention should be placed on formalising the testing processes and ensuring business approval prior to releasing to a live environment.**

23. **Modifications to existing emergency department systems to reduce duplication of data entry and to link system processes to actual operations should be considered. The costs associated with such changes should be assessed prior to making any changes.**

1.6.2 Is data transfer from hospitals to DHS effective?

While some improvements could be made to the way emergency department data is extracted by hospitals from their emergency department management systems, overall we found the transfer process to be effective.

There is some manual intervention during the extract process, which increases the risk that information could be manipulated to meet hospital or DHS performance measures. There are currently no controls to detect or prevent this activity. While a fully automated solution is preferable to provide greater accuracy, manual processes provide an alternative to potentially costly software modifications. To compensate, hospitals should document the procedures for data extraction and ensure that checks are in place to ensure the completeness and accuracy of the data.

Recommendations

24. Hospitals should document their data extraction processes and implement checks to ensure that data has not been accidentally altered.

25. Hospitals should use the beta[5] version of the DHS validation software tool prior to submission.

1.6.3 Is VEMD data complete and accurate?

Our analysis of VEMD data found that procedures implemented by the DHS to validate emergency department data were effective in ensuring that business rules are complied with and essential data is captured.

Data accuracy checks showed some variation between patient files held in hospitals and data recorded in the VEMD. This was particularly the case with recorded treatment times. Where there is a variation between times noted on patient files and times recorded electronically in the VEMD, it is not possible to determine which of the recorded times are correct. The inconsistency highlights the potential for records to be incorrectly altered during data entry or during the transfer of the information to the DHS.

Recommendation

26. The Department of Human Services should initiate quality audits of hospital emergency department data.

RESPONSE provided by Secretary, Department of Human Services

DHS welcomes the report and considers the reporting of the issues was balanced and demonstrates a clear understanding of the complex nature in managing hospital demand. The audit process was felt to be valuable in evaluating some of the strategies implemented under the aegis of the Hospital Demand Management Strategy (HDMS) and the conclusion that the approach taken by DHS and hospitals to date is sound and needs to continue is welcomed.

The audit recommendations support the future direction of the HDMS and provide valuable direction in consolidating the improvements made in developing a system-wide approach to managing emergency demand.

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[5] A "beta" version of software is an early release version, which has been partially tested.

Hospitals and Health Services' management have reported that their discussions with your Office were comprehensive and effective in delineating the challenges they encounter in providing services. Similarly, DHS welcomes the forthright and broad-ranging approach in identifying systemic issues and discussion of the strategies implemented to date.

Comments on specific parts of the report and recommendations are included in the body of the report.

RESPONSE provided by Chief Executive Officer, Metropolitan Ambulance Service

MAS strongly supports the focus of the report on system issues and performance. The report provides a good overview of recent emergency demand initiatives and makes some very positive recommendations which should assist in further improving system performance.

Comments on specific parts of the report and recommendations are included in the body of the report.

RESPONSE provided by Chief Executive Officer, Southern Health

Southern Health has reviewed the "Performance Audit report – Managing hospital emergency demand", and generally supports the findings and recommendations contained in the report.

Comments on specific parts of the report and recommendations are included in the body of the report.

RESPONSE provided by Chief Executive Officer, Western Health

Western Health has reviewed the "Performance Audit report – Managing hospital emergency demand", and generally supports the findings and recommendations contained in the report.

Comments on specific parts of the report and recommendations are included in the body of the report.

RESPONSE provided by Chief Executive Officer, Melbourne Health

Melbourne Health has reviewed the "Performance Audit report – Managing hospital emergency demand", and generally supports the findings and recommendations contained in the report.

Melbourne Health does not consider any of the issues to be of concern and supports the implementation of many of the recommendations set out in the report.

RESPONSE provided by Chief Executive Officer, Bayside Health

Bayside Health fully supports the audit findings and recommendations.

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2. About emergency demand

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2.1   Introduction

Hospital emergency departments are a key part of the health system. They provide initial diagnosis, stabilisation and early management for patients with acute and urgent illnesses and injuries.

During 2002-03, around 540 000 people attended an emergency department at one of Melbourne's 13 major metropolitan hospitals. In recent years demand has grown significantly. Between 1997-98 and 2002-03, the number of presentations[1] to metropolitan emergency departments increased by 27 per cent.

FIGURE 2A: PRESENTATIONS TO METROPOLITAN EMERGENCY DEPARTMENTS
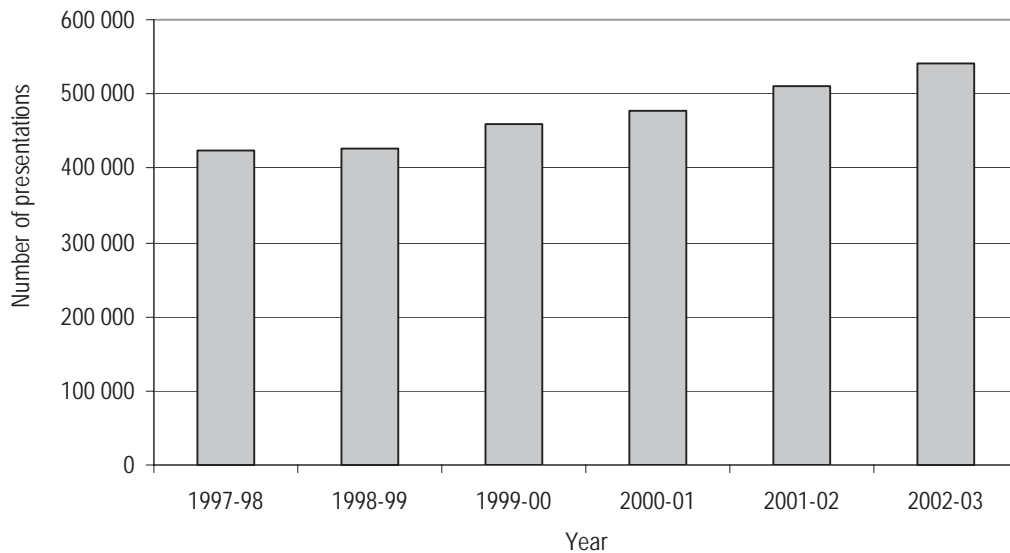
Source: Victorian Auditor-General's Office; data from the Department of Human Services, Victorian Emergency Minimum Dataset (VEMD).

This growth has placed significant pressure on metropolitan emergency departments. The most frequently reported signs of this pressure were instances of hospital bypass[2], crowded emergency departments and long waits for in-patient beds by patients in emergency departments.

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[1] A "presentation" is a single visit to an emergency department by a patient.

[2] Hospital bypass occurs when an emergency department meets its maximum capacity and hospitals request non-urgent ambulances to bypass them and proceed to the next nearest hospital.

Growth in demand for emergency department services is not unique to Victoria, however, the growth in demand in Victoria has outstripped many other jurisdictions:

- emergency department visits in the United States of America increased by 20 per cent between 1992 and 2000. Much of this growth was concentrated in the years between 1997 and 2000, when emergency department visits increased by 14 per cent[3]
- Figure 2B shows that in the last 4 years emergency department occasions of service increased in many, but not all Australian states.

FIGURE 2B: EMERGENCY DEPARTMENT OCCASIONS OF SERVICE BY STATE
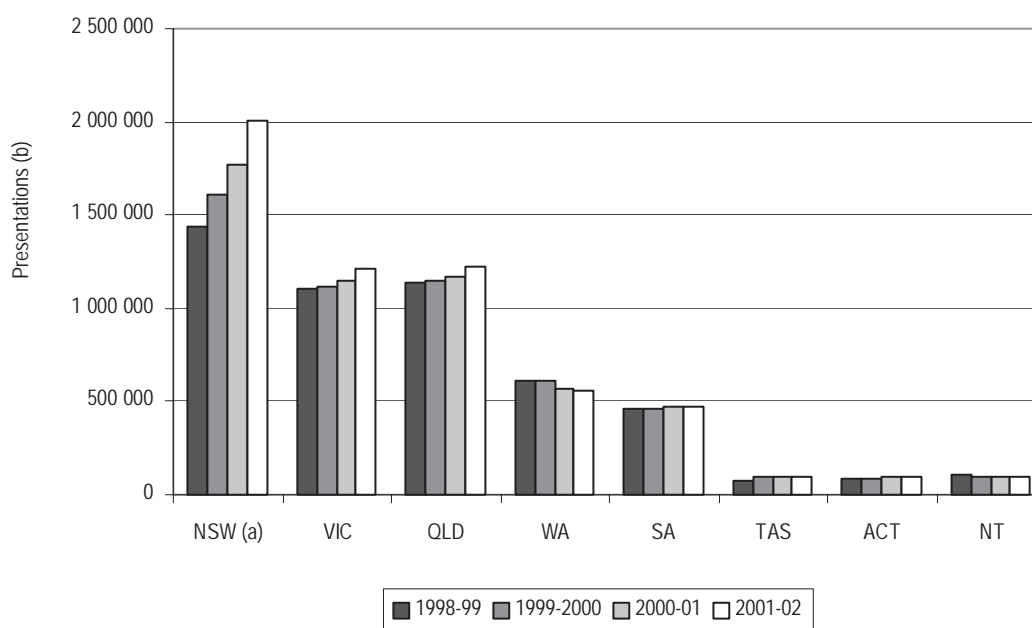
(a) Prior to 2001-02, data for NSW did not include emergency department patients who were subsequently admitted to hospital. In 2001-02, the recording practice changed.

(b) These figures are not adjusted for base population or population growth.

Source: Victorian Auditor-General's Office, from *Australian Hospital Statistics*, Australian Institute of Health and Welfare data.

2.1.1 Growth in presentation numbers

Growth in presentations at Melbourne's metropolitan emergency departments was unevenly distributed between hospitals. As Figure 2C shows, the greatest growth was in outer urban hospitals, particularly in the metropolitan growth corridors.

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[3] Schafermeyer and Asplin "Hospital and emergency department crowding in the United States" in *Emergency Medicine* (2003) 15, pp.22-7.

FIGURE 2C: GROWTH IN EMERGENCY DEPARTMENT PRESENTATIONS BY LOCAL GOVERNMENT AREA, 1998-99 TO 2001-02

40% plus
30% to 40%
20% to 30%
10% to 20%
0% to 10%
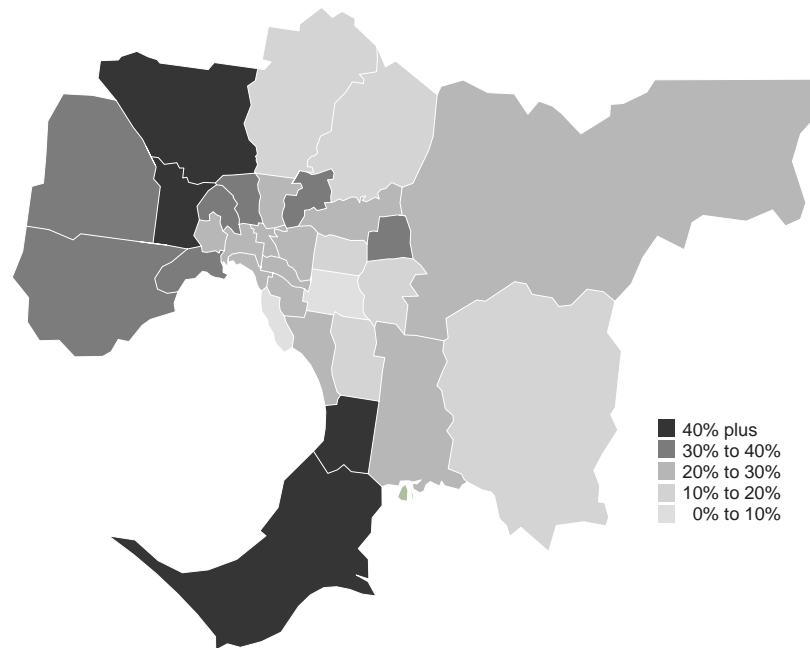
Source: Department of Human Services.

The Western Hospital is the only major metropolitan hospital where the number of presentations to the emergency department has fallen significantly. This reduction can be directly associated with the opening of the nearby Sunshine Hospital, representing a transfer rather than a lessening of demand.

FIGURE 2D: GROWTH AND PRESENTATIONS BY HOSPITAL

Hospital	Growth 1997-98 to 2002-03	Presentations 2002-03
	(%)	(no.)
Northern (a)	224	48 237
Sunshine (b)	116	54 193
Frankston	51	44 812
St Vincent's	32	31 595
Maroondah	26	33 479
Angliss	16	37 350
Box Hill	16	37 254
Dandenong	14	45 265
Austin and Repatriation Medical Centre	13	39 673
Royal Melbourne	12	46 682
Monash Medical Centre	6	51 789
Alfred	-4	38 684
Western	-23	32 377

(a) Northern Hospital opened in February 2002. Full year data for 1997-98 is based on Preston-Northcote, which closed at the same time, combined with Northern.

(b) Western Hospital disaggregated in 1998 and Sunshine Hospital commenced reporting separately in July 1998. Figure given represents growth from 1998-99 to 2002-03.

Source: Victorian Auditor-General's Office, from Victorian Department of Human Services data.

On arrival at an emergency department, patients are classified in one of 5 triage categories[4] based on the urgency with which they require medical attention. As Figure 2E shows, the greatest growth has been in categories 2, 3 and 4.

FIGURE 2E: GROWTH BY TRIAGE CATEGORY
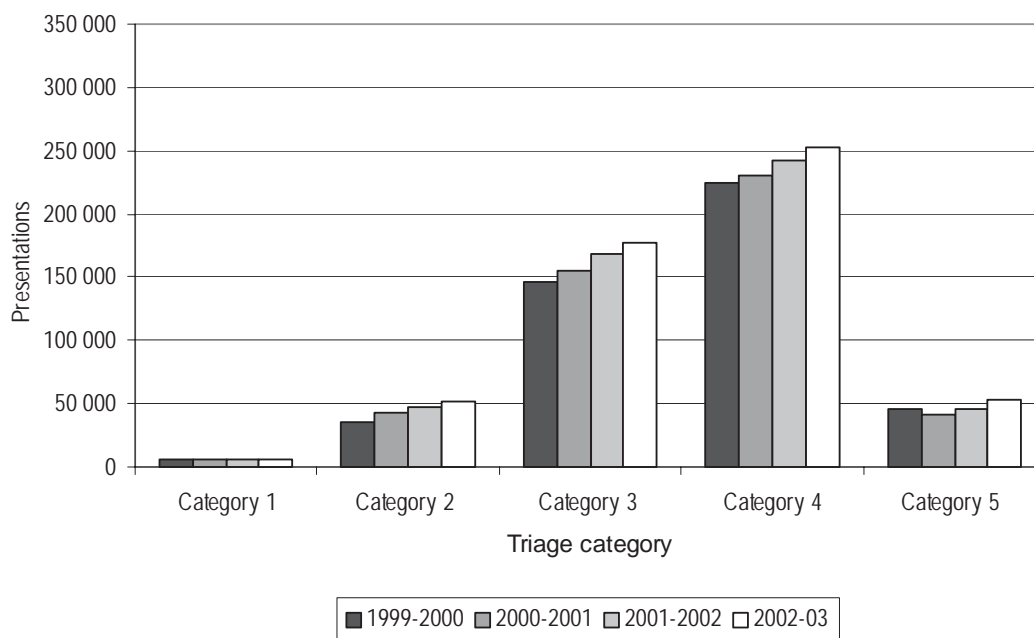
Note:
Category 1 - immediate response e.g. cardiac arrest.
Category 2 - treatment to commence within 10 minutes e.g. airway risk.
Category 3 - treatment to commence within 30 minutes e.g. severe hypertension.
Category 4 - treatment to commence within one hour e.g. minor limb trauma.
Category 5 - treatment to commence within 2 hours e.g. minor wound not requiring sutures.
Source: Victorian Auditor-General's Office, from VEMD data.

The percentages of presentations by triage category vary from hospital to hospital. The Alfred Hospital, one of the State's major trauma centres, receives up to 2.9 per cent in category 1 and around 46 per cent in categories 4 and 5 combined. A number of the outer urban hospitals deal with far greater percentages of lower urgency presentations, with less than one per cent in category 1 and more than 60 per cent of presentations in categories 4 and 5 combined.

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[4]Triage category 1 is the most urgent presentations, requiring immediate attention, triage category 5 requires attention within 2 hours.

2.2   Emergency departments as part of a health system

A hospital emergency department cannot be viewed in isolation from the wider health system. Typically, patients move from one part of the system to another for example: from emergency department to inpatient bed or to a short stay unit; from hospital to aged care or rehabilitation beds. The ability for patients to move from one part of the system to the next depends both on their treatment in that phase being completed, and on the availability of resources in the next part of the system to accept the patient. If one part of the system does not have the resources to accept the patient, then movement through the system stops.

Figure 2F shows some of the linkages and pathways.

FIGURE 2F: HIGH LEVEL VIEW OF PATIENT FLOW
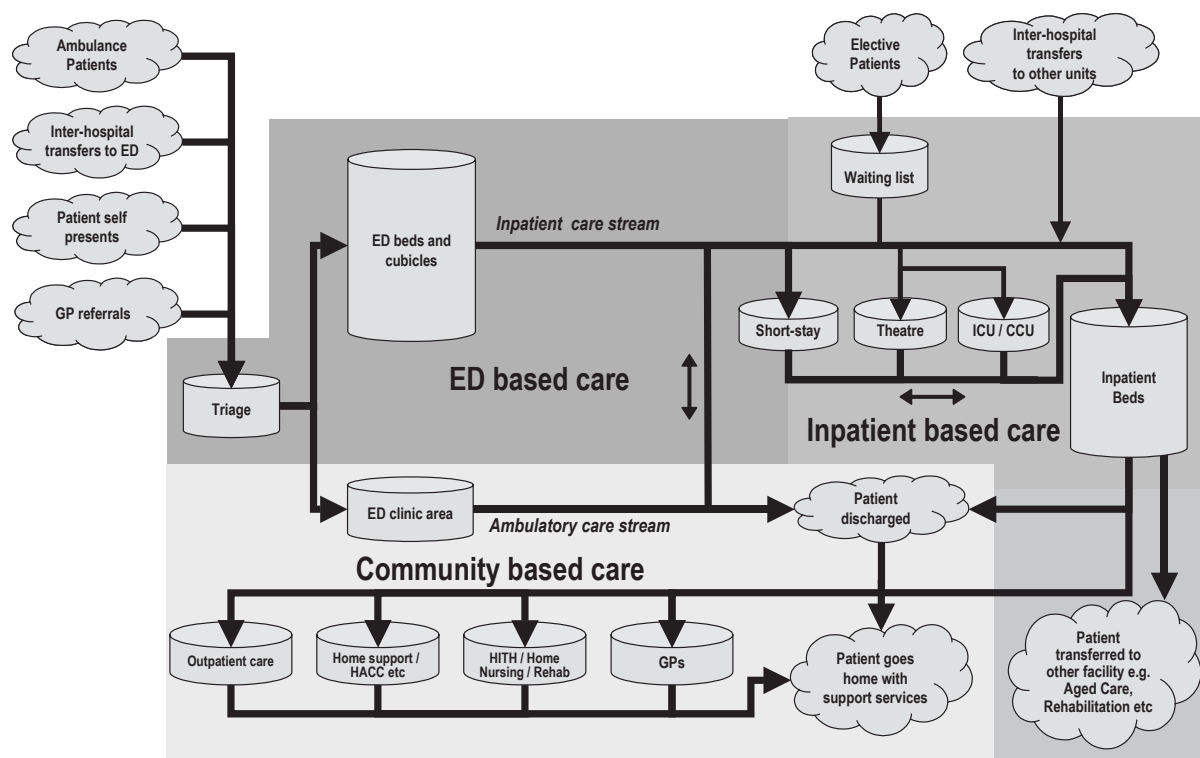
Source: Iridium Consulting.

As Figure 2F shows, movement through the system can be blocked, for example because inpatient beds are not available for emergency department patients, or because there are not enough beds open or support to move patients from hospital to their homes or into aged care beds. However, unlike other parts of the health system, an emergency department cannot control its rate of admissions. Patients will keep arriving at an emergency department regardless. This creates a situation referred to as "access block" where patients in the ED requiring inpatient care are unable to gain access to appropriate hospital beds within a reasonable timeframe.

Many parts of the health system are not under the direct control of the hospital or the Department of Human Services (DHS). The responsibilities and arrangements for provision of care in the health system are complex, but briefly:

- hospital care, both in the emergency department and in acute hospital beds, is the responsibility of the state government
- day-to-day health care in the community provided by general practitioners, and residential aged care are funded by the federal government
- community care services such as home and community care and district nursing services funded by commonwealth/state, are provided by arrangement with local government.

2.3   Victoria's initiatives in emergency demand management

In November 2000, the government established the Patient Management Task Force (PMTF) to undertake a short, focused review of patient management practices across the metropolitan public health care system. The task force produced a series of reports dealing with demand management for health services, and made 20 recommendations specifically addressing emergency demand.

Many of the task force's recommendations have been implemented since 2001-02 as the Hospital Demand Management (HDM) strategy. The strategy provided $582 million over 4 years to address demand growth and capacity constraints in the Victorian public health care system. In 2002-03, funding was extended for an additional 2 years with a commitment of $263 million in each year.

The strategy takes a system view of demand management across the health sector, and is directed to 4 key areas:

- *diversion and prevention* – reducing the demand on the acute sector by implementing programs to divert less acute presentations to more appropriate sources of care in the community, and implementing better management for people with chronic conditions to reduce their use of the acute health system

- *substitution* – expanding substitutes for acute care beds. This saw funding for expansion of initiatives such as: medical ambulatory day units (where patients are supported during day treatments); medi-hotels (which provide accommodation with limited nursing support to patients who would otherwise use an inpatient bed) and post-acute care
- *improving patient flows* – initiatives to enhance the effectiveness of patient movement between parts of the health system, both within the acute sector, and from acute to sub-acute. This included initiatives to improve triage processes in emergency departments, care coordination and discharge planning
- *increasing capacity* – expanding the capacity of the acute health system, including the opening of a new hospital at Casey and initiatives at existing hospitals such as the provision of additional emergency department cubicles.

Many of the initiatives described in this report were funded from the HDM strategy.

Distribution of HDM funds to hospitals was based on project submissions proposed by health services[5]. The strategies implemented at each site are tailored to meet local demand pressures and circumstances, and vary from one site to another. The total package of initiatives negotiated with each health service result from matching the local demand pattern to a mix of interventions that are designed to have a direct impact on local demand.

The HDM strategy includes the Hospital Admission Risk Program (HARP). HARP targets emergency department "frequent users", particularly the elderly and people with chronic health conditions. HARP projects are subject to an independent evaluation, and detailed analysis of individual HARP projects is excluded from this report.

DHS advised that during 2003-04 it will implement a new initiative called the Patient Flow Collaborative (PFC). The PFC will build on the work undertaken through HDM projects and work to diagnose system constraints on patient movement, develop and test innovations, build service improvement skills within health services, and mainstream innovations into hospitals.

Effective use of information technology and data management is also important to delivering service in the emergency department. In 2002-03, the government approved a 4-year whole-of-health information and communication strategy - Health*SMART*. Health*SMART* will invest $323 million in 3 areas:

- replacement of obsolete and unsupported applications with industry standard products. This will include replacement of the HOMER patient administration system, which is widely used in Victorian emergency departments

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[5] Hospital campuses are grouped under the legal control of Health Services. In metropolitan Melbourne there are 15 Health Services, each is governed by a board that contracts with DHS to deliver services.

- development of a shared-services model of ICT service delivery. This will reduce duplication of technology and services that are currently based in Health Services, streamlining delivery of services
- implementation of new applications and systems which will transform the way health care is delivered. For example, electronic medication ordering (ePrescribing) and electronic ordering of pathology and radiology services.

The initiatives in the Health*SMART* strategy will address a number of issues identified in this report, giving the opportunity for better patient management and more efficient use of resources. These are noted as they are raised in the report.

2.4   Conduct of the audit

The audit examined management of demand for emergency department services by Melbourne's major metropolitan hospitals and DHS. The audit considered 3 key questions:

- How effectively are hospitals managing presentations to emergency departments?
- How effectively are patient flows managed within the emergency department?
- How effective are strategies to move patients out of the emergency department – home, to an inpatient bed or to an alternative care provider?

2.4.1 Methodology

Detailed audit fieldwork including observation, interviews with staff and document examination was conducted within 4 health services:

- Bayside Health – looking at the emergency department of the Alfred Hospital and demand management initiatives across Bayside Health
- Western Health – including a detailed study of the Western Hospital emergency department, fast-track at Sunshine Hospital and demand management initiatives across the health service
- Melbourne Health – a detailed review of the emergency department at Royal Melbourne Hospital, and demand management initiatives across the health service
- Southern Health – including a detailed review of the emergency department at Monash Medical Centre at Clayton, and fast-track and diversionary initiatives at Dandenong Hospital.

Performance information for all 13 major metropolitan emergency departments was analysed using data from the Victorian Emergency Minimum Dataset (VEMD). The accuracy of this information was verified through a detailed computer risk management review of data collection systems and a reconciliation of local hospital files with electronic data in the VEMD.

A patient perspective was gathered through focus groups. Patients who had used one of the above emergency departments during 2003 were asked to discuss their experiences. Focus group comments are included throughout the report as boxed text. While focus group comments are not necessarily representative of the entire patient population, they highlight patient views, good and bad, on emergency department care.

2.4.2 Assistance to the audit team

Professor Chris Baggoley, Director of Emergency Department, Royal Adelaide Hospital, South Australia, provided specialist advice to the audit steering committee.

Iridium Consulting Pty Ltd provided assistance with developing the audit program and conduct of audit fieldwork.

The Health Issues Centre conducted patient focus groups.

3. How effectively are hospitals managing presentations to emergency departments?

3.1 Is hospital planning to manage demand effective?

3.1.1 Audit criteria

In assessing if plans to manage emergency demand were effective, we considered whether:

- local short and long-term demand drivers and patterns, including seasonal variation were analysed
- demand management initiatives were evaluated and reviewed
- a hospital or health service-wide approach was taken to improving access in emergency departments
- diversionary programs are targeted to key demand groups and have clear and consistent guidelines on their proposed and target groups
- inappropriate presentations are identified and strategies are developed for their management
- programs are in place for identifying and managing people who present frequently to emergency departments.

The audit did not undertake a full evaluation of the diversionary and demand management programs being implemented in hospitals. Many of the programs have only commenced in the past 2 years, and further time will be needed before full outcome evaluation of each program can be made.

3.1.2 Analysis of demand drivers and patterns

All the hospitals examined had undertaken comprehensive demand management planning. They considered trends in demand and access; demographics and likely future changes in models of care and demand patterns.

Health services had a good understanding of seasonal variation in demand patterns. Pressures on hospitals peak in winter when presentation rates increase and staff absences due to illness also increase. However, hospitals examined felt they had little capacity to "flex" capacity to meet demand. The capacity to make more inpatient beds available for emergency department admissions in winter was hampered by lower than usual nursing staff availability, and the need to meet continuing demand for elective admissions.

At the time of the audit, Western Health was examining opportunities to establish a "winter ward" to meet seasonal demand in winter 2004. However, capacity to implement such initiatives depends on staff and accommodation availability.

3.1.3 Evaluation and review of initiatives

In response to growing demand pressures, all hospitals examined had formed internal access and capacity task forces or process improvement teams. These groups typically identified and monitored the progress of demand management initiatives funded under the Department of Human Services (DHS), Hospital Demand Management Strategy. The most effective task forces had:

* leadership from senior clinical staff
* clear and structured access improvement plans
* formal role statements spelling out how the group fitted into the hospital management structure
* reporting through the hospital's committee structure to the board.

Strategies for review and evaluation of individual demand management initiatives varied according to the scale and cost of the initiatives involved. In most cases, simple cause and effect evaluation was not appropriate or possible. Hospitals examined generally had many demand management initiatives in place, and it was not possible to single out benefits from individual initiatives.

Where evaluations were undertaken, some compared pre- and post-initiative performance (however, in this case, not all controlled the data for seasonal variation). Other evaluations were more qualitative and considered staff and patient feedback on the initiative.

3.1.4 Organisation-wide approaches to improving emergency access

Hospitals had a sound understanding of the need to manage access to emergency department services in a system-wide context. Access and capacity task forces took a health service wide perspective, and considered the impact of "downstream" practices such as inpatient discharge practices and length of stay on emergency department access block.

A key problem for many health services was understanding where best to target investment to improve access for both elective and emergency admissions. Royal Melbourne Hospital (RMH) and Southern Health had commissioned some initial system modelling on hospital-wide patient flows, but this work had not yet delivered a fully operational decision support system. This limits the ability of health services to make judgements between the range of possible demand management projects.

This issue was identified by the Patient Management Task Force, which in 2001 recommended that "DHS should commission the development of computer-based patient flow modelling tools to assist metropolitan health services in forward planning their elective case-loads"[1]. While this recommendation was specifically about planning for elective access, computer-based patient flow modelling tools would provide significant benefits for access planning (including for emergency access) as a whole.

3.1.5 Reducing demand and diverting presentations

All hospitals examined were implementing diversionary programs to prevent presentations to the emergency department. Some programs deal with specific groups of frequent presenters, such as people with chronic illnesses or complex psycho-social needs which mean they often come to the emergency department for treatment.

Other diversionary programs are not specific to a clinical group and aim to reduce demand for emergency department services more generally. This can be by providing information services that prevent people coming to an emergency department unnecessarily or by offering more appropriate sources of care for people who do not need emergency department services.

Figures 3A and 3B describe 2 diversionary programs but there are many others. The common element is that they aim to prevent people from needing to use emergency departments.

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[1] Department of Human Services, Patient Management Task Force, Paper No. 4, *Improving the Management of Multi-day Admissions, Better Utilisation of Hospital Beds*, May 2001, p. 31.

FIGURE 3A: REDUCING DEMAND FOR EMERGENCY DEPARTMENT SERVICES - DIVERSIONARY STRATEGIES

Alfred Hospital/Bayside Health Mobile Assessment and Treatment Service

As the population ages, older people with complex health needs place greater demands on the health system. At the Alfred Hospital, people over 65 represent more than 25 per cent of all emergency department patients.

Elderly patients in residential care or hostels often have to be transferred to the emergency department if they need a medical assessment for a serious condition such as pneumonia or cellulitis. This can involve transport by ambulance and a long period in the emergency department during assessment; a stressful and exhausting process for a person who is already unwell.

The Alfred Hospital Mobile Assessment and Treatment Service (MATS) takes the assessment process to the patient. MATS is a multidisciplinary team, including doctors, nurses, and allied health professionals such as physiotherapists and occupational therapists. The service can also provide mobile X-ray facilities.

The MATS team can initiate treatment at the hostel or nursing home. They can also admit patients to the Alfred @ Home program (hospital in the home), or arrange to transfer them directly to the appropriate acute or sub-acute care path.

The service also identifies residential care patients in the emergency department and the wards. It works to facilitate early discharge if appropriate and can arrange follow-up medical assessments in the community to substitute for outpatient attendance. These services increase the quality of care for these patients, and can reduce pressure on the emergency department, inpatient beds and outpatients.

MATS is part of a larger service model at Bayside Health providing better care planning for acutely ill elderly patients; the Acute Aged Care Service (AACS).

Source: Victorian Auditor-General's Office.

3.1.6 Targeting and managing diversionary programs

Hospitals examined had a good understanding of their key demand groups and their local priorities for diversionary programs. A wide range of diversionary programs have been funded by DHS under the Hospital Demand Management Strategy, and on a metro-wide basis, diversionary programs are addressing areas of significant demand. DHS' decision to fund a range of programs across all health services has enabled a number of innovative models to be tried.

Each health service examined had local guidelines on selection criteria, intake and referral procedures for diversionary programs. Models of care and programs differ between health services and hospitals, and there are currently no common selection criteria and intake procedures. Hospitals examined identified this as an emerging need if programs are ultimately to be able to benchmark across the system.

Often the potential demand for diversionary programs far outweighs the number of places available. For example, Southern Health has established the *Care in Context* program for people with mental health issues who are frequent presenters to the Monash Medical Centre and Dandenong Hospital. Patients in the program who present more than 5 times in a 6-month period will have care plans developed by mental health care consultants located in community health centres. At the time of the audit, over 1 000 patients had been identified as potentially suitable for the program and as likely to benefit from it, however, only around 50 had commenced the program. This was partially because the program was in the early stages. The high number of potentially suitable patients is indicative of the potential demand for diversionary programs.

As diversionary programs are tested and reviewed, it will be important to review selection criteria, and ensure that the resources available for diversionary programs target the patients who can potentially get the greatest benefit.

3.1.7 Identifying and managing inappropriate presentations

Emergency departments cannot refuse to treat any patient who arrives, and increasingly attention on the growth in presentations to emergency departments has focused on whether all the people using emergency departments need the level of service they provide. It has been argued that many people coming to emergency departments could be treated by general practitioners (GPs).

DHS has estimated that about 37 per cent of all attendances to metropolitan emergency departments could be treated by GPs[2]. This estimate is based on a definition of a "primary care-type presentation" as any patient who:

- did not arrive by ambulance
- was not referred by a GP
- was triage category 4 or 5
- was not admitted
- had a total length of stay in the emergency department less than 12 hours[3].

National and international research on the topic shows the complexity of accurately identifying these patients. Recent research suggests that depending on the definition used, estimates of the number of primary care type patients attending an emergency department can vary between 3 per cent and 59 per cent[4].

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[2]Department of Human Services, *Hospital admission risk program (HARP) GP-hospital interface working party report* (2003), p. 23.

[3] This definition was adapted from a definition developed by the General Practice Division of Victoria, using current VEMD data fields.

[4] New Zealand Health Technology Assessment, *Emergency Department Attendance: A Critical Appraisal of the Key Literature* Report 8, 1998.

In addition to the lack of broad agreement on criteria for clearly defining a "GP-type" presentation, the audit identified problems with the data used by DHS as the basis of its current estimate. As will be discussed in Part 6 of this report, our audit of Victorian Emergency Minimum Dataset (VEMD) data on patient referral source showed a low level of reliability in these data. Around 11 per cent of electronic VEMD records audited indicate that patients were self-referred when patient files showed that they had been referred by a medical officer, hospital outpatients or transferred from another hospital.

It is likely that DHS' estimate of the number of "GP-type" presentations to emergency departments oversimplifies the definition. Because of poor data, it may also over-estimate the number of such presentations. More work needs to be done in this area.

In May 2003, parliament asked its Family and Community Development Committee to examine the impact of diminishing access to after hours and bulk billing general practitioners on the community and on public hospitals. One of the terms of reference of the committee was to examine the increase in presentations to emergency departments and "the extent to which this includes providing types of medical services that would normally be provided by a GP in a primary care setting"[5]. The committee is expected to report to parliament by June 2004.

Hospitals examined in this audit reported differing experiences of the impact of GP-type presentations. Some emergency departments reported that these patients were generally quick to deal with and were not major causes of workload or congestion. For other hospitals, access to out-of-hours care was clearly driving demand for service – these hospitals experienced a surge in demand from lower acuity patients in the evenings and on weekends, and had congestion in the waiting room and demand on resources at these times.

Several metropolitan hospitals are taking steps to improve community access to primary care outside normal business hours. At the time of the audit, Southern Health opened a general practice after-hours clinic next to the Dandenong Hospital. In addition, during March 2003, the state and federal governments reached agreement for the establishment of Medicare-funded bulk billing clinics at 3 Victorian hospitals.

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[5] Parliament of Victoria, *Parliamentary Committees Progress on Investigations to 31 January 2004.*

FIGURE 3B: REDUCING "INAPPROPRIATE" PRESENTATIONS AT WESTERN HEALTH

Western Hospital Health Advice Line

Many patients who present to an emergency department are not sure if their condition is urgent or not, and come to hospital to "be on the safe side".

The Western Hospital Health Advice Line (WHAAL) is staffed by experienced emergency nurses and provides advice using the same clinical protocols that are used triaging face-to-face presentations at the emergency department. Health line nurses provide advice on whether a condition can be treated at home or is a non-urgent condition and can be treated by the patient's own GP. They can also refer callers to other services such as drug and alcohol services, psychiatric services or dental services.

About 30 per cent of callers to the WHHAL are parents of young children, seeking advice on issues such as paediatric fevers. If home treatment is appropriate, advice is provided on immediate treatment needs, additional symptoms to be alert for and action to take if symptoms worsen.

Around 27 per cent of callers in 2002-03 were advised that while their condition required medical attention, it was most likely not urgent, and they should see a GP during normal business hours.

Source: Victorian Auditor-General's Office.

3.1.8 Managing frequent attenders

Because of chronic health problems or complex psychosocial needs, a small but significant number of people frequently attend emergency departments. A study conducted by the Alfred Hospital on frequently presenting patients aged 65 years or less during 2002-03 showed that:

- the top 10 presenters had 427 attendances (1.13 per cent of all attendances)
- the most attendances by one person was 91
- people with more than 10 attendances made up 2.97 per cent of all presentations.

As can be seen from the above data, successfully case managing a single frequent user and reducing their attendances can have a disproportionate impact on attendances. All hospitals examined were implementing programs for emergency department frequent attenders.

Many patients, including frequent attenders, present at a number of different emergency departments. Hospital patient records are based on an individual unit record (UR) number for each patient, but UR numbers are specific to a single hospital. As a result, there is no way to monitor the impact of programs on an individual's total number of attendances at all of the hospitals in the metropolitan area. Western Health has implemented a shared UR at Sunshine and Western Hospitals, and as a result can identify frequent users presenting to either hospital.

The inability to monitor patient attendances metro-wide can weaken the evaluation of frequent attender programs.

The absence of a common patient identifier also has much wider implications, and was identified in July 2001 by the Patient Management Task Force as an important step that would support better clinical decision-making and encourage better service integration across sectors[6].

DHS has advised that the introduction of a patient identifier for Victoria is one of the priorities for its Health*SMART* information technology strategy.

FIGURE 3C: FOCUS GROUPS – CHOOSING TO GO TO THE EMERGENCY DEPARTMENT

We explored reasons for going to the emergency department with patients in focus groups. For most people, the decision to go to the emergency department was not taken lightly. They went to the emergency department because they felt their medical condition was urgent or complex enough to need emergency department care.

> *"… you don't come to emergency unless you are pretty crook …"*

The availability of GP care was also a factor, with people indicating that they chose the emergency department either because of the lack of after-hours treatment, because the emergency department was closer than other treatment alternatives, or because of the cost associated with seeing a GP.

> *"I was feeling very unwell … and there was no doctor nearby … I [felt] absolutely dreadful"*

> *"You have to give them [GPs] $35 or more upfront just to be seen".*

Other patients decided to go to the emergency department because it had specialist diagnostic services available, or after consulting their GP. In some cases, the GP sent a letter of referral, or rang the ambulance on their behalf.

> *"My local GP… basically said if the pain gets worse go to hospital. That was the end of it as far as he was concerned."*

> *"[The GP] said I needed to go to hospital right away… [he] rang the ambulance and got me off to hospital … straight away."*

Generally, when patients called an ambulance themselves, it was because they felt it was the wisest decision given the seriousness of their condition. In some cases, they also believed that they would receive prompt attention if they arrived by ambulance rather than if they were a "walk-up".

> *"I called the ambulance because I read somewhere that if you want to be seen by a doctor, you call the ambulance and you get taken care of much better."*

Source: Victorian Auditor-General's Office.

3.1.9 Conclusion

Health services and DHS have undertaken a significant volume of work in demand management planning for emergency departments and in developing projects to increase capacity and reduce demand. Individual projects are generally well planned and targeted to areas of need.

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[6]Department of Human Services, Patient Management Task Force, *Patient Management Task Force, a 10 Point Plan for the Future*, July 2001, p. 23.

However, the complexity of the system makes it difficult for health services to make comparative assessments and to evaluate which projects offer the greatest overall benefits in managing patient flows. As individual initiatives are "proven" it will become more important for health services to be able to make comparative assessments between initiatives in order to guide investment. Computer-based patient flow modelling tools may assist with this, but further development is required before these tools are fully operational.

The funding made available under the Hospital Demand Management Strategy has allowed hospitals to develop and trial a number of innovative strategies for reducing and diverting demand for emergency department services. The next challenge for hospitals and for the department is to consolidate this work, identifying best practice models, and building greater commonality of procedures and performance criteria.

Recommendations

1. **DHS should lead the development of computer-based simulations for patient flow modelling to assist hospitals with demand management planning.**

2. **DHS should conduct further research on the issue of primary care type patients and their impact on demand for emergency services.**

3. **DHS and hospitals implementing diversionary programs should collaborate on developing common procedures and performance criteria in diversionary programs.**

4. **DHS should pursue the implementation of a unique patient identifier across the acute health system as a priority.**

RESPONSE provided by Secretary, Department of Human Services

Recommendation 1

Accepted.

The government has an ongoing commitment to the development of computer simulation models to assist health services to proactively manage demand. In fact, Victoria leads the nation in the development of state government-funded models for widespread use. DHS will continue to provide support to existing collaboratives involved in the development of such models as well as take a leading role nationally by fostering links with other states in order to maximise the benefits of this development.

Recommendation 2

Accepted.

DHS notes the auditor's comments with regard to the oversimplification of the definition of a "Primary Care Type" (PCT) presentation and agrees that further analysis is required, particularly to improve the data quality.

It is also noted that the impact of PCT patients on Emergency Department (ED) workload and congestion is variable across the system. DHS looks forward to the report to parliament by its Family and Community Development Committee in June 2004 that will provide further analysis on this issue.

A number of strategies have been introduced to meet the needs of PCT patients funded through HDMS. The Western Hospital Health Advice Line and the Metropolitan Ambulance Service (MAS) second-level triage Telephone Service are both aimed at reducing PCT attendances at EDs.

In addition, DHS and the Commonwealth Department of Health and Ageing will be piloting a model of General Practitioner (GP) co-located clinics within EDs. These clinics will be established with the support of Divisions of General Practice in areas of GP workforce shortage and demonstrated PCT patient demand for emergency services. Planning has commenced to establish 4 clinics this year.

Recommendation 3

Accepted.

DHS is evaluating a number of diversionary programs to identify best practice models that can be implemented across health services. An independent report will be available shortly on the impact programs funded under the Hospital Admission Risk Program (HARP) have had on reducing and diverting demand for ED services.

Recommendation 4

Noted.

DHS is working with the relevant national bodies to pursue a National Health Identifier. An identifier across the acute sector is not considered to be appropriate nor part of a separate DHS strategic direction.

RESPONSE provided by Chief Executive Officer, Southern Health

Southern Health supports the development of computer-based simulations/modelling of patient flows to improve the management and planning of both emergency and elective demand. Southern Health has been working with a number of organisations to assess whether their simulation models are applicable to the hospital environment.

RESPONSE provided by Chief Executive Officer, Western Health

Western Health supports these recommendations.

3.2   Are ambulance presentations adequately managed?

Ambulance presentations account for approximately 30 per cent of all presentations to metropolitan emergency departments. Their effective management by hospitals in conjunction with the Metropolitan Ambulance Service (MAS) is important, because temporarily diverting ambulance presentations through hospital bypass[7] is one of the only ways hospitals can manage situations where emergency departments are temporarily overloaded. However, if hospitals are on bypass more than necessary, ambulances have to travel further to reach an emergency department. As a result, ambulance response times increase and patient care may be compromised.

In early 2001, the Patient Management Task Force (PMTF) made a number of observations in response to a significant increase in incidents of bypass during the winter quarter of 2000

- bypass decision-making criteria and processes varied widely between hospitals – there were no consistent standards on who in a health service could authorise bypass, and no obligation to provide early warning of bypass to other hospitals or to the MAS
- there was little collaborative effort across health services to prevent bypass or to manage it when it occurred
- there were few effective early warning systems to give nearby hospitals time to gear up before diversion occurs, and the informal arrangements in place did not appear to have a significant impact
- many hospitals had noted a "domino effect" when hospitals in a geographic area went on bypass in sequence, but no effective regional coordination processes were in place.

In September 2002, DHS implemented the Hospital Early Warning System (HEWS). HEWS is an alert system designed to prevent hospital bypass by getting hospitals to identify the signs that emergency departments are nearing their maximum safe capacity, and take steps to ease congestion before critical levels are reached.

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[7] Hospital "bypass" occurs when an emergency department meets its maximum capacity. In this situation, hospitals can go on bypass and for a 2-hour period request non-urgent ambulances to bypass them and proceed to the next nearest hospital. Ambulance paramedics have discretion to take patients to the nearest emergency department even during periods of bypass. Patients with time sensitive conditions, such as cardiac presentations, will always be taken to the nearest emergency department.

When a period of HEWS is declared, hospitals first alert inpatient wards to free-up beds so that patients waiting for admission can be moved from the emergency department, before bypass levels are reached. After this internal escalation period has commenced, then the hospital contacts MAS and requests diversion of patients who are not time critical. During periods of HEWS, non-urgent patients who are already in transit or who have a relevant clinical history at a particular hospital will not be diverted.

The major differences between HEWS and bypass, are outlined in Figure 3D.

FIGURE 3D: HOSPITAL BYPASS ESCALATION STEPS

	Implemented when	Period and conditions	Hospital response	Ambulance response
Internal only Pre -HEWs	Varies by hospital	No set period Local arrangements	Emergency department staff fast-track and discharge patients where possible Wards paged and requested to identify any free beds or any patients who can be discharged to free up beds Bed coordinator identifies available beds and expedites moves to ward from emergency department Senior staff advised, and consider whether any additional beds can be opened	No ambulances diverted
Hospital Early Warning (HEWS)	Occupancy and workload in the emergency department indicate that bypass levels will be reached in one hour	One hour No more than 2 consecutive episodes and no more than 2 in any 8-hour period	As for pre–HEWS.	Non-urgent presentations diverted, unless the patient has a pre-existing history at that hospital Patients who are in transit at the time HEWS is requested are not diverted
Hospital bypass	The emergency department has reached its maximum resource capacity and the treatment of patients arriving and those already in the emergency department could be compromised if further patients arrive by ambulance	Two hours or less. An extension of not more than 2 hours may be requested No more than 3 per cent of operating time may be spent on bypass	Response to HEWS continues throughout bypass period	All ambulance presentations except the most urgent, time sensitive presentations are diverted

Source: Victorian Auditor-General's Office.

3.2.1 Audit criteria

In assessing whether ambulance presentations are adequately managed, we examined whether:

- hospitals have clearly documented bypass and HEWS policies. These policies have clear accountabilities for commencing and over-riding bypass; a hospital-wide escalation process with clearly defined actions and responsibilities; and clearly defined trigger points indicating the circumstances that HEWS and bypass should be implemented
- hospitals have bypass prevention strategies that focus on both creating capacity in the emergency department and facilitating patient movement throughout the hospital
- the number of instances of bypass are reducing
- HEWS and bypass are managed in collaboration across the emergency services cluster[8]
- communication and issues resolution arrangements with the MAS ensure that ambulance presentations are well-managed during normal operations.

The MAS maintains a central database of causes of bypass. This database indicates that in most cases, the reason hospitals give for bypass is "accident and emergency department full".

Hospitals examined in the audit were monitoring bypass instances and analysing its root causes. Generally, bypass was not associated with a surge in the number of presentations, but in a reduction in movement out of the emergency department. This caused the department to become congested.

MAS analysis of 2002-03 bypasses indicated that the number of ambulance presentations in the hour before bypass had little effect on bypass. Thirty-two per cent of all instances of bypass occurred when there had been no ambulance presentations in the hour before bypass.

Some hospitals have undertaken additional analysis. A study at the Royal Melbourne Hospital in July-August 2002 showed a high correlation between minimal or non-availability of multi-day inpatient beds and multiple episodes of bypass.

This relationship has been observed in other hospitals around the world. A study in the UK showed that when inpatient occupancy rates exceed 85 per cent, then bypass is likely. This relationship between occupancy levels and access block is explored further in Part 5 of this report.

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[8] In 2000, the Patient Management Taskforce recommended that the 13 major metropolitan hospitals should be grouped in 3 regional emergency access clusters. Clusters are encouraged to work together to identify local pressures, communicate with each other and MAS and where possible work collectively to avert bypass. If 2 or more hospitals in the same cluster go on bypass, MAS will advise them that it may not be possible to honour the request.

3.2.2 Hospital management of bypass and HEWS

DHS monitors the number of episodes of bypass and reports this publicly each quarter. Since 2003, the percentage of operating time on bypass at each hospital is also monitored, with a performance target of 3 per cent set system-wide. During 2002-03, hospitals were on bypass 1.9 per cent of the time. For the year to date 2003-04[9], hospitals were on bypass 1.9 per cent of the time.

Internally, hospitals exercise tight control over bypass and HEWS. Only senior medical staff such as the medical director of the hospital or the director of the emergency department, may authorise a request for bypass or HEWS. Performance is linked to annual bonus funding from DHS of up to $218 777, and hospital management monitor it closely. Generally, bypass is only requested as a last resort by hospitals.

Hospitals sometimes find it difficult to identify "trigger points" for bypass and HEWS. Determining when an emergency department reaches the limit of its "safe" capacity or whether the hospital is likely to be on bypass within an hour (the trigger point for HEWS) is a subjective exercise. Of hospitals examined, only the Alfred Hospital had implemented a systematic methodology. This is described in Figure 3E.

All hospitals examined had clear and detailed statements of staff roles during bypass and HEWS. These procedures specified roles of emergency department staff, bed management staff and ward staff. As a result, clear whole-of-hospital escalation procedures were in place.

FIGURE 3E: PREDICTING HOSPITAL BYPASS AT THE ALFRED HOSPITAL

The Alfred Hospital Emergency and Trauma Centre has developed a spreadsheet based emergency department load calculator that produces a snapshot of critical load indicators enabling calculation of the probability of the emergency department reaching a situation of overload and needing to go on bypass.

The system, Measured Actual Resource Calculator (MARC) is based on analysis of 2 years data of the conditions leading to instances of ambulance bypass at the hospital and calculates emergency department load. It takes into account factors such as patient numbers according to triage category, the number of patients waiting for beds, trolley availability, specialist staff resources available, expected arrivals considering the average maximum and minimum for the day of week and the time of day.

The system also considers whether other hospitals in the emergency services cluster are on HEWS or bypass.

MARC identifies resource shortages, is quickly completed and contains an element of prediction for future load.

As well as providing clear criteria for situations when bypass or HEWS should be declared, the Alfred has found that MARC is a useful tool for effectively communicating all of the relevant information about emergency department load with all stakeholders – emergency department staff, bed management staff and the hospital executive – when decisions about bypass or resources need to be made.

Source: Victorian Auditor-General's Office.

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[9] To the end of March 2004.

3.2.3 Reduction in bypass frequency

Figure 3F shows that the number of bypass instances has substantially reduced from a peak in winter 2000. Seasonal fluctuations remain, with bypass tending to increase in the winter quarter of each year, but overall, there has been a steady reduction.

FIGURE 3F: HOSPITAL BYPASS BY QUARTER
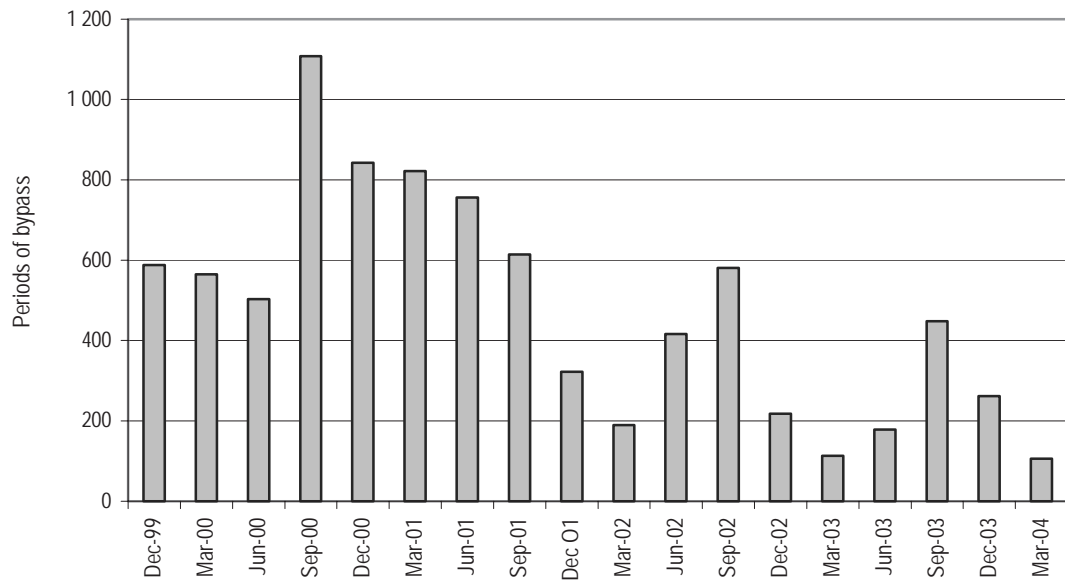
Source: Victorian Auditor-General's Office, from DHS data.

This trend has not been spread equally across hospitals. While some have improved significantly, others have contributed less to the metro-wide improvement.

FIGURE 3G: BYPASS BY HOSPITAL
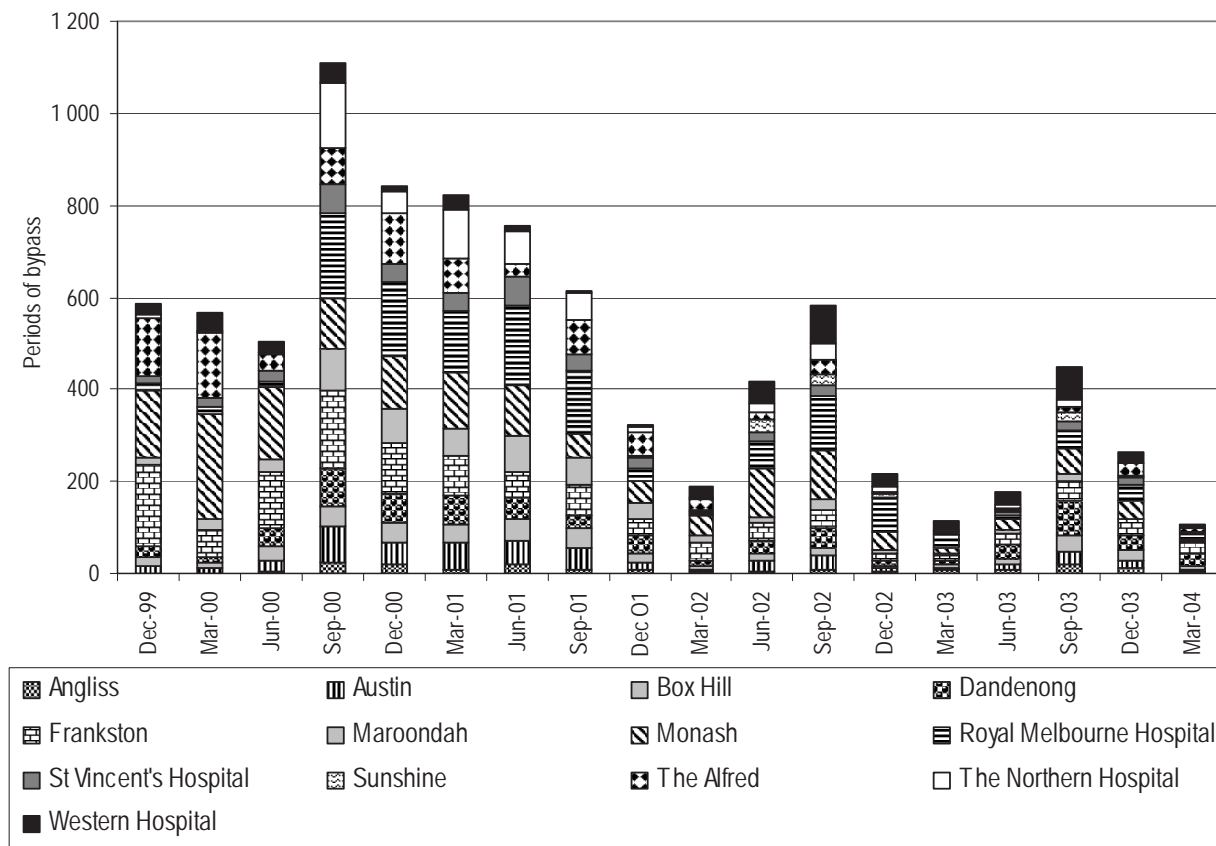
Source: Victorian Auditor-General's Office, from Department of Human Services data. Data at appendix A.

It is not possible to identify how much actual diversion of ambulances occurs during periods of HEWS or bypass, and whether the implementation of HEWS may have artificially reduced the number of periods of bypass to any extent.

However, HEWS undoubtedly has value as an internal escalation procedure, dealing with access block in hospitals before bypass levels are reached. Hospitals examined in the audit reported that HEWS helps free-up beds, reducing access block before critical levels of overload are reached, and preventing a progression to bypass. Monitoring of HEWS by DHS shows that around 90 per cent of HEWS periods do not proceed to bypass.

Figure 3H shows the number of hours on HEWS and bypass since implementation of HEWS.

FIGURE 3H: HOURS ON HEWS AND BYPASS
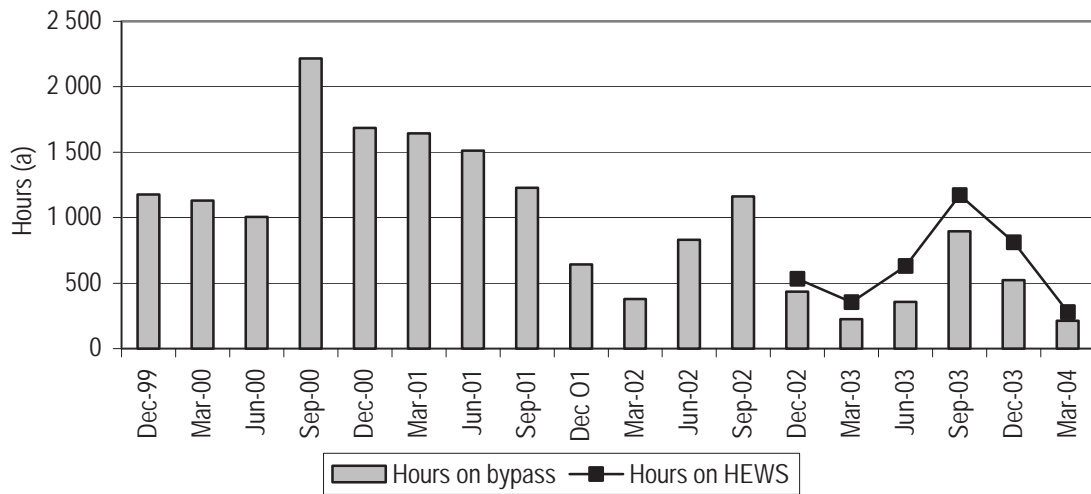
(a) Each episode of bypass is 2 hours, each episode of HEWS is one hour.
Source: Victorian Auditor-General's Office, from data produced by DHS.

Some hospitals examined had observed a tendency for staff in wards to become "desensitised" and less keen to help as frequency of HEWS increased. This was potentially worse in hospitals which also had an internal pre-HEWS process. In these hospitals, ward staff could receive several alerts for HEWS and pre-HEWS in a single day. The Western Hospital was addressing this issue by differentiating reasons for HEWS requests – wards were only alerted to a period of HEWS when the emergency department overload was directly linked to access block. Overload related to other factors (e.g. the emergency department having a short-term increase in the number of high acuity patients) was not advised to wards.

Comparison with other states is difficult as not all jurisdictions have the opportunity for bypass (large hospitals in regional centres can't divert ambulances to another hospital). However, Victoria's performance during 2002-03 of 1.9 per cent of time on bypass compares favourably with NSW where each metropolitan hospital spent on average 10 per cent of operating hours in the same period on bypass[10].

3.2.4 Collaboration to prevent bypass

Emergency services clusters were introduced to facilitate collaboration between hospitals on bypass management and prevention. Cluster operation is supported by the EM System (EMS), a web-enabled system that hospital personnel can use to check whether other hospitals in their cluster are on bypass or HEWS.

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[10] *Code Red: Hospital Emergency Departments,* NSW Auditor-General's Performance Audit Report 2002, p. 12.

Hospitals examined made ad hoc use of the system to check the status of other hospitals, usually as pressure in their own emergency department started to build. Only the Alfred Hospital regularly monitored the EMS to check the status of other hospitals in the cluster and then used this information in predicting the likely increase in its own emergency department load. They then used this information in decisions about whether to commence HEWS (see Figure 3E).

3.2.5 Coordination of ambulance presentations during normal operations

MAS ambulance crews decide which hospital to transport patients to in accordance with MAS' internal transport policy. Under this policy, even if hospitals are not on bypass, patients may not always go to the closest hospital, but to the one that is most appropriate in terms of likely travel time, clinical services available and patient needs.

Hospitals examined occasionally experience surges in ambulance presentations, with a large number of ambulances arriving in a short time frame. During our fieldwork at one hospital, 15 ambulances (this includes both urgent presentations by MAS and less-urgent non-MAS patient transports) arrived in 25 minutes. This places significant demands on emergency department staff to quickly triage and treat patients, and may cause delays in off-load times for ambulance crews.

While current coordination of presentations is minimal, the MAS advised that in 2004 it will implement real-time destination display for use by MAS Duty Team Managers located in the call/dispatch centre. This will allow the MAS to better distribute the load of ambulance arrivals at hospitals and smooth peaks in demand.

MAS does not routinely monitor the time taken from ambulance arrival to triage and to patient handover. However in the future MAS plans to measure the time taken from arrival at hospital until the handover is complete. When available, this information should be regularly shared with hospitals and emergency department staff.

Where problems with ambulance presentations are identified (e.g. inappropriate clinical management, inappropriate destination, delays in off-loading, or delays in patient hand-over), the emergency department director and the MAS group manager discuss and resolve the incident. Some emergency departments also met regularly with MAS. Most hospitals examined reported that they had a positive relationship with MAS, but they varied in the extent to which they felt they were able to effectively resolve issues arising with presentations.

No hospital examined had a systematic and objective process in place to track, investigate and monitor ambulance presentation problems. Nor did they have processes to identify instances where their own procedures might reduce the ability of ambulance crews to transfer patients swiftly and effectively. Even a hospital that reported that it felt it had significant numbers of issues with presentations had no local tracking and reporting system.

Transfer of patient from accident scene to ambulance.
(Photo courtesy of Department of Human Services.)

3.2.6 Conclusion

Significant progress has been made in preventing ambulance bypass, and addressing the problems identified by the Patient Management Task Force in 2000. Hospitals have made major improvements, systematising their internal processes for managing and preventing bypass. This is reflected in substantially improved bypass performance across the system.

The one area that some hospitals observed had not yet fully addressed was developing objective criteria for knowing when to commence bypass or HEWS. The Alfred Hospital's MARC system shows what can be done in this area.

The implementation of HEWS seems to have been successful in mobilising hospital resources to prevent bypass. However, some hospitals note that overuse of HEWS may potentially undermine its effectiveness as an internal escalation procedure. There is also a risk that HEWS may be used as a substitute for bypass. Joint review by hospitals, DHS and MAS would enable identification and sharing of good practices in this area.

Implementing better coordination of ambulance presentations to better distribute the load of ambulance arrivals during normal operations is the next challenge for MAS and hospitals. MAS' planned implementation of real time destination display for duty team managers will assist in this area. There are also other opportunities to improve collaboration between hospitals and MAS. While processes are in place for communication, the implementation of shared quality management processes, including issues tracking and resolution processes, would systematise the relationship.

Recommendations

5.   **DHS, hospitals using HEWS and MAS should review HEWS implementation and current practices to develop and share best practice models.**

6.   **Hospitals should work to develop more systematic methods of determining trigger points for HEWS and bypass, incorporating EMS information.**

7.   **DHS should work with hospitals and the MAS to develop collaborative process performance monitoring for ambulance presentations.**

RESPONSE provided by Secretary, Department of Human Services

Recommendation 5

Accepted.

DHS does not accept that HEWS may be used as a substitute for bypass. As noted in the report, HEWS is designed to escalate hospital internal processes so that the requirement for hospital bypass is averted. Health Services and MAS are meeting shortly to progress this issue. The establishment of emergency service clusters across the metropolitan area has provided the opportunity for hospitals in close geographic proximity to communicate with each other and MAS. The cluster arrangement also provides the framework for reviewing and developing best practice models to better manage system demand pressures.

Recommendation 6

Accepted.

EMSystem software has been provided to the major hospitals and MAS to allow real-time data on demand pressures across Melbourne. HEWS has provided for a common process in hospitals to trigger their own internal response to impending bypass. The involvement of MAS is integral to the optimal management of peak load across the system.

Recommendation 7

Accepted.

DHS will continue to work with MAS and hospitals to develop shared quality processes that will "systematise" the relationship. As noted in the report, initiatives such as MAS real-time destination display will assist in this area as will agreed performance outcomes between the hospitals and MAS.

RESPONSE provided by Chief Executive Officer, Metropolitan Ambulance Service

MAS strongly supports the recommendations for continued development of HEWS and for further collaboration between MAS, DHS and the hospitals on process improvement. In particular, MAS is very keen to undertake further work with hospitals to ensure smooth transfer of patients from the ambulance to the hospital, with minimal delays for patients.

As explained in the report, MAS intends to introduce enhanced real-time display of ambulance destinations for its Duty Team Managers in the ambulance communications centre. This should assist in the early identification of potential over-loading at individual emergency departments, and enable further refinement of HEWS strategies.

However, it should be noted that a strategy to better distribute ambulance arrivals during normal operations (as proposed in the report) may result in increased ambulance travel times, reducing the availability of ambulances to respond to emergencies. Development of such a strategy will need to take into account the possible negative effects, and should only be adopted after careful consideration of the impacts on all aspects of system performance and the level of service provided to patients.

RESPONSE provided by Chief Executive Officer, Southern Health

Southern Health agrees with the recommendation to develop systematic methods/systems to determine trigger points for HEWS and bypass, and supports system development to determine the level of acuity and workload within emergency departments, or the potential workload through patient arrivals by MAS.

RESPONSE provided by Chief Executive Officer, Western Health

Western Health agrees with the recommendation to develop systematic methods/systems to determine objective trigger points for HEWS and bypass, and supports system development to determine the level of acuity and workload within emergency departments, or the potential workload through patient arrivals by MAS. Western Health would also suggest that private ambulance providers should be included in the process of HEWS and bypass notification.

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4. How effectively are patient flows managed within the emergency department?

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4.1   Is triage and waiting room management effective?

When patients arrive at a hospital emergency department, they are immediately assessed and prioritised for care. This process, called "triage", ensures that patients are treated according to the urgency of their medical problem, not simply in the order they arrive. Effective triage is essential if patients are to receive the right care at the right time. Good triage processes can also enhance the flow of patients through the emergency department.

There are 5 triage categories:

- category 1: requires immediate response (e.g. cardiac arrest).
- category 2: treatment to commence within 10 minutes (e.g. airway risk)
- category 3: treatment to commence within 30 minutes (e.g. hypertension)
- category 4: treatment to commence within one hour (e.g. minor limb trauma)
- category 5: treatment to commence within 2 hours (e.g. a minor wound not requiring sutures).

It is important to remember that triage categories are about urgency, not severity. Many patients correctly assessed as triage categories 4 and 5 (not in need of immediate attention) still have conditions severe enough to require admission to hospital. Around 20 per cent of triage category 4, and between 5 and 10 per cent of triage category 5 patients require admission[1] [2].

4.1.1 Audit criteria

The Department of Human Services and hospitals have undertaken considerable work on building consistent and effective triage processes. Following the implementation of recommendations of the Consistency of Triage report in 2001[3], we expected to find that:

- triage directs patients to treatment areas within the department most appropriate for their needs
- triage is assigned according to the Australasian Triage Scale and emergency departments have strategies to ensure consistent application of triage principles
- triage practices are flexible and adaptable to busy periods
- staff performing triage have appropriate training and qualifications

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[1] Department of Human Services, Patient Management Task Force Paper No. 2 *Meeting Demand for Emergency Services: Better Management of Emergency Patients,* April 2001, p. 14.

[2] S Grant, D Spain, and D Green, "Rapid Assessment Team Reduces Waiting Time" *Emergency Medicine,* (1999) 11, pp. 72-7.

[3] Department of Human Services and Monash Institute of Health Services Research, *Consistency of Triage in Victoria's Emergency Departments Triage Consistency Report,* July 2001.

- target times from triage to treatment are established and monitored.

We also expected to find that:

- patients who were triaged and in the emergency department waiting room were monitored for any changes in their clinical status
- emergency departments have strategies for effective waiting room management.

4.1.2 The triage process

The triage nurse is the first contact for patients arriving in the emergency department, and is responsible for managing the flow of presentations. The nurse generally triages both walk-in and ambulance patients and allocates patients to a cubicle, the waiting room or another treatment location in the emergency department.

All the emergency departments visited managed patient flow at triage effectively. There was good communication between the triage desk and the main treatment area at all hospitals visited. This meant that the triage nurse was aware of capacity constraints within the emergency department and could manage patient flow accordingly. It was common at all hospitals to direct higher acuity patients (triage categories 1, 2 and 3) to the main treatment area, and lower acuity patients (triage categories 4 and 5) either to the emergency department waiting room or to fast-track programs, if they were available.

Initial medical assessments by triage nurses varied among hospitals and depended largely on adequate physical space to examine patients. Only 2 of the 4 hospitals had triage areas where nurses could examine patients privately. In the other hospitals, the patient's initial assessment occurred at the triage desk, and if the patient's condition warranted further examination, a private area was used. This system created potential problems by removing the triage nurse from the triage area. One hospital performed less invasive examinations of patients in the waiting room of the emergency department.

All emergency departments required triage nurses to complete triage training before they could perform triage. The level of training varied across hospitals, from in-house triage training to completion of additional advanced learning modules, which take approximately 18 months to complete. One emergency department required its triage nurses to undergo annual refresher training.

Triage training packages were consistent across emergency departments, with all using elements from the *Triage Education Resource Book*, developed by the Commonwealth Department of Health and Ageing. The use of the Australasian Triage Scale and associated clinical indicators in each hospital further added to consistency in triage. Only one hospital had strategies in place to measure consistency annually.

Transfer of patient details from ambulance officers to nursing staff.
(Photo courtesy of Department of Human Services.)

4.1.3 Meeting target times from triage to treatment

DHS has established targets for the percentage of patients who must be treated within time limits for each triage category. The percentage of patients who must be seen within time limits varies according to triage category, from 100 per cent for category 1, to 60 per cent for category 5.

These target times and hospital performance against them are included in Figure 4A.

FIGURE 4A: HOSPITAL PERFORMANCE - TRIAGE TO TREATMENT TIMES, 2002-03

Category One
(perf. standard 100% of patients seen immediately)

Category Two
(80% of patients seen within 10 minutes)

Category Three
(75% of patients seen within 30 minutes)

Category Four
(60% (a) of patients seen within 1 hour)

Category Five
(60% (a) of patients seen within 2 hours)
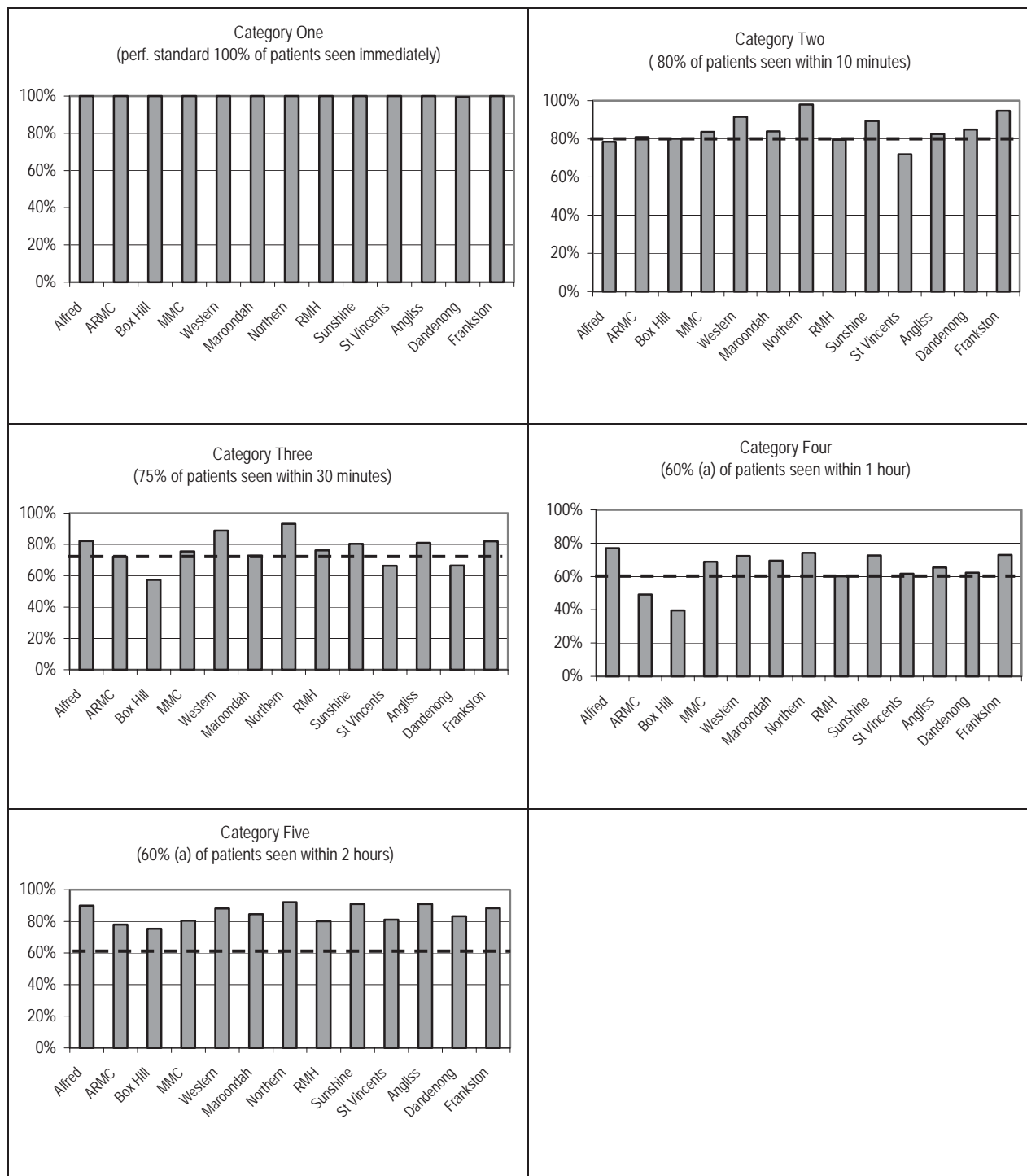
(a) The performance standard set by the Department of Human Services in Victoria for triage categories 4 and 5 times to treatment is 60 per cent. The Australasian College of Emergency Medicine and Australian Council on Healthcare Standards have a performance standard of 70 per cent.

Source: Victorian Auditor-General's Office, from Victorian Emergency Minimum Dataset (VEMD) data.

As will be discussed in Part 6 of this report on data accuracy, while we believe that generally the data reported in VEMD is accurate, there are some qualifiers to this.

We found that there is an inconsistency in the way hospitals report treatment times. Not all hospitals measure and report time from triage to treatment by the current standard. Current DHS business rules say that the "time of treatment" is the time that a patient is first seen by a treating doctor or nurse [4]. Not all hospitals have adopted this standard. Four metropolitan hospitals only recorded the time when the patient was first seen by a doctor, and did not record the time seen by a nurse in the VEMD.

The 4 hospitals recording only time seen by doctor in the VEMD are included in the 6 lower performing hospitals in triage category 4, and the 7 lower performers in category 5. Recording only the time that a patient is first seen by a doctor may tend to understate the number of patients who receive attention within target times at these hospitals.

4.1.4 Management of waiting patients

While the waiting room was widely used for less urgent patients, none of the hospitals visited had effective systems to monitor waiting room patients for changes in their medical condition. This is despite 2 hospitals clearly stating that monitoring was one of the roles of the triage nurse. It was common across all hospitals examined to have one triage nurse rostered per shift. Their high workload triaging arriving patients made it difficult for them to actively monitor the waiting room and to re-triage patients if they have not been seen within the recommended waiting time for their triage category.

Every year, around 30 000 patients are registered and triaged but leave metropolitan emergency departments before being treated by a doctor or nurse. This is about 6 per cent of all presenting patients.

Figure 4B shows that the numbers of patients who do not wait (DNWs) have increased over the last 4 years. However, when considered as a percentage of all presentations, the number of patients who do not wait marginally improved during 2002-03.

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[4] This definition of treatment time varies slightly from some other definitions used. The Australasian College of Emergency Medicine defines 'time of treatment' as generally the time a patient first has contact with the doctor initially responsible for their care, but states that where a patient in the emergency department has contact *exclusively* [our italics] with nursing staff acting under the clinical supervision of a doctor, then time of treatment is the time of the first nursing contact.

FIGURE 4B: PATIENTS WHO DO NOT WAIT
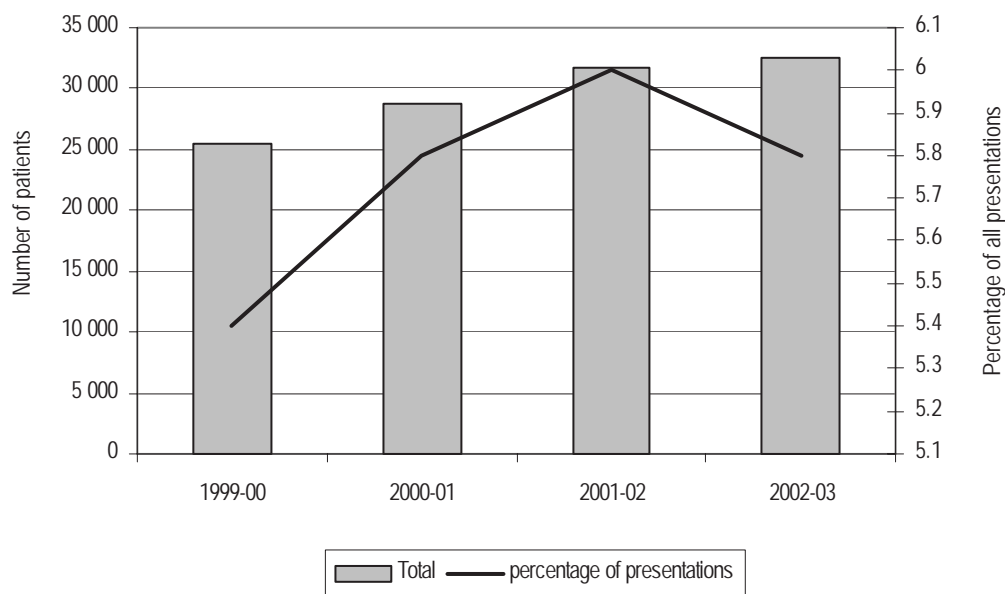
Source: Victorian Auditor-General's Office, from VEMD data.

There is significant variation across the metropolitan hospitals, both in relation to the percentage of patients who do not wait and the trend in performance over the past 4 years.

FIGURE 4C: PATIENTS WHO DO NOT WAIT, BY HOSPITAL

	1999-2000	2000-01	2001-02	2002-03
	(%)	(%)	(%)	(%)
Monash Medical Centre	6.8	8.2	8.7	10.1
Dandenong	8.1	8.3	7.5	7.9
Northern	7.3	10.1	8.9	7.5
Alfred	7.1	5.8	6.6	6.8
Box Hill	6.0	6.1	7.1	6.0
Austin and Repatriation Medical Centre	5.9	7.5	8.0	6.0
Sunshine	3.1	2.8	7.4	5.4
Western	3.8	3.6	2.9	5.1
Frankston	4.5	4.3	3.6	4.9
St Vincent's	6.9	7.2	4.9	4.5
Maroondah	5.3	6.3	5.6	4.0
Royal Melbourne	1.1	1.8	3.0	3.7
Angliss	5.5	4.4	3.5	3.1

Source: Victorian Auditor-General's Office from VEMD data.

Identifying the reasons people leave without treatment is difficult, however, recent research[5] indicates that the length of time patients wait to be treated is a significant factor. Despite these findings, none of the hospitals examined provided useful waiting time information to patients presenting at the triage desk, or regular updates to waiting patients in the waiting room. Generally, triage nurses we observed only gave patients advice on waiting times if the emergency department was busy and they were attempting to divert lower acuity patients away to reduce demand.

While some patients who do not wait may have been an inappropriate presentation, a percentage will be at risk medically. This is especially so for those patients who do not inform the triage nurse before leaving, do not get advice regarding alternative treatment options and do not have potential risk factors identified by medical staff.

During 2001, the Patient Management Task Force noted growing concerns about the numbers of patients leaving without treatment and recommended that "hospitals should monitor absconding rates as a marker of access to care"[6].

All hospitals visited were aware of the issue and the potential risks. However, none had developed specific strategies to reduce the number of DNWs, or to routinely follow-up with particular "at-risk" groups of DNWs (e.g. mental health presentations) to ensure they had found alternative sources of care. The Alfred collected local data on its DNWs, but at the time of the audit had not translated findings into a strategy.

Gaps in the data currently collected in hospitals and recorded in the VEMD limit knowledge about patients who do not wait and the ability to develop effective strategies for their management. Information on the patient's "presenting problem" is frequently collected at triage, however, this information is not collected according to standard criteria, and is not transferred to the VEMD. In addition, the use of stand-alone hospital information systems without common patient identifiers (UR numbers) prevents hospitals gathering data on whether the patient re-presents elsewhere.

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[5] C Fernandes, A Price, and J Christenson, "Does Reduced Length of Stay Decrease the Number of Emergency Department Patients Who Leave Without Seeing a Physician?", *The Journal of Emergency Medicine* Vol 15, No. 3, 1997, pp. 397–9.

[6] Department of Human Services, Patient Management Task Force Paper No. 2, *Meeting Demand for Emergency Services: Better Management of Emergency Patients*, April 2001, p. 17.

FIGURE 4D: FOCUS GROUPS – THE EMERGENCY DEPARTMENT WAITING ROOM

Focus group participants had varying experiences waiting for treatment. Some were seen almost immediately, while others in lower triage categories had to wait. Focus group participants understood the process of triage, and accepted that more urgent cases would get priority:

"It's emergencies first"

" ... a lot of people do not understand that it takes a while ... you are not the only ones there. There are other people too."

Although patients understood that the more urgent cases must take priority, waiting room patients were often frustrated at the long wait without information on the process of care or updates about likely waiting times.

"It's still a long time to wait. You're still in pain ... you think they would come out and say to you 'are you alright? Do you need anything for the pain while you are waiting?' "

"It was frustrating because ... you do not know where you're at ... and you do not know what's going on, it is quite frightening"

"It is better to know how long you might wait, rather than be told it'll not be too long."

Some patients felt the wait was too long, and more than one focus group participant had left before being treated:

"I was in the waiting room for about 7 hours, nobody told me anything ... the only information I got is actually when I went up to the window personally and asked them how long I will have to wait ... Then I got so disgusted I ... told them to take my name off the list ... I just walked out."

Another patient left after waiting 5 hours without being seen:

"They were making a genuine effort, but there just weren't enough of them."

Source: Victorian Auditor-General's Office.

4.1.5 Conclusion

Generally, the strategies implemented for triage consistency are working effectively. Triage nurses are applying consistent principles and effectively managing the initial prioritisation of patients for treatment.

Waiting room management in the hospitals observed was minimal. The lack of attention to this in some emergency departments represents a risk. At busy times, waiting room patients may wait for significant periods without adequate monitoring of their condition and without being re-triaged when they have passed the recommended waiting time for their original triage category.

It is likely that minimal supervision and feedback given to waiting room patients is one reason that patients leave the emergency department without waiting for attention. However, the lack of useful data on this group limits current understanding of the problem and the development of strategies to address it. More information is needed so that hospitals can better differentiate between patients who leave because they seek alternative sources of care, and patients who may be medically at-risk.

Recommendations

8. Hospitals should develop, document and implement procedures for monitoring and communicating with waiting room patients in the interval between triage and treatment and re-triaging patients when they have passed the recommended waiting times for their triage category.

9. Hospitals and DHS should collaborate to develop business rules for consistent information gathering on the presenting problem at triage, and investigate the value of collating this data in the Victorian Emergency Minimum Dataset (VEMD).

10 DHS and hospitals should develop protocols to identify and follow-up with patients who do not wait and who are in clinical groups identified as high-risk.

RESPONSE provided by Secretary, Department of Human Services

Recommendation 8

Noted.

DHS acknowledges that the lack of completeness of data, particularly in regard to patients who leave before treatment commences, potentially limits the development of strategies to manage patient waiting times in EDs. DHS will consider pilot projects to actively manage all patient's waiting times and the development of communication processes for all presentations at EDs through the next phase of the HDMS.

Recommendation 9

Noted for consideration by the Emergency Department Information Systems (EDIS) Review Committee.

Recommendation 10

Accepted.

There is correlation between prolonged waiting times and increased numbers of patients who do not wait. DHS has noted this recommendation and will work with health services to establish protocols and reporting frameworks.

RESPONSE provided by Chief Executive Officer, Southern Health

Southern Health notes that both the new GP clinic located on-site at Dandenong Hospital and the fast-track program within the Emergency Department at Monash Medical Centre are recent initiatives, and are just now beginning to have significant positive impacts on "patients who do not wait".

The figures for the first 10 months to April 2004 show that the "patients who do not wait" percentage at Monash Medical Centre has reduced from 10.1 per cent to 8.1 per cent and more recently, in relation to January-April, 2004, the figure is 7 per cent. Similarly. at Dandenong the percentages have reduced from 7.9 per cent to 7 per cent year to date, and for January-April the figure is 6 per cent.

Southern Health will continue to review and monitor this group of patients with the aim to ensure the trend of improved access to care is maintained. Southern Health notes that the "Triage to Treatment" times for the Cat 4 and 5 patients are on or better than benchmark times.

RESPONSE provided by Chief Executive Officer, Western Health

Western Health is addressing recommendation 8, and supports recommendations 9 and 10.

Western Health at its Sunshine Hospital site has a 'Fast-Track' system in place that is proving to be effective in managing patient flow in the Emergency Department. At Western Hospital, the Emergency Department is trialling alternative methods of managing workload within the Emergency Department that are not covered by the 'Fast-Track' concept. Medical and nursing staff are working in 2 teams to manage patients likely to be admitted and also patients likely to be discharged. Preliminary data shows an improvement in times to bed request and times to discharge.

4.2 How well are "fast-track" initiatives working?

We have discussed how triage ensures that patients who need the most urgent attention are always treated before patients with less urgent needs. This can mean that without special arrangements, patients who have simple conditions are pushed to the back of the queue by new presentations in higher triage categories. In many hospitals, these lower acuity patients are numerically the largest group of patients, and fast-track strategies can be very important in reducing congestion and patient frustration over waiting times.

Patients suitable for fast-track treatment paths may be treated quickly and may not need an emergency department cubicle with a trolley, but this does not mean they are necessarily GP-type patients who could be treated elsewhere. Fast-track conditions can include, for example, needle stick injuries or a foreign body in the eye.

As well as creating quick treatment pathways for patients with conditions that are relatively simple to treat, other fast-track initiatives can speed up the progress of patients with more complex conditions. Nurse-initiated procedures at triage can ensure that by the time a patient is seen for their first medical treatment after triage, blood tests or X-rays may have been requested and even completed.

4.2.1 Audit criteria

In assessing how well fast-track initiatives are working, we considered whether:

- fast-track initiatives were linked to key demand groups and key periods of demand to maximise the efficient and effective use of resources
- hospitals had clear criteria on the patients and conditions appropriate for fast-track
- staffing arrangements for fast-track minimised interruptions to activity in the emergency department
- treatment areas were appropriate for fast-track
- initiatives were locally evaluated.

4.2.2 Operation of fast-track initiatives

While fast-track programs in the hospitals visited had similar aims, each program had different structure and processes. This was appropriate given the differing characteristics and presentation patterns of the hospitals examined.

All hospitals had triage nurse-initiated processes in place. Figure 4E shows the variety of fast-track programs in use.

FIGURE 4E: FAST-TRACK PROGRAMS AT SELECTED METROPOLITAN EMERGENCY DEPARTMENTS

Hospital	Fast-track program	Hours of operation	Staffing
The Alfred	**Fast-track** For patients who have simple single-system complaints, are easily assessed and managed, require minimal investigations and have uncomplicated discharge plans.	24 hours	Dedicated nursing Shared medical
Dandenong	**Medical triage** Patients triaged category 4 or 5 that have obvious, non-urgent, uncomplicated ailments.	2.30 pm – 12.00 am	Dedicated medical Shared nursing
Monash Medical Centre	**Monash Care Clinic** Patients triaged category 4 and 5, who have minor and obvious conditions.	12.00 pm – 8.30 pm	Dedicated medical Dedicated nursing
Royal Melbourne	**Forward assessment nurse** Patient's condition would normally warrant admission, but their condition is good. May have blood taken or other nurse-initiated procedures commenced.	10.00 am – 7.00 pm	Dedicated nursing Shared medical
	General Clinic Low acuity patients who may be more suitable to attend a GP, but cannot, or will not, attend a GP.	7.00 pm – 12.00 am	Shared nursing Shared medical
	Fast-track Very simple procedures that require a short assessment and minimal treatment.		
Sunshine	**Fast-track** Defined minor complaints and injuries, not requiring trolley care or IV analgesia/ fluids and with a predicted stay of less than 60 minutes.	1.30 pm – 8.30 pm	Dedicated/ shared medical Dedicated nursing
Western	**Minor Injuries Clinic** Simple, well-defined injuries that can be assessed and managed by the Division 2 nurse under the supervision of a registrar.	Ad-hoc	Dedicated nursing Shared medical

Source: Victorian Auditor-General's Office.

All programs examined had clear criteria for the types of patients suitable for fast-tracking. These criteria were available at the triage desk to help triage nurses select appropriate patients.

Most hospitals had occasional difficulties in staffing fast-track programs with appropriately trained medical staff. This meant that some fast-track programs either did not run on certain days, or operated with interruptions due to the use of non-dedicated doctors. This is especially the case where the primary fast-track doctor split their duties between the main treatment area and fast-track. This method of staff allocation creates "stop-start" operations, making it difficult for the triage nurse to know whether fast-track is operating or not. This arrangement is contrary to good practice, which indicates that maximum effectiveness is achievable using dedicated medical and nursing staff[7].

Most emergency departments ran their fast-track programs at times of peak demand. However, some hospitals ran their programs according to the availability of medical personnel rather than according to peak demands. Such an approach can potentially represent an inefficient use of resources.

Space constraints meant that only one hospital was able to channel patients into a separate waiting area for fast-track. It was common practice at other hospitals to place these patients in the general waiting room. The separation of fast-track patients from other patients can minimise frustration over perceived "queue jumping" in those patients who may wait longer because their conditions are not suitable for fast-track.

Of the 6 emergency departments examined, 4 had a dedicated fast-track treatment area. The 2 that did not have dedicated facilities had access to areas within the emergency department, however as these were shared facilities (procedure rooms or low acuity cubicles) they were susceptible to competing demands. This can result in delays or the temporary cessation of fast-track at times of peak pressure in emergency departments.

With the exception of the Sunshine Hospital, hospitals examined had not conducted local reviews of the effectiveness of fast-track programs. Local evaluation of the impact on waiting times and length of stay would enable the identification and resolution of local operating problems. At Sunshine Hospital, the evaluation data showed that the fast-track program had reduced the time to treatment and length of stay for patients.

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[7] J Nollman and K Colbert "Successful Fast-Tracks: Data and Advice", *Journal of Emergency Nursing,* 1994; 20, pp 483-6.

4.2.3 Conclusion

Fast-track programs have great potential to reduce both the time it takes to receive medical treatment and the length of stay for patients with minor medical conditions. This is provided that the hospital has sound eligibility criteria, dedicated staff and that the program operates in periods of key demand. Not all emergency departments examined currently met these criteria, and it is likely that this is impacting on the efficiency of their fast-track operations.

Without local review, hospitals cannot be certain that they are maximising the benefits of fast-track programs, or that there are no unintended consequences (e.g. increasing numbers of inappropriate presentations attracted by the provision of a fast and free medical service).

Recommendation

11. **Hospitals should conduct local evaluation of fast-track programs to determine their impact on length of stay and time to treatment, their impact on the number of patients who do not wait and the use of the service by patients meeting criteria.**

RESPONSE provided by Secretary, Department of Human Services

Accepted.

Local evaluation is taking place and early evidence suggests that waiting times and patient satisfaction have improved.

RESPONSE provided by Chief Executive Officer, Western Health

Western Health supports trialling of different methods of managing workflow in Emergency Departments that is not restricted to the concept of 'Fast-track'.

4.3   Do emergency departments have key resources in place?

If emergency departments do not have basic resources – sufficient, qualified staff and an adequate number of treatment spaces then they will struggle to deliver timely care.

Diagnostic services, including pathology, medical imaging and pharmacy are also an important component of the treatment of emergency department patients. Delays in accessing these services and delays in receiving test results can lead to an increased length of stay for patients in the emergency department. This affects patient flow in and out of the emergency department, and can contribute to access block as cubicles are occupied with waiting patients.

In 2001, the Patient Management Task Force recommended that: "During 2001-02, metropolitan health services should review diagnostic services to ensure that delays are minimised and that they are responsive to the needs of the emergency department. Performance indicators for timeliness, quality and cost should be set at benchmark levels and hospitals should set up formal arrangements to compare results and learn about service innovations" [8].

4.3.1 Audit criteria

We expected to find that:

- emergency departments have sufficient qualified staff for their needs and strategies are in place to use staff in the most appropriate ways
- emergency departments have sufficient cubicles and treatment areas for presenting patients and their layout supports the implementation of emerging models of care
- emergency departments have ready access to diagnostic services and pharmacy – where services are shared, arrangements for access balance the needs of all users within the hospital
- diagnostic services and pharmacy are available in key demand periods
- benchmarks for timeliness, quality and cost of diagnostic services are established, and processes are in place to improve timeliness of service
- technology is used to minimise delays.

4.3.2 Emergency department staffing

The emergency department is a busy, demanding environment, and all hospitals examined in the audit identified times when staff work under considerable pressure.

Medical staff

There is no accepted formula or simple measure to determine the number of medical staff needed in an emergency department. Each hospital makes decisions on medical staffing based on their patient numbers, case mix and acuity.

In common with other states, Victoria has increased the number of medical staff who have specialist qualifications in emergency medicine over time, and hospitals examined had good coverage from senior medical staff with specialist emergency medicine qualifications.

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[8] Department of Human Services, *Meeting Demand for Emergency Services: Better Management of Emergency Patients* Patient Management Task Force Paper #2, 2001, p.21.

Nursing staff

In 2000, an enterprise bargaining agreement established agreed ratios for nurse staffing, specifying that emergency departments should have a staffing ratio of one nurse to 3 cubicles. The implementation of these ratios had an immediate and significant impact on hospitals, causing bed and emergency department cubicle closures as hospitals found they had insufficient staff to open the number of beds/cubicles required under the new arrangements.

Hospitals examined in the audit had made varying progress in addressing the issues resulting from implementation of nurse ratios. One hospital reported that it had a waiting list of staff wishing to work there.

Other hospitals were still having difficulty permanently filling positions. One hospital examined had around 27 per cent of its emergency department nursing positions vacant. While this situation is not ideal, this hospital has halved the number of vacancies from the position 2 years ago, and is addressing the problem over time through recruitment of graduate nurses and recruiting overseas. At the time of the audit, this hospital had plans to halve its current number of vacancies by mid-2004.

Where permanent nursing positions in emergency departments cannot be filled, hospitals fill positions temporarily, using casual or part-time staff.

To address the shortage of emergency department nurses, DHS has offered scholarships for nurses undergoing post-graduate training in emergency nursing. Since 2001, 139 scholarships for emergency nursing have been funded.

The current system, which determines required nurse staffing levels based on a simple ratio of staff per cubicle does not adequately address the staffing needs of hospitals with high numbers of waiting room patients. As we discussed earlier, some emergency departments have high numbers of waiting room patients at peak times, and a single triage nurse is unable to effectively observe large numbers of waiting patients while triaging new arrivals.

As emergency departments increasingly implement new models of care where ambulatory patients are directed to waiting areas and streamed through fast-track, staffing models need to consider more than simple cubicle numbers, taking into account patient acuity and models of care.

Support staff

Support staff – clerical staff and clinical support staff – are crucial for the effective functioning of an emergency department. Their flexible and effective use means that medical and nursing staff can spend their time doing clinical work and that delays are not caused by having to wait for patients to be registered or transported within the hospital.

We found a variety of approaches to determining the duties undertaken and workload of support staff in hospitals. Some hospitals such as the Royal Melbourne had worked to implement multi-skilled, flexible roles for their clerical and support staff. As a result, they felt that their use of these staff was efficient day to day, and that when they needed to implement changes to procedures in the emergency department, then they had the flexibility to do so. Some other hospitals examined had narrower role definitions for support staff, (e.g. one hospital had 3 different categories of clerical staff within the emergency department). Staff at these hospitals felt that although the demands on the emergency department and models of care had changed dramatically in the last decade, their support workforce was still based on traditional roles.

Aligning staff to emerging needs

DHS advises that it is leading a project to map the tasks and workflow within a number of emergency departments, describe existing and potential innovations and identify opportunities for appropriate adoption of these practices. The project will consider the full range of tasks undertaken within emergency departments. The project will identify opportunities for workflow efficiencies both within and across professional groupings.

The findings from this project will inform a second project in which a number of pilots across Victoria will be implemented.

4.3.3 Layout and space in emergency departments

During 2003-04, DHS implemented trial hospital planning guidelines[9]. This included benchmarks on the appropriate number of cubicles for emergency departments based on the size of the hospital and the number of patients presenting[10]. These are in line with the recommended benchmarks established by the Australasian College of Emergency Medicine.

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[9] Department of Human Services, *Capital Development Guideline 1.4: Hospital Project Planning Benchmarks*.

[10] One cubicle per 1 100 annual attendances for A1 hospitals, and one cubicle for 1 300 annual attendances for A2 and other hospitals.

Of the hospitals examined, 2 did not meet these benchmarks and data from DHS indicates that 9 of the 14 metro emergency departments did not meet the draft capacity standards based simply on the number of cubicles for presentations. The majority of these were included in DHS plans for redevelopment.

One of the hospitals examined, where the size of the facility did not meet the recommended capacity standard for their presentations had also closed 3 emergency department cubicles. These cubicles were first closed in 2001 because of the high cost of staffing them with agency staff. We were concerned that at the time of the audit, the problem was a long-standing one and there was no plan in place to re-open the closed cubicles. The hospital advised that the budget originally allocated for staffing those cubicles was allocated elsewhere in the hospital. This hospital is experiencing significant demand pressures, bypass above target levels and a large number of patients who do not wait for treatment.

Hospitals are currently required to report to DHS on the average number of inpatient beds that they have open each month. However, there is no requirement for hospitals to report on closure of emergency department cubicles.

Of the hospitals visited, 2 had more cubicles than the trial benchmark standard and staff agreed that current cubicle numbers were generally sufficient to meet demand, provided patients could be moved to inpatient beds when their emergency department treatment was concluded. However, where patients stayed in the emergency department for extended periods, it reduced the effective capacity of the department. This issue is discussed further in Part 5 of the report.

The benchmark standard of cubicles per presentation is a crude measure of whether an emergency department environment is adequate for presentations. Increasingly, patients in emergency departments are managed using new models of care, which require different options for patient accommodation. For example

- Fast-track programs, described earlier in this report, often do not require a traditional cubicle with a trolley for the patient to lie down on. They do, however, require a dedicated treatment area which patients can access quickly and easily, where treatment will not be interrupted by the operations of other parts of the emergency department
- Other patients may need to stay in the emergency department for an extended period of observation or medical planning. Increasingly, emergency departments are implementing Short Stay and Observation Units (SOUs) where these patients can be managed. SOUs provide patients with more comfort, security and privacy than emergency department cubicles. This is discussed further in Part 5 of this report, where we consider how emergency departments are managing long-stay patients.

Limited space and restrictive internal design at the older emergency departments visited hampered their ability to adapt to emerging models of care. This was especially evident at the one hospital where the short stay unit was situated away from the emergency department and in a prefabricated building. At another, where cubicle numbers were adequate by benchmark standards, the design of the emergency department prevents implementing effective fast-track areas.

As emergency departments are redeveloped to keep pace with the growing numbers of patients, it is important that redevelopments take into account the changing models of care, and provide departments with adequate space for current needs and the flexibility to adapt to future needs.

Nurse and emergency department patient.
(Photo courtesy of Department of Human Services.)

4.3.4 Access to pathology

All emergency departments visited had quick and effective access to pathology services. Most pathology requests and samples from the emergency department were transported directly to the pathology department within the hospital using pneumatic tubes.

Pathology departments perform the most common tests on a 24-hour basis in all hospitals, with other tests available on-call. Staff at all emergency departments visited were satisfied with the level of service provided by pathology.

To reduce the potential for delays, all hospitals examined had processes to reduce unnecessary and inappropriate test requests. Hospitals also performed ongoing quality audits, measuring turnaround times for common tests requested by emergency department medical staff.

A common issue across all hospitals was the inability to alert doctors when test results were available. All required medical staff to regularly check computer systems for the results. This can cause patient delays within the emergency department, with the potential for patients to occupy cubicles longer than necessary. Problems were also identified in relation to pathology departments being unaware of whether pathology tests had been checked by medical staff. One hospital was in the early stages of employing new technology to overcome many of these issues.

DHS plans to address these issues with the implementation of initiatives in the Health*SMART* IT strategy.

4.3.5 Access to diagnostic imaging

All emergency departments visited had ready access to medical imaging, with services available either within or next to the emergency department. Common imaging services, such as plain film X-ray were available 24-hours a day, while less common services operated on an on-call basis overnight. Hospitals dealing with trauma patients had greater access to medical imaging, with overhead gantries providing dedicated X-ray to specialised cubicles.

Only one hospital had benchmarks for timeliness of medical imaging services to the emergency department. This hospital reported against the number of written radiologist reports completed within 24 hours.

Quality audits measuring the turn around time for imaging varied across hospitals. Two hospitals conducted ad-hoc audits that were cumbersome and labour intensive. One hospital maintained ongoing quality data that measured timeliness from the point of the imaging, but not the total time from the imaging request to the time the image was available to the treating doctor.

Despite the absence of benchmarks and ongoing quality data in some hospitals, most emergency departments reported satisfaction with the level of service provided by imaging departments.

The use of technology to minimise delays was most evident with diagnostic imaging. Imaging departments use manually processed X-ray films in a limited capacity following the implementation of the Picture Archiving and Communication System (PACS) across the hospitals[11]. While only one of the 4 hospitals had a fully integrated PACS system, 3 of the 4 imaging departments had access to a partial PACS system, with aims to upgrade to a full system.

PACS has electronic storage capabilities, and as a result, has the potential to reduce delays caused by lost or misplaced manually processed films. Where hospitals use manual films, delays in production of radiology reports have led to a practice where the patient X-ray is usually given to the emergency department doctor before the radiologist has completed their report. The doctor views the X-ray, treats the patient, and returns the film to the radiologist so a report can be prepared. This creates opportunities for lost film, which can potentially place patients at risk if the images are misinterpreted, the emergency department discharges the patient and a radiologist's report is not prepared. PACS has the potential to eliminate this inefficiency.

While emergency department staff were generally satisfied with the service from imaging departments, several issues identified during the audit had the potential to significantly affect patient length of stay within the emergency department. All emergency departments experienced delays transporting patients to imaging rooms due to unavailability of hospital orderlies. One hospital estimated that patients could wait up to 20 minutes to be collected.

Competing demands between inpatients and outpatients for access to diagnostic equipment were experienced at one hospital in relation to the Magnetic Resonance Imaging (MRI) scanner. During audit fieldwork, a patient waited in the emergency department for over 120 hours (5 days) for an MRI required prior to discharge. These delays were attributed to outpatients being given preferential access to the MRI, with inpatients and emergency department patients forced to wait depending on outpatient demand. The potential for patient delays was compounded by a hospital protocol requiring patients with specific conditions to have an MRI scan prior to discharge. A similar policy was not in place at any of the other hospitals visited.

A number of elements of the above incident raised concerns:

- the 5-day wait for discharge from the emergency department was not identified and addressed by the hospital earlier
- a reasonable balance between the needs of outpatients and the needs of emergency department patients had not been established
- the impact of implementing the clinical protocol without making special access arrangements to minimise disruption to patient flows had not been considered.

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[11] PACS takes and stores digital images and can be viewed from high resolution monitors.

4.3.6 Access to pharmacy

All hospitals examined had dedicated pharmacists for the emergency department to ensure that patients awaiting discharge received timely and effective service. All emergency departments had access to pharmacy medication after hours and were able to prescribe medication using the Pharmaceutical Benefits Scheme (PBS).

Medication prescribed on the PBS can be collected from the patient's own pharmacist. This means that patients are not delayed waiting for discharge prescriptions to be filled by the hospital pharmacy.

Two hospitals had Service Level Agreements (SLAs), however, these were whole-of-hospital agreements and did not relate specifically to the emergency departments. The absence of SLAs and benchmarks across all hospitals was of less concern given the role of pharmacists within the emergency department.

FIGURE 4F: FOCUS GROUPS – TREATMENT IN THE EMERGENCY DEPARTMENT

Once inside the emergency department, focus group respondents generally felt that they were comprehensively assessed and received expert care, with access to specialists as necessary:

> " ... [when] I got to the emergency department, I got mobbed. I had the surgical registrar, I had the medical registrar and I had the orthopaedic registrar ... "

> " ... there were 5 people, they were wonderful. They were really wonderful."

Pain relief and rapid assessment were identified as priorities:

> "Pain relief was the big thing ... That was their major concern. And then they said I would have blood tests and X-rays to make sure ... "

> "I had 3 of them doing tests on me and ... they discovered in 15 minutes what was wrong."

Some focus group patients had to share cubicles or wait in corridor spaces, and described the lack of privacy and having to witness the behaviour of other patients at close hand:

> " ... stuck out on a trolley opposite a treatment room in agonising pain ... "

> " ... one bloke is yelling at that end, the bloke beside you is screaming out and another one somewhere else, he wants to kill himself ... "

Experiences of information provision varied. Not all patients were satisfied, and some felt the level of information provided to them was inadequate or took a long time to provide. Others were highly satisfied:

> "I was given lots of information each time about what it was they were looking for, what they thought had happened and what they had to rule out to make sure I didn't have to be admitted ... "

Overall, patients were aware that emergency departments are busy places, and of the demands on staff. Many were keen to express their appreciation for care they received in the emergency department and to acknowledge the pressures that they felt staff worked under:

> "All I can say is, for the amount of people they see, they do a bloody good job."

Source: Victorian Auditor-General's Office.

4.3.7 Conclusion

As demands on emergency departments increase and models of patient care change, the workforce needs to be both skilled and flexible. The number of medical and nursing staff with specialist qualifications in emergency medicine has increased over time, and medical and nursing roles are changing to meet the evolving needs of the emergency department. Clerical and clinical support roles are moving at a more uneven rate, with some hospitals successfully implementing workforce flexibility, and others making less progress. The DHS emergency department workforce study will assist in this area.

Strategies for nurse recruitment are gradually addressing nurse shortages in emergency departments at the hospitals visited, although some continue to experience difficulties recruiting permanent staff. However, determining nurse numbers based on cubicle numbers fails to reflect the current needs of many emergency departments. Cubicle ratios do not take into account patient acuity, the significant demands some hospitals experience from waiting room patients and changing models of emergency department care.

Not all emergency departments have the space required for the growth in patient numbers. Redeveloping and enlarging emergency departments takes time and forward planning, and the needs are being addressed over time. As redevelopment occurs, it is important that emergency department design supports the implementation of emerging models of care as well as meeting space requirements.

In addition to the constraint placed on some emergency departments in meeting demand because of space limitations, one hospital examined had further reduced its emergency department's capacity by closing cubicles. This decision was initially taken in 2001 during a period of extreme staff shortage, because of the high cost of agency staffing. However, the closure has continued and the hospital did not have plans to re-open the cubicles in spite of significant demand pressures, including high levels of bypass and large numbers of patients who do not wait.

While the DHS monitors the average number of inpatient beds that hospitals have open each month, hospitals are not currently obliged to advise DHS of the closure of emergency department cubicles.

While facing high levels of demand from service users, pathology, diagnostic imaging and pharmacy provide an effective level of service to the emergency department in most instances. The close proximity of these services to the emergency department can assist in reducing delays and enhancing access.

Recommendations

12. **Emergency department nurse staffing models should consider patient presentation patterns and care needs, not simple cubicle ratios.**

13. **As DHS reviews and finalises facility planning benchmarks, the new guidelines should take into account emerging models of care.**

14. **DHS should implement reporting by hospitals on the number of emergency department cubicles that are open.**

RESPONSE provided by Secretary, Department of Human Services

Recommendation 12

Noted.

Cubicle ratios are a requirement of the Industrial Relations Commission under the Nursing EBA. DHS has commissioned an ED Workforce study that will identify variations in work practices and workflow efficiencies, and make recommendations regarding potential workforce management. This study will take account of directions emerging from the Department's Workforce Flagship Project.

Recommendation 13

Accepted.

Future DHS service planning guidelines will reflect new models of care that impact on design requirements for EDs.

Recommendation 14

Noted for consideration. Intermittent audits of ED capacity are conducted and it is noted that hospitals vary capacity according to demand.

RESPONSE provided by Chief Executive Officer, Southern Health

Southern Health supports these recommendations and notes that the government has announced that a redevelopment of the Emergency Department at Monash Medical Centre is planned to occur. This development will address a number of the physical layout issues, which will support emerging models of patient care, particularly for the paediatric group of patients.

RESPONSE provided by Chief Executive Officer, Western Health

Western Health supports the text contained under the critical area of Emergency Department staffing but believes that recommendations 12-14 do not adequately reflect the complexity of this core component of Emergency Departments. Western Health believes that a recommendation should be included to address workforce planning.

A major area of concern for Western Health is the inadequate physical environment of our Western Hospital Emergency Department that impacts on the efficiency and effectiveness of our emergency services at this site.

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5. Is management of patient movement out of emergency departments effective?

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Figure 5A shows the trend in patient destinations at metropolitan emergency departments over a 4-year period to 2002-03. The figure shows that the greatest growth in destination from the emergency department has been in patients treated and returning home. It is not possible to identify simple causes for this trend, because the decision to admit a patient or to send them home is influenced by both patient factors (such as clinical condition and home circumstances) and system factors (such as the availability of beds in the hospital, changing models of patient care and the availability of community care support).

FIGURE 5A: METROPOLITAN EMERGENCY DEPARTMENTS, MAJOR PATIENT DESTINATIONS
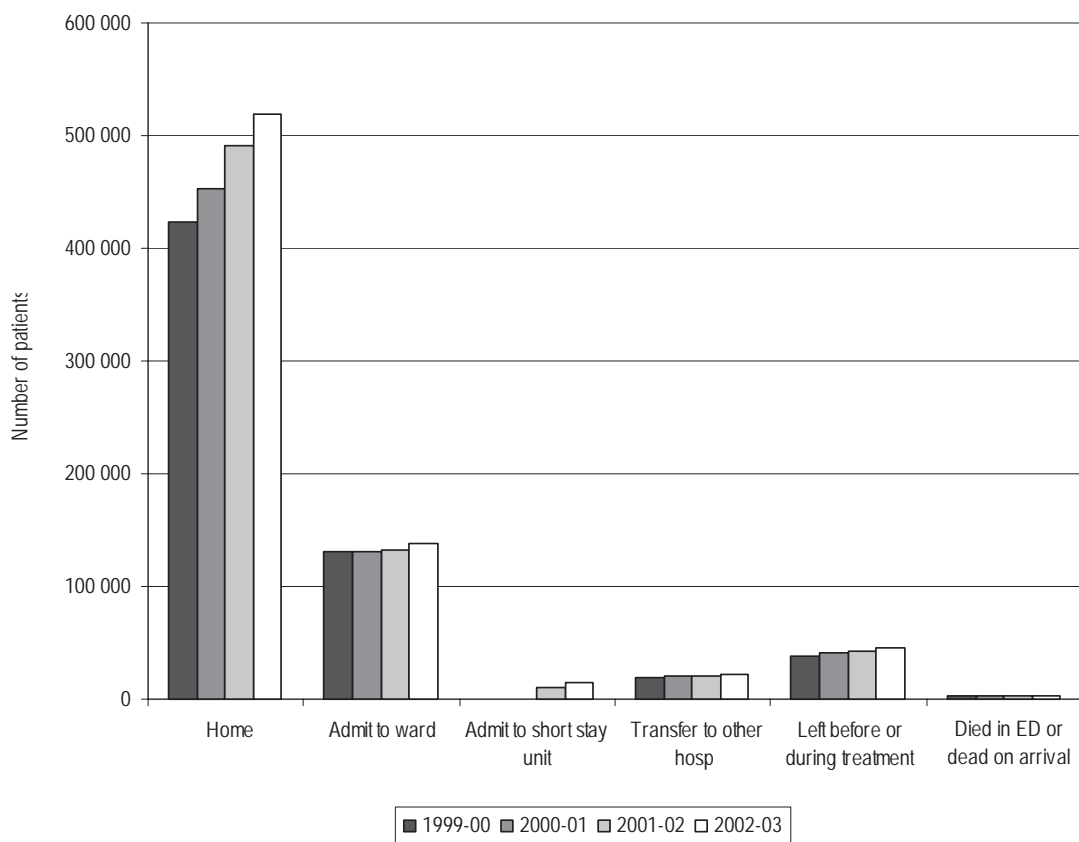
Source: Victorian Auditor-General's Office, from VEMD data.

5.1   How well are emergency department long stays managed and prevented?

There is no "right" length of stay in an emergency department. The appropriate length of stay is determined by the patient's clinical need. However, once a patient has been diagnosed and stabilised, and a decision has been made on whether to admit them as an inpatient for further treatment, then remaining in the emergency department adds little value to their treatment.

Emergency departments are designed for short episodes of care only. They have little privacy, generally have trolleys that are unsuitable to lie on for extended periods, the lights are on 24 hours a day and for most of the time emergency departments are a noisy, busy environment.

Apart from the discomfort and stress that may be experienced by patients staying for long periods in emergency departments, evidence is growing of clinical reasons to minimise patient stay in the emergency department. Recent studies have demonstrated a link between emergency department length of stay and increased length of stay as an inpatient. One study found that "compared to patients who stay in the ED for 4 to 8 hours, those who remain for 8 to 12 hours are approximately 20 per cent more likely to stay in hospital longer than the state average for the relevant admission problem. This rises to 50 per cent if EDLOS [emergency department length of stay] is greater than 12 hours"[1].

This relationship between the length of time spent in the emergency department waiting for a bed and subsequent inpatient length of stay has significant implications for hospitals. Long stays in the emergency department can represent a double loss of efficiency. Resources are tied up in the emergency department, where long staying patients reduce resources (both space and staff time) available to treat new presentations, and then during any subsequent inpatient stay, as additional bed days in that patient's inpatient episode of care.

5.1.1 Audit criteria

In assessing management of long stays in the emergency department, we considered whether:

- long stays in the emergency department are monitored and reported
- strategies are reducing the number of patients having long stays
- hospitals identify and address excessive admission, discharge or transfer delays.

[1] Liew, Liew and Kennedy, "Emergency department length of stay independently predicts excess inpatient length of stay", *Medical Journal of Australia* 2003, 179 (10): p 524-6.

5.1.2 Identification and reporting of long stay patients

Different jurisdictions measure length of stay in emergency departments by different methodologies. Each sets standards on the parts of the patient journey through the emergency department that they measure and the performance times that they expect. Figure 5B shows some of the current measures and standards.

FIGURE 5B: MEASURING TIME IN THE EMERGENCY DEPARTMENT
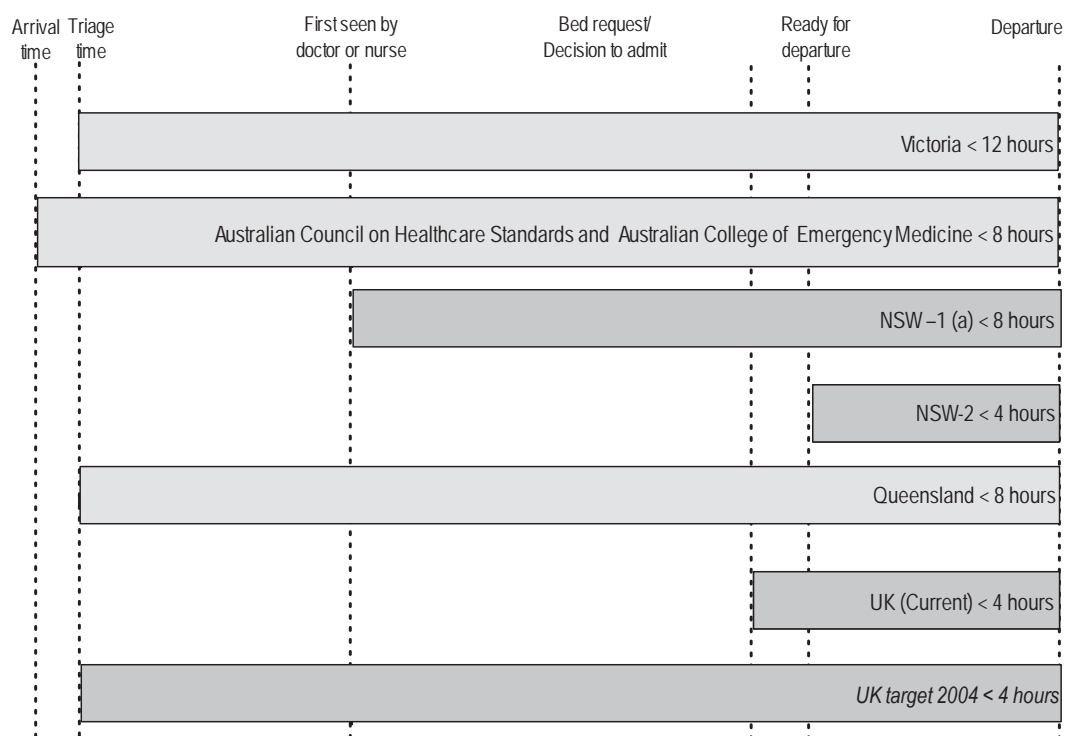
(a) NSW establishes standards for 2 phases of patient's stay in the emergency department – from the time a patient is first seen by a doctor or nurse to departure, and the time from when a patient has completed emergency department treatment and is "ready for departure" until they actually depart.

Source: Victorian Auditor-General's Office.

In Victoria, the Department of Human Services (DHS) has set a performance target for major metropolitan hospitals that 90 per cent of emergency department patients will spend less than 12 hours in the emergency department before being admitted to an inpatient bed. This target is linked to performance bonuses, and is set at individual hospital level. During 2002-03, 89 per cent of admissions occurred within this time frame[2].

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[2] Based on reported data from the Victorian Emergency Minimum Dataset. Part 6 of this report outlines minor qualifiers to this data identified during data accuracy checks.

In common with some other jurisdictions, Victoria's performance target for long stays includes only patients who wait in the emergency department and who are then admitted to an inpatient bed at that campus. Patients who may have been admitted, had a bed been available, but have a long wait and then go home directly from the emergency department, die in the emergency department or are transferred to another hospital, are not counted in this indicator.

In 2002-03, reported long stayers, (people who were eventually admitted to hospital) represented around 55 per cent of all long staying patients. In addition:

- approximately 30 per cent of patients were in the emergency department for more than 12 hours and then discharged home
- around 10 per cent of patients waited more than 12 hours for a transfer to another hospital
- around 5 per cent of patients waited more than 12 hours before going to another destination. This includes patients who left before their treatment was concluded, died or were admitted direct to a specialised unit.

The analysis in this report considers all long staying patients, not just those admitted to a ward.

5.1.3 Trends in long stays

Figure 5C shows that the number of patients staying in emergency departments for more than 12 hours peaked in 2000-01. Since then, in spite of a continuing upward trend in presentations to emergency departments, the total number of long staying patients has declined.

FIGURE 5C: PATIENTS STAYING MORE THAN 12 HOURS
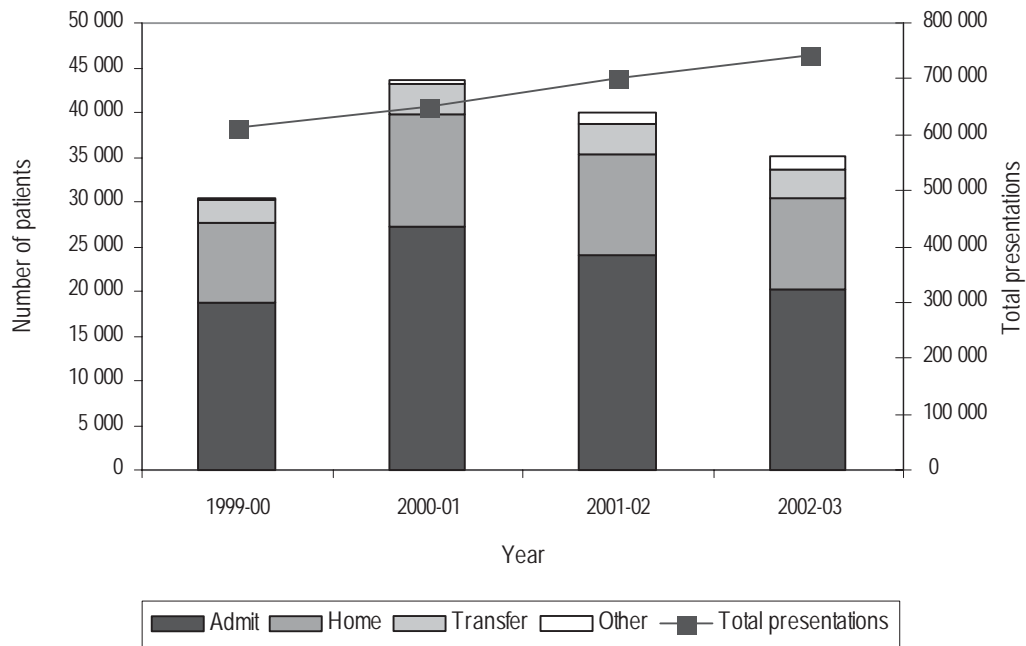
Source: Victorian Auditor-General's Office, from VEMD data.

Figure 5C shows that the greatest reduction in long stays was in the group of patients monitored under the DHS performance framework – patients admitted to a ward. Small reductions were made in long staying patients who go home, and patients who have a long wait before being transferred.

The growth in long staying patients going to "other" destinations is largely explained by a change in recording method. Before 2001-02, patients transferred to a short stay unit were counted with "admitted" patients. From 2001-02, they are included with "other".

While the total number of patients staying in emergency for longer than 12 hours reduced, the last 3 years have seen the emergence of some "ultra-long" stays – stays of over 72 hours (3 days) in emergency departments. The number of patients in this group is relatively small, but the excessive length of their stay is a concern. The trend is illustrated in Figure 5D.

FIGURE 5D: STAYS IN EXCESS OF 48 HOURS
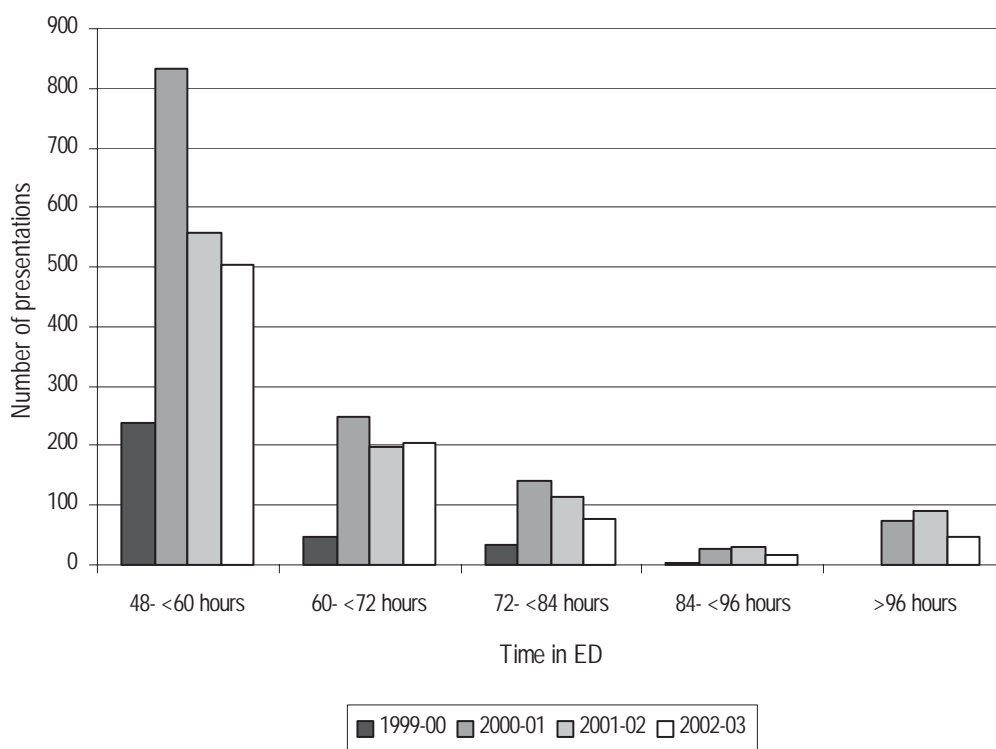
Source: Victorian Auditor-General's Office, from VEMD data.

5.1.4 Addressing long stays

As illustrated in Figure 5E, the distribution of long stays across metropolitan health services and the major reasons for long stays vary.

FIGURE 5E: PATIENTS STAYING MORE THAN 12 HOURS – DESTINATIONS, 2002-03
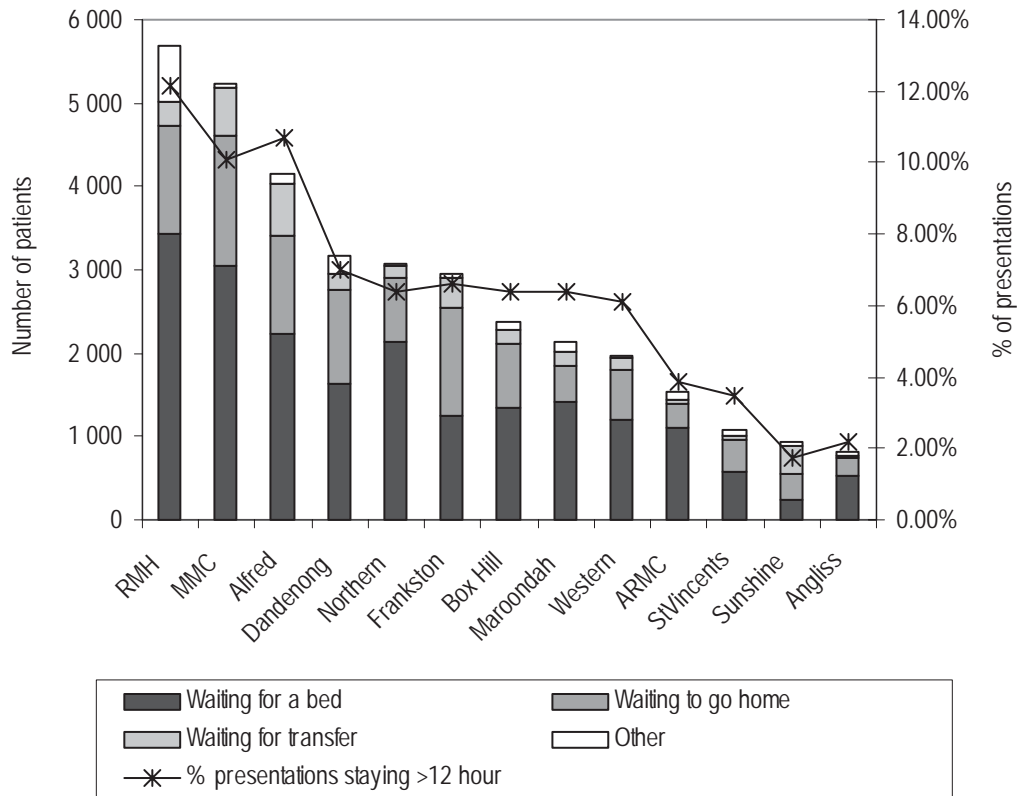
Source: Victorian Auditor-General's Office, from VEMD data (data table at Appendix A).

Hospitals visited in the audit closely monitored their performance against the DHS 12 hour wait target as part of regular performance monitoring by senior management. As with ambulance bypass, performance in this area is linked to bonus funding. Failure to meet the target for admissions within 12 hours can cost a hospital up to $405 000 a year in lost bonuses. However, as previously discussed, the current performance target considers only the long stayers who are ultimately admitted to a bed. Regular monitoring of all long stayers by hospital management was less comprehensive.

Of the hospitals examined, 2 had "flag" systems, where electronic patient management systems identified patients waiting in the emergency department for admission who were approaching the 12-hour threshold.

Whether they had automated systems or not, hospitals were conscious of the need to meet the 12-hour admission target for admission. Bed management staff reported that they would often pressure wards to move quickly to free-up beds for emergency department patients waiting for beds approaching the 12-hour threshold. This is apparent in Figure 5F, which charts the number of patients admitted between the 6th and 18th hour of their stay in emergency departments during 2002-03. The figure shows a surge in the number of patients admitted in the 11th hour of their stay in the emergency department.

FIGURE 5F: RATE OF ADMISSIONS – MEETING THE 12-HOUR TARGET
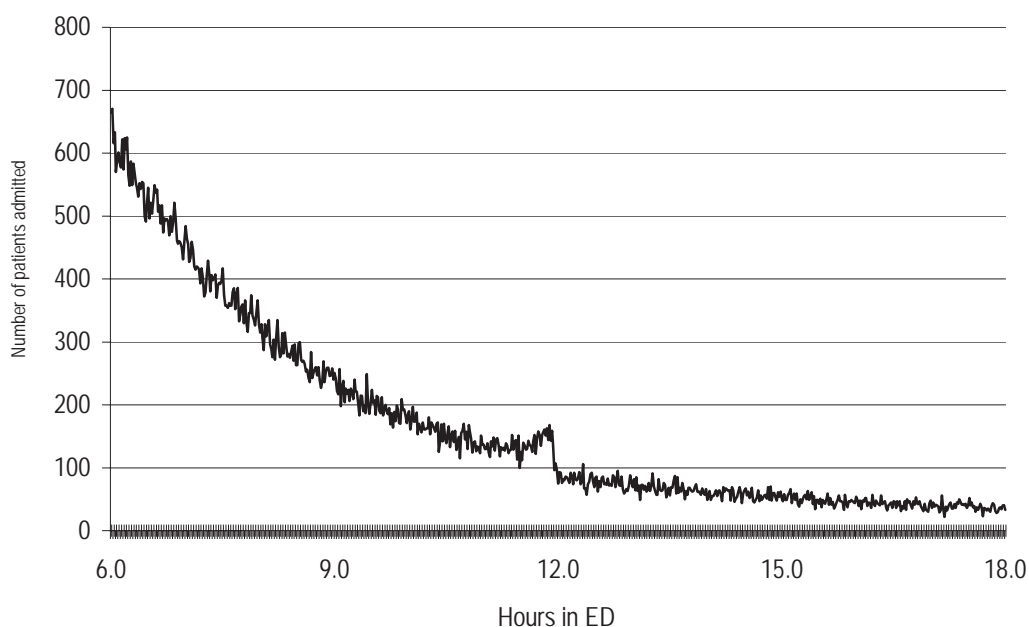
Source: Victorian Auditor-General's Office, from VEMD data.

The management of patients who passed the 12-hour threshold was less systematic. In 2 hospitals visited, the emphasis on meeting the 12-hour target had led to a practice of giving preference for beds to shorter staying patients over longer stayers. Where the clinical need of 2 patients was equal, and one patient had exceeded the 12-hour threshold while the other had not, then the patient who had been waiting less than 12 hours would be given priority for a bed.

No hospital examined had a formal protocol for identifying and case managing individual long stay patients, although one hospital was developing one. Senior staff in all hospitals examined played an oversight role, but no hospital had a policy of automatically advising senior management of the presence of long-stay patients.

Some sub-groups of long staying patients proved particularly difficult for emergency departments to address. Some hospitals examined had long delays placing psychiatric patients needing admission, either because of access to specialist beds, or because of delays in access to specialist expertise from outside the health service. Psychiatric patients can be challenging for emergency departments to manage, and the busy environment of an emergency department is particularly unsuitable for them. Emergency departments are not staffed or designed for their ongoing management, often having to sedate or physically restrain them. This issue was examined in our October 2002 performance audit *Mental health services for people in crisis*.

In 2001, the Patient Management Task Force identified increasing emergency department attendances for complex psychiatric and drug-related conditions as an issue contributing to access problems.

DHS is implementing an "alert" system for identifying the longest emergency department stays. The ED Length of Stay Program will require that metropolitan health services have a documented process for identifying and rectifying all stays over 48 hours in the emergency department, and advise stays in excess of 72 hours to DHS.

At the time of preparing this report, DHS had created an emergency department long stayers website. This password-protected website enables metropolitan health services to identify patients staying more than 72 hours in the emergency department, and to identify the factors that contributed to their long stay in the emergency department. Information from this website will inform DHS of system-wide issues contributing to very long stays in emergency departments.

5.1.5 Impact of long stays

The clinical case against long stays in emergency departments has been discussed earlier in this report. Studies have also shown that long staying patients reduce the operational efficiency of emergency departments. During audit fieldwork, this was particularly apparent in the emergency departments that used corridor spaces for additional patients during periods of high demand. As the workload increased, demands on staff also increased and the efficiency of the layout was reduced. Congested emergency departments can have slower operations at the time they most need to be efficient.

Hospitals examined also raised the risk of increasing error rates as an issue in the management of long staying patients. The work flow in emergency departments is fast-moving with frequent interruptions, and is not ideal for ongoing patient care which requires regular and systematic monitoring and medication.

FIGURE 5G: EMERGING MODELS OF CARE – SHORT STAY AND OBSERVATION UNITS (SOUs), AND MEDICAL ASSESSMENT AND PLANNING UNITS (MAPUs)

As hospitals work to make the best use of their resources, they are increasingly introducing models of care that fall between a stay in the emergency department and inpatient admission.

Short stay and observation units

Short stay and observation units (SOUs) are generally within or next to emergency departments. They are used for patients who are expected to only need a "short episode" of care (4-24 hours). This may be because they require a short-term investigation, e.g. for chest pain, or a short course of therapy, e.g. for asthma. Usually about 80 per cent of patients will go home from SOUs, and about 20 per cent will require admission to an inpatient bed.

SOUs provide intensive medical treatment and supervision, with an emphasis on improving patient flow. Generally, they have priority access to diagnostic facilities and a "fast-track" philosophy. For patients, they provide a quieter environment with better facilities (such as showers and lockers) than the emergency department.

SOUs can increase hospitals overall capacity (the number of available beds), but more importantly they can improve patient "flow" by providing timely assessments and treatment, and moving patients through in the shortest time that is clinically appropriate.

Medical assessment and planning units

Medical assessment and planning units (MAPUs) are also designed for a short stay, but while SOUs are generally directed at patients who are likely to go home, MAPUs provide a period of intensive assessment and care planning for patients who are likely to be admitted to the hospital. Around 80 per cent of patients in a MAPU will be admitted to the hospital. Their stay in the MAPU before admission provides the opportunity for intensive interdisciplinary care planning. This intensive planning can significantly reduce the patient's length of stay as an inpatient. This, in turn, increases the number of bed-days available at the hospital for other patients.

Royal Melbourne MAPU/SOU

In 2001, the Royal Melbourne Hospital (RMH) established a 16-bed MAPU and SOU adjacent to the emergency department.

The SOU and MAPU focus on timely diagnosis and decision-making and streaming patients as quickly as possible to the appropriate care option.

The Royal Melbourne Hospital MAPU and SOU established ground rules that the MAPU and SOU will not be used for "bed buffering" (to provide substitutes for unavailable inpatient beds) or to delay medical decision-making about a patient. Only patients that meet criteria and will benefit from the SOU or MAPU model of care use the MAPU and SOU.

Along with the emergency department at RMH, the MAPU and SOU are given priority access to radiology and pathology services provided by the Health Service.

Evaluations of the MAPU have shown that the philosophy of "front-loading" care, is reducing any subsequent inpatient length of stay.

Source: Victorian Auditor-General's Office.

Patient and staff in short stay unit.
(Photo courtesy of Royal Melbourne Hospital.)

5.1.6 Conclusion

The current Victorian reporting target for long stays is longer than a number of other jurisdictions. While the target might have been considered appropriate in the past, emerging evidence indicates that the current target exceeds an optimal length of stay for the best clinical outcome. In addition, current reporting only monitors long staying patients who are admitted to an inpatient bed at that hospital, as a result, around 45 per cent of emergency department long stayers are not included in the framework.

DHS and hospitals have made progress in reducing the number of long stay patients in emergency departments since 2000-01, in spite of continuing pressure from increasing presentations.

The greatest progress has been made in reducing the number of patients waiting for more than 12 hours for an inpatient bed, i.e. those who fall under the current incentive framework. The current incentive framework can also encourage dysfunctional outcomes as hospitals have less incentive to find beds for patients who have passed the 12-hour threshold than they do for those who are approaching it.

Progress in addressing long stays before transfer or discharge home has not been as good as progress in reducing long waits for patients who are admitted. This may be linked to the fact that the current incentive system focuses on patients who are admitted. It is also likely to be because hospitals have less direct control over the factors causing delays for these patients. Monitoring and reporting the length of stay of these patients is essential if system factors contributing to long stays are to be addressed.

Recommendations

15. DHS should review the use of the performance indicator of "Number of patients admitted to a bed in 12 hours" and implement a performance indicator, or indicators, that takes into account:

- **length of stay of all emergency department patients**

- **average patient length of stay in the emergency department.**

16. DHS should sponsor further work, including needs analysis into the issue of psychiatric presentations and long stays in emergency departments.

RESPONSE provided by Secretary, Department of Human Services

Recommendation 15

Noted.

It is recognised that this indicator reflects access issues only, not other issues with length of stay (LOS). A more appropriate LOS indicator that focuses on reducing very long waits in ED will be introduced, supported by expanded ED initiatives for more effective management of non-admitted ED patients.

As noted in the report, the ED Length of Stay Program whereby metropolitan health services are required to have a documented process for identifying and rectifying factors influencing length of stay, monitors the volume of very long waits in EDs.

Recommendation 16

Accepted.

A Mental Health Demand Strategy has been developed. A centralised bed management system has been implemented to provide accessible up-to-date information about bed vacancies across the system. Hospitals are now required to report long stay mental health patients in ED in order to monitor the impact this has on access.

It should be noted that mental health patients do need to access EDs at times and requirements of these patients are now considered in any capital developments or redevelopments of EDs.

A number of projects have been funded exploring more effective ways of working with people with complex psychosocial needs presenting to EDs.

RESPONSE provided by Chief Executive Officer, Southern Health

Southern Health agrees that there is a link between psychiatric presentations and long stays in emergency departments. This is most evident at Dandenong Hospital, where the number of psychiatric presentations is significant. Southern Health supports recommendation 16.

The Southern Health Mental Health Program is implementing strategies to alleviate this problem, for example, the appointment of a discharge planning coordinator to improve the flow of mental health patients from the Emergency Department to the Inpatient wards.

RESPONSE provided by Chief Executive Officer, Western Health

Western Health supports these recommendations.

5.2   How well are hospitals managing discharge home from the emergency department?

The majority of patients presenting to metropolitan emergency departments (around 70 per cent) go home after treatment. As seen in the Figure 5A, this destination is increasing at the fastest rate.

As the health system changes and ambulatory care[3] is increasingly substituted for inpatient care, the role of the emergency department is changing. Rather than simply stabilising patients who are then admitted as an inpatient for any care and complex care planning required, increasingly emergency departments are managing patients with complex care needs to enable their discharge home. The emergency department arranges specialist assessments, develops care plans, and arranges community support for patients who will then be discharged home with support. When done well, this arrangement benefits both the hospital and the patient.

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[3] Ambulatory care describes care that takes place as a day attendance at a health care facility or in the patient's home. It can include a wide spectrum of health services provided by community-based providers or hospitals.

5.2.1 Audit criteria

Successful recovery at home can depend on how well the emergency department identifies and addresses a patient's continuing care needs. We expected to find that:

- hospitals have consistent processes for identifying people who may be at risk after discharge and were identifying discharge risks as early in the patient's stay as possible
- discharge risks were addressed and coordinated care strategies and services were in place to support patient discharge
- discharge processes supported the patient's ongoing care by sub-acute health providers such as GPs.

5.2.2 Identifying patients with discharge risks

Of the 4 hospitals visited, 3 routinely conducted discharge risk assessment to identify patients who were likely to have difficulties managing at home when discharged from the emergency department. The risk assessment questions are in line with the best practice risk assessment questions developed by DHS and consider whether the patient:

- lives alone
- is likely to have self-care problems
- is a primary carer
- has used community services before this admission.

These questions flag possible discharge problems, and can alert staff that further work may be needed to ensure a safe and timely discharge on the completion of treatment. Generally, these questions were asked of patients either at triage or during the first medical treatment in the emergency department.

5.2.3 Addressing discharge risks

When discharge risks are identified, they often take time, planning and liaison with services outside the health service to resolve. For example, an elderly patient who lives alone may need a specialist assessment of their gait by a physiotherapist to ensure they are not at risk of falling, and home care and supports may be needed. The better emergency departments are at organising these services, the more likely they are to discharge patients home without delays.

All hospitals examined made use of care coordinators or discharge planning staff to act as dedicated problem solvers. These staff were generally allied health professionals such as physiotherapists, occupational therapists or social workers.

Their roles included:

- assessing patient needs
- addressing needs which cannot be met by existing supports
- arranging short-term support services to assist patients to recover at home
- arranging referrals to other community services to provide longer-term assistance
- liaison with other hospital staff to assist with early planning for discharge needs from inpatients.

The percentage of emergency department patients who could be seen by care coordination staff was dependent on the staff available. The hospitals with dedicated care coordination staff in the emergency department were seeing about 6-9 per cent of presentations to the department. Where demand for their services exceeded supply, care coordination staff focused on working with those patients where their intervention could prevent an inpatient admission.

Evaluation of the effectiveness of care coordination varied at the hospitals visited. Where care coordination services had been evaluated by hospitals, the results were positive. At one emergency department, care coordination has allowed around 2 per cent of patients to go home from the emergency department rather than being admitted, preventing about 620 admissions a year. Another hospital had conducted a staff survey, which indicated strong support for the work undertaken by care coordination staff.

Integration within the emergency department team was a key success factor for care coordinators. This was usually most effective when dedicated resources were available in the emergency department. However, it is not possible to provide dedicated resources in the full range of disciplines that may be needed in the emergency department – some assessments require specific skills. In this case, hospitals needed arrangements for flexible access to other allied health professionals from within the health service.

Referrals to care coordination services were problematic at some hospitals. Emergency department staff did not always refer patients who could benefit to care coordination staff. In these cases, care coordination staff based in the emergency department were generally pro-active and sought-out patients they could assist. The hospitals with the most referrals to care coordination staff had included discharge risk assessment and referral items on the emergency department admission form.

One of the biggest challenges to increasing the effectiveness of care coordination is the ability to integrate with other services across the continuum of care. Many of the services required to support discharge are provided by other parts of the health system (e.g. district nursing services) and access is restricted by their availability. In this situation, effective evaluation, performance monitoring and gathering of data on impediments to effective care coordination becomes even more important.

5.2.4 Continuity of care

Continuity of care, where a patient's GP receives information on their emergency department diagnosis and treatment, is important for all patients treated in the emergency department, not just those identified as being at particular risk.

In March 2003, a DHS working party recommended that "the Department of Human Services coordinate with hospitals the development of protocols for providing timely notification to GPs of treatment provided to their patients within the emergency department, subject to privacy provisions"[4]. This report identified the receipt of legible, meaningful discharge summaries as a high priority for GPs and something that they see as vital to their ability to prevent re-admissions and for continuity of care.

None of the hospitals examined routinely provided information to a patient's GP about their diagnosis and treatment in the emergency department. For clinical staff, the problem was little time to focus on "administrative" work, and lack of simple, standard processes for doing so. At busy times, provision of discharge information to a patient's GP took a lower priority than treating new arrivals.

A number of other states are trialing automated systems to share health information electronically between the acute and sub-acute health systems. The fragmentation of Victoria's electronic patient management systems is currently a major barrier to any similar initiative in this area. As we discuss elsewhere in this report, this issue was identified as a priority in the DHS Health*SMART* IT Strategy.

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[4] Department of Human Services, *Hospital Admission Risk Program (HARP) GP-hospital interface working party report*, March 2003, p. 4.

FIGURE 5H: FOCUS GROUPS – DISCHARGE HOME

Focus group participant experiences of discharge from the emergency department varied. Some reported that staff had taken time to explain the post-discharge arrangements to them, including medication prescribed:

> *"The doctor wrote me a letter and I had an appointment that evening at 5 o'clock with my heart specialist … [they] gave me a letter for him and he prescribed my medication."*

Others were less positive. They described examples of not knowing when they would be discharged, feeling that they were being rushed, or concerns that the handover to their GP had been inadequate:

> *"I particularly asked for the doctor's notes to take back to my GP. 'Yes, yes we'll do that' and then the doctor got too busy. Five months later … my doctor is still waiting for information about my 2 visits there."*

> *"I was happy overall. The only complaint I really have is not being able to get my reports to take back to my GP."*

Source: Victorian Auditor-General's Office.

5.2.5 Conclusion

The use of care coordination staff in the emergency department to prevent hospital admissions is a promising initiative that is enhancing patient care and reducing pressure for hospital beds. Hospitals examined were making good progress in this area. However, the next challenge for some is to gather more systematic performance data on numbers of potentially preventable admissions, establish performance targets and identify barriers to improved performance.

Support by emergency departments for "routine" discharge (where patients were not identified as at-risk) is inconsistent. Until simple, automated means of providing discharge summaries are in place, emergency departments are unlikely to make this a priority. However, building continuity of care with the primary care and community sector is an important element in preventing re-presentations to the emergency department.

5.3 How effectively do hospitals prevent access block?

Earlier in this report, we discussed how "access block" is linked to hospital bypass, congestion in emergency departments and long waits in emergency departments for admission. The following paragraphs consider the impact of practices elsewhere in the hospital on movement out of the emergency department, and some of the ways that access to the emergency department can be assisted by managing patient flows throughout hospitals.

Access block from the emergency department is integrally linked to hospital-wide bed management. It is related to a number of factors, including:

- how effectively hospitals plan for and manage total bed availability, making use of bed substitutes (such as hospital in the home) where appropriate
- how elective and emergency demands are balanced
- how beds are allocated to demand groups
- whether inpatient discharge practices maximise effective use of beds, discharging patients as soon they are medically ready
- whether a hospital's inpatient beds are tied up by patients who could be cared for elsewhere, such as in aged care centres.

In this report, we consider only the aspects of bed management that impact directly on access of patients from the emergency department into inpatient beds.

5.3.1 Audit criteria

In assessing how effectively access block is prevented, we considered whether:

- hospital admission policies provide bed management staff with clear guidelines on admission priorities
- bed management staff have sufficient knowledge, experience and resources to undertake the role
- enough beds are allocated to meet predictable numbers of emergency admissions, and hospitals have capacity to meet periodic spikes in demand
- inpatient discharge practices support access from the emergency department.

5.3.2 Admission policies

Not all hospitals examined had clear and up-to-date policies or criteria to assist bed management staff in decisions on priorities for allocation of beds. Much of a hospital bed manager's time is spent negotiating with other staff in the hospital on priorities for access, and clear policies endorsed by senior management assist in these negotiations.

The absence of clear business rules on admission priorities can also create informal pressure to admit patients in order to meet performance targets, rather than according to the length of time they were waiting (when clinical priority is equal). As noted earlier, some hospitals gave admission preference to patients who had not yet reached the 12-hour threshold over those who had. This does not provide equitable access to patients waiting for admission.

Nurse and patient in emergency department.
(Photo courtesy of Department of Human Services.)

5.3.3 Bed management

All hospitals examined provided strong senior medical leadership in bed management and staffed bed management offices with experienced nursing staff with a sound clinical knowledge and a good working knowledge of the hospital. Particularly at times of peak demand, senior staff provided regular oversight of bed management and assisted with problem resolution.

Bed management offices were generally located close to emergency departments and bed management staff had a good knowledge of patients waiting in the emergency department for admission. They also had good information on planned elective admissions each day. However, accurately identifying available beds and discharges (both planned and actual) was a challenge for bed managers. No hospital examined had an effective information system able to give real time information on hospital bed-state. Accurately knowing the hospital bed-state was a constant challenge for bed managers.

Bed managers typically gathered information through daily or twice daily meetings with ward staff, and phone calls during the day. During times of access block, bed managers often relied on "walk-arounds", where someone physically visited each ward to check for beds that may not have been declared vacant.

The daily bed management meetings were labour-intensive, but generally effective. As well as considering the overall picture of hospital bed availability, bed management meetings allowed staff to consider the clinical condition of patients waiting for admission and discharge, and to match individual patients with beds on specialist wards. Bed management meetings were also useful for building a hospital-wide understanding of the access pressures the hospital was experiencing.

5.3.4 Meeting demand for emergency admissions

The hospitals we visited knew the approximate number of beds they needed to have available each day for emergency admissions. Bed managers and emergency department staff reported that when this number of beds was not available in the morning, then long stays in the emergency department and bypass were likely unless internal escalation processes like HEWS were implemented.

Bed managers were less confident of their ability to meet surges in demand from the emergency department, or to continue to meet emergency demand when situations such as staff shortages or an internal problem (e.g. a ward closure due to gastro-enteritis) reduced the hospital's available capacity.

Research indicates that the most important single influence on whether hospitals will experience periods of access block is the hospital occupancy rate (the number of staffed beds that are occupied):

- one study concluded that "… risks are discernible when average bed occupancy rates exceed 85 per cent, and an acute hospital can expect regular bed shortages and periodic bed crises if average occupancy rises to 90 per cent or more"[5].
- in May 2001, Victoria's Patient Management Task Force observed that "… there are limits to the occupancy rates that can be achieved without considerable risk to the efficient delivery of emergency care"[6].

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[5] A Bagust, M Place and JW Posnett, "Dynamics of bed use in accommodating emergency admissions: a stochastic simulation model," *British Medical Journal*, 1999, pp. 155-8.

[6] Department of Human Services, Patient Management Task Force paper No. 4, *Improving the management of multi-day admissions: Better utilisation of hospital beds*, May 2001, p. 17.

All hospitals examined in the audit were running at occupancy levels above 95 per cent. Full exploration of this issue is not within the scope of this audit, however, hospitals cited a number of reasons for high occupancy rates, including:

- nursing staff shortages reducing the number of inpatient beds they could keep open. This occurred particularly during winter, when staff absences due to illness increased
- financial pressures – an occupancy level of 85 per cent would mean that some beds were staffed but not occupied and, as a result, not generating income for the hospital. Hospitals felt that under current funding arrangements, 85 per cent was not a viable occupancy level
- pressure to meet elective admission demands – reducing occupancy levels in order to be able to meet periodic surges in demand for admission from the emergency department would mean reducing the number of elective patients that the hospital was able to admit. These elective (planned) admissions also have significant clinical needs, and hospitals have to meet performance targets to reduce elective surgery waiting lists.

5.3.5 Managing inpatient discharge timing to facilitate patient flow

Patient discharge is determined by a number of conditions: whether the patient is well enough to go home; whether the responsible doctor is available to approve the patient's discharge; and whether any necessary support services can be arranged. Patients who may be medically well enough to go home from hospital on a Saturday or Sunday, sometimes wait until the next weekday either because their doctor is not available to approve their discharge, or because support services can not be arranged.

The slower rate of discharge on weekends reduces the number of beds becoming available and, as a result, access block tends to peak on Mondays. The issue is particularly important to access block from the emergency department, because unlike other areas in a hospital, emergency departments can not plan their admissions, and patients keep arriving (and needing beds) at a steady rate over the weekend.

In a review of hospital bed management in May 2001 the Patient Management Task Force noted the issue and recommended that "… metropolitan health services should review weekday and weekend admission and discharge practices and move as quickly as possible to a continuous 24-7-365 cycle. They should take collaborative action to improve Sunday discharges and avert Monday congestion"[7].

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[7] Department of Human Services, Patient Management Task Force, paper no. 4 *Improving the management of multi-day admissions: Better utilisation of hospital beds.* May 2001, p. 21.

All hospitals visited were monitoring the rate of weekend discharge, and had programs to increase the rate of weekend discharge and to case-manage patients who had a long inpatient length of stay. As with discharge home from the emergency department, the use of dedicated discharge coordination staff was a key success factor in timely and safe discharge of patients with ongoing care needs. These staff were able to effectively problem-solve and coordinate activities across disciplines.

Hospitals we examined addressed discharge delays, and increased weekend discharge in a number of ways:

- establishing clear data trails on expected discharge times, and starting to audit actual discharge time against planned discharge. Gathering this data is important to understanding and improving discharge performance
- paying for additional ward rounds by consultants on weekends or making arrangements for other medical staff to discharge patients who were ready to go home on the weekend
- conducting Thursday ward rounds to identify likely discharges before the weekend and making sure that advance planning, such as preparation of prescriptions and arranging transport, take place
- implementing "event driven" discharge, where the patient's doctor sets out the conditions that need to be met for discharge to occur and, if they are met, a nurse or another doctor is authorised to discharge the patient.

While hospitals had many initiatives in place to improve weekend discharge, these were usually limited to pockets of excellence within each hospital, with particular wards having implemented programs that were showing good results.

5.3.6 Conclusion

Bed management and admission practices at some hospitals examined currently impact on patient access from the emergency department. The failure of some hospitals we examined to establish clear policies on admission priorities can place undue pressure on operational staff when decisions need to be made on priorities for access.

Hospitals examined do not have robust systems for providing real-time information on available beds, planned admissions and planned discharges. While bed management staff were generally experienced with a strong sense of task, the current lack of IT infrastructure inhibits the effectiveness of this function, and makes it difficult to match available capacity with demand. It is unfortunate that this issue is not directly addressed in the current DHS IT strategy, however, it needs to be considered as a future priority.

Available research suggests that if hospitals run at occupancy rates above 85 per cent, then periodic episodes of access block will occur. This means that even if the other factors contributing to access block from the emergency department are addressed, access block will continue to occur during periods of peak demand unless occupancy rates are reduced, or hospitals identify ways to temporarily increase their capacity to meet surges in demand.

Some progress has been made in addressing discharge issues identified by the Patient Management Task Force. All hospitals visited were working on increasing the rate of weekend discharge, and all had pockets of excellence within the hospital. This work needs to continue.

Recommendations

17. Hospitals should have clear admission and discharge policies specifying priorities for admission and escalation steps to be taken at times of bed shortage.

18. DHS should take the lead in developing capacity management systems.

RESPONSE provided by Secretary, Department of Human Services

Recommendation 17

Accepted.

Recommendation 18

Accepted.

The HDMS strategy has targeted patient flow initiatives and projects that seek to use a data-driven approach to predicting and managing fluctuations in capacity. Investment in developing computer-based patient flow modelling tools (Recommendation One) and the Patient Flow Collaborative will inform the development of capacity management systems.

RESPONSE provided by Chief Executive Officer, Southern Health

Southern Health supports both these recommendations, and notes that a recent Southern Health initiative for chronic respiratory patients, called "Peak Flow", provides a strong link between GPs, the patient, Monash Medical Centre Emergency Department, Monash Medical Centre Inpatient "Units" and Southern Health Community support areas.

Preliminary data indicates that the time spent in hospital (length of stay) has reduced as a result of the Peak Flow initiative, and the number of admissions per chronic patient has reduced, but a complete evaluation of this initiative will occur following the 2004 winter period.

RESPONSE provided by Chief Executive Officer, Western Health

Western Health supports these recommendations and would like to emphasise the importance of developing inpatient bed management modelling.

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6. Data management and data quality

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The quality of emergency department data is important, as it is used to track the treatment of patients, monitor the performance of the hospital and assist with future planning. Information is recorded initially by hospitals upon treatment, and then forwarded to the Department of Human Services (DHS) for analysis of emergency department performance.

Most emergency departments use 2 systems to collect data:

- An emergency department management system collects data used for managing patients within the emergency department, and allows the emergency department to monitor the current location of patients and waiting times, and record nursing observations, diagnosis and clerical details
- A patient administration system (PAS) collects demographic registration information relating to the patient. If the patient is admitted as an inpatient, the PAS also tracks this part of the patient's stay.

In addition, all emergency departments maintain paper files, which include the information recorded electronically, as well as clinical information.

6.1 Are emergency department management systems effective?

There are a number of different emergency department management systems in use in hospitals in Victoria, and 3 different systems were in use in the 4 emergency departments we visited. While they all collect a minimum set of information, the sophistication of the software, the extent to which it interfaces with other systems and the way it is used within emergency departments differs.

6.1.1 Audit criteria

The data in emergency department systems should be confidential, accessible when needed, complete and accurate. In assessing whether controls over hospital emergency department information management systems were adequate, we considered whether:

- security over data was appropriate
- there were documented procedures to assist in continuing operations and recovery in the event of a system failure or disaster
- upgrades to the systems were well-managed
- there are adequate checks to ensure that the quality of data input is sound.

6.1.2 Data security

Emergency department information management systems should prevent unauthorised people from gaining access to view or change data. While all of the hospitals visited had implemented some security over their emergency department management systems, we found this was inadequate for the majority. Weaknesses identified included:

- widespread use of shared user accounts and passwords
- non-conformance with best-practice user account and password standards
- no auditing and monitoring of security-related activity within the systems
- inadequate set-up of security levels of staff with access to the system
- weakness in the security of operating systems supporting the systems.

We found a lack of security planning for emergency department information systems in all hospitals examined. None had conducted a formal threat and risk assessment or developed detailed security guidelines and procedures. Three of the hospitals had also not conducted this planning for their hospital-wide patient management systems.

Some of the security practices implemented for emergency department management systems reflect this lack of security planning. However, the Alfred Hospital had implemented some strong controls over access to its emergency department management systems. These included:

- unique user accounts and passwords for staff
- forced change of user passwords on a periodic basis
- formal procedures for granting staff access to the system
- automatic expiry of temporary staff access upon completion of their contract
- defined user access profiles for different types of staff.

6.1.3 Disaster recovery plans

All hospitals could implement manual recording procedures in emergency departments for continuing operations in the event of a system failure. In addition, all were regularly backing-up their data, and 2 had in place alternate systems that could be temporarily used in the event of the primary systems being unavailable.

While these measures provide protection in the event of a system failure, 3 of the hospitals had not developed IT disaster recovery plans for their critical systems (including emergency department management systems). While the other hospital in the sample had documented a plan, it was out of date and had not been adequately tested.

The hardware utilised for one hospital's emergency department and patient management systems was outdated and utilised almost to full capacity. It may be difficult for this hospital to replace the hardware components in the event of a failure, which could substantially increase its recovery time.

6.1.4 Managing system upgrades

Emergency department management systems are upgraded as required to add or enhance the functionality of the system and to comply with new government reporting requirements. DHS issues new data submission requirements annually. Upgrades to these systems can be costly and failing to manage them correctly can reduce the integrity and reliability of emergency department data.

All of the hospitals sampled had implemented packaged solutions for their emergency department software. The software vendors upgrade the software as required, generally following a request from the hospital.

While we found that some of the upgrade processes were adequate (i.e. request and approval for changes to the systems), we found other areas were not. In particular:

- none of the hospitals examined adequately documented the procedures required to upgrade and modify their systems
- user acceptance testing of changes to the software was generally informal, did not always cover all changes and functions and was not always conducted by users
- business owners did not always formally approve the installation of upgrades into the live environment.

6.1.5 Data quality checks

The 3 different systems used at the hospitals sampled during the audit all had different controls over data input and validation. While many of these controls were adequate, there were some system limitations that could weaken the quality of data entry.

Emergency department management systems are closely linked to hospital-wide patient management systems. While some information is automatically shared between the systems, often duplication of data entry of patient data is required.

Other weaknesses in the software packages used for emergency department management included:

- few restrictions preventing users from changing treatment dates and times. These dates and times are used by the hospital and DHS for assessing emergency department performance

- one of the software packages required the entry of data not used for operational purposes or for reporting to DHS. This increased the time required for data entry unnecessarily
- screen layouts of 2 software packages did not reflect the work practices or operational processes within the emergency departments.

6.1.6 Patient administration systems

Patient administration systems record inpatient admission information as well as tracking the status of individual patients within hospitals. They form an important part of the emergency department registration process.

The effectiveness of the interface between patient administration systems and emergency department management systems varied. This meant that in some hospitals duplicate data entry was required, and created a risk that changes could be made to patient information on one system that were not transferred to the other.

While a full assessment of patient administration systems was outside the scope of the audit, we identified a number of risks that could impact on the quality and reliability of patient information. These included:

- patient administration systems used by all of the hospitals sampled were over 10 years old and based around old technologies
- vendor support for the patient administration software used at the sampled hospitals was to be withdrawn in the near future.

DHS advised that the replacement of this patient administration software will be addressed in its Health*SMART* strategy.

6.1.7 Proposed actions

Many of the issues identified above were identified in DHS' Health*SMART* IT strategy as problems applying to IT management in Victoria's health system more widely, not just to emergency department information systems. The strategy notes that "… agencies are heavily dependent on these systems yet they typically have no redundancy, they live in environments that are inadequately protected and they have no refresh or upgrade paths planned"[1]. The strategy identifies ageing and obsolete IT systems as a significant risk, and notes fragmentation of systems, duplication of infrastructure between health services, the duplication of data entry and inefficiencies of process.

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[1] Department of Human Services, Health*SMART* strategy for the modernisation and replacement of information technology, 2003, p. 9.

The Health*SMART* strategy proposes a more structured approach to IT management in health, reducing the range of different products that are in use, identifying preferred products for each core function, and sharing as much ICT infrastructure as possible between agencies. The strategy also includes funding for replacement of patient administration systems.

DHS will assume a leadership role in the strategy, identifying preferred products and facilitating their implementation, but Health Services will be responsible for the actual implementation of systems and the work practice changes to optimise their use.

6.1.8 Conclusion

The DHS Health*SMART* strategy is making a significant investment in hospital IT infrastructure, and will provide a major opportunity to improve the management and quality of emergency department data. However, without work practice improvements in Health Services, and the implementation of systematic security planning and change management processes, the full benefits of the strategy may not be delivered.

Control procedures over emergency department management systems need to be improved and more resources allocated to them. In particular:

- weaknesses identified in the systems' security increase the risk that an unauthorised person could access or change sensitive patient information
- the lack of IT disaster recovery planning by 3 of the hospitals represents a significant risk to their operations
- without a more formal approach to managing changes to emergency department management software, errors or faults may be introduced that could impact on the integrity of the data.

Improvements to both system validation procedures and patient management system integration would allow better capture of data upon entry. These would increase the quality of the data as well as improve the efficiency of emergency department operations.

Recommendations

19. **Hospitals should develop and implement specific security guidelines for emergency department management systems based on a formal threat and risk assessment. These should limit the use of generic and shared user accounts and passwords, define security access roles and requirements for monitoring of security-related activity.**

20. **Hospitals should develop IT disaster recovery plans for all critical hospital IT systems, including emergency department management systems. These plans should be regularly updated and tested.**

21. **Replacement programs for computer hardware should be established. Computer hardware used for running critical systems should be given a high priority on the replacement schedule.**

22. **Procedures for upgrading emergency department software should be improved and documented. Particular attention should be placed on formalising the testing processes and ensuring business approval prior to releasing to a live environment.**

23. **Modifications to existing emergency department systems to reduce duplication of data entry and to link system processes to actual operations should be considered. The costs associated with such changes should be assessed prior to making any changes.**

RESPONSE provided by Secretary, Department of Human Services

Recommendation 19

Noted.

These guidelines should reflect the organisational security policies and be part of the organisation's guidelines and policies.

Recommendation 20

Noted.

This recommendation is not specific to the ED systems and is an important component of business continuity risk management strategies.

Recommendation 21

Noted.

DHS has established a technology refresh fund through the HealthSMART program. Agencies apply the funds provided through this to infrastructure priorities that support their needs as well as those of the HealthSMART program.

Recommendation 22

Noted.

Varies across all agencies. Organisations should have adequate change control procedures in place to manage these, not just for the ED systems.

Recommendation 23

Accepted.

DHS will consider in light of the HealthSMART strategy and associated implementation program.

6.2   Is data transfer from hospitals to DHS effective?

Victorian hospitals must regularly submit data on emergency department patient treatments to DHS. This information is collated and stored in the Victorian Emergency Minimum Dataset (VEMD). The VEMD is used to produce publicly-reported data on emergency department performance and provides data used in the development of emergency demand management strategies by hospitals and DHS.

Figure 6A outlines the transfer process from hospitals to DHS.

FIGURE 6A: DATA TRANSFER PROCESS
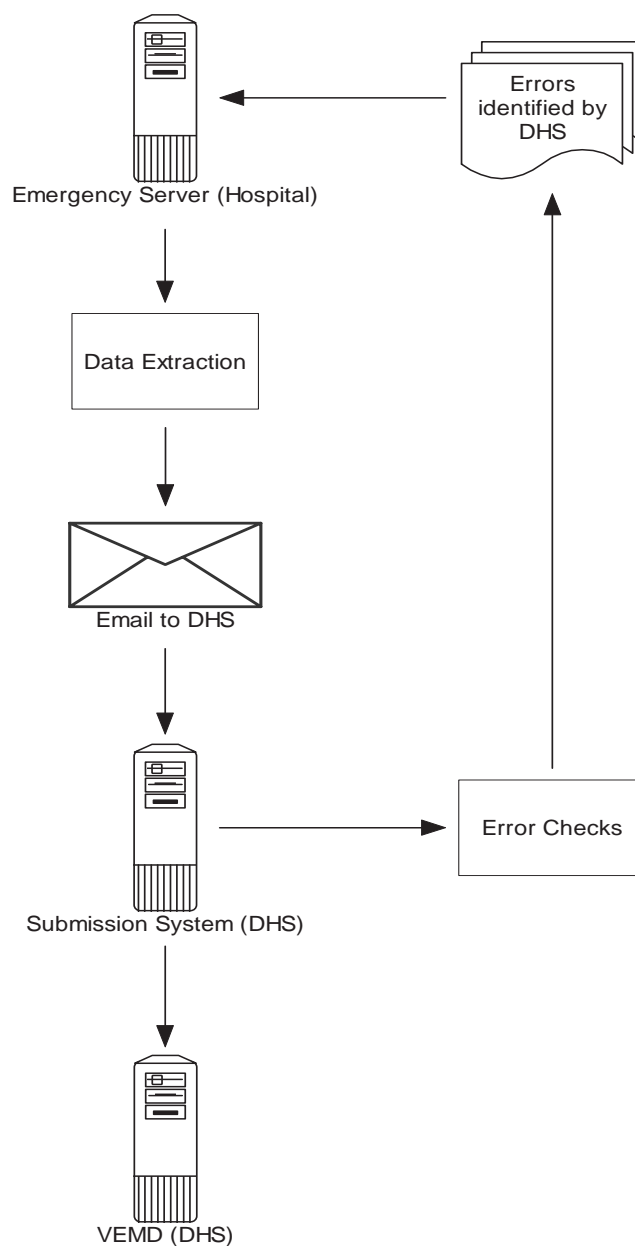
Source: Victorian Auditor-General's Office.

6.2.1 Audit criteria

We expected that there would be:

- documented data submission requirements
- guidelines for data submission
- checks by hospitals in preparing the data for DHS submission
- validation processes on submitted data, prior to uploading to the VEMD.

6.2.2 Data transfer processes

Detailed guidelines and data requirements for the transfers are outlined on the DHS website. These guidelines were adequate.

Three of the hospitals sampled did not have documented processes for data extraction or appropriate controls to check the completeness of the data transfer. One hospital also conducted significant cleansing of the data, including the removal of some data fields, before transmitting the data to DHS.

Hospitals must format their emergency department data in a particular way before submission. Each hospital does this in a different way, but most use a combination of manual and automated techniques. This can result in the manipulation of data outside the system, which can cause slight differences between VEMD data and emergency department management systems.

To improve the data submission process, DHS has given hospitals a beta[2] version of a data validation software package, so that it can check its own data and fix any errors before sending it. At the time of the audit, 3 of the hospitals visited had not started using the software.

Each hospital submission of emergency department data is automatically validated by DHS. DHS tests each patient treatment record to ensure that the format of the information is valid and various business rules are complied with. Where errors are identified, the hospitals are notified and the exceptions are sent for follow-up and re-submission. Once all errors are fixed, the data for each hospital is loaded into the VEMD. We found these processes to be adequate.

6.2.3 Conclusion

While some improvements could be made to the way emergency department data is extracted by hospitals from their emergency department management systems, overall we found the transfer process to be effective.

There is some manual intervention during the extract process, which increases the risk that information could be manipulated to meet hospital or DHS performance measures. There are currently no controls to detect or prevent this activity. While a fully automated solution is preferable to provide greater accuracy, manual processes provide an alternative to potentially costly software modifications. To compensate, hospitals should document the procedures for data extraction and ensure that checks are in place to ensure the completeness and accuracy of the data.

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[2] A "beta" version of software is an early release version, which has been partially tested.

Recommendations

24. Hospitals should document their data extraction processes and implement checks to ensure that data has not been accidentally altered.

25. Hospitals should use the beta version of the DHS validation software tool prior to submission.

RESPONSE provided by Secretary, Department of Human Services

Recommendation 24
Accepted.

DHS acknowledges that documentation and checks by hospitals would greatly decrease the number of errors found in extracts. All procedures should be documented. Procedures should be automated adequately to minimise possibility of error or potential for manual error. Hospitals can be encouraged via the Health Data Standards and Systems (HDSS) bulletins, the release of the VEMD user manual 9th edition or the HDSS Forum.

Recommendation 25
Accepted.

Currently, this software is freely available to hospitals and they have the capacity to run the program prior to each extract submission.

RESPONSE provided by Chief Executive Officer, Southern Health

Recommendations 19 to 25
Agree.

Southern Health has already commenced or completed work on the majority of these recommendations.

RESPONSE provided by Chief Executive Officer, Western Health

Recommendations 19 to 25
Western Health agrees with these recommendations. A balance needs to be struck between the security requirements of the data entry and the ability to complete the required data entry by multiple users in a complex environment in a timely manner.

6.3   Is VEMD data complete and accurate?

6.3.1 Audit criteria

In assessing whether VEMD data was complete and accurate, we tested the data for emergency treatments for 2002-03. These tests assessed whether data:

- was complete and accurate in accordance with the VEMD business rules
- agreed with information publicly reported by DHS in its *Health Services Report*
- agreed with paper-based patient files held by hospitals.

6.3.2 Data accuracy and completeness

Overall, we found only minor cases where a record breached a business rule within the VEMD. Some issues were identified during the analysis. These included:

- a large number of records were identified where a patient was admitted as an inpatient, however, no bed had been requested from the system
- while a unique identifier was a specific field within each VEMD record, this could not be used in isolation to identify each record. Rather, a combination of different fields such as the hospital campus, date and patient identifier was used.

DHS' *Hospital Services Report* publishes statistics for State hospitals on a quarterly basis. We examined the June 2003 quarterly report and recalculated some of the emergency department statistics provided. We tested data on the number of patients:

- who stayed more than 12 hours in an emergency department
- treated in hospital emergency departments
- treated within DHS' required times for triage categories.

As part of the review, we compared hard copy patient records with information stored in the VEMD. We reviewed 1 600 files at 4 hospitals to assess the accuracy of the VEMD information relating to timeliness of treatment and the patient's source of referral to the emergency department.

The different work practices at hospitals limited the extent to which we could verify data on timeliness of treatment by comparing manual notes with the VEMD electronic records. One emergency department only kept electronic records of treatment times, with no manual annotations on file. In the other 3 hospitals, a combination of practices existed, which resulted in some times being recorded on manual files and not in others. For the purposes of the manual verification of records, where an entry was not recorded on a manual file it was treated as being satisfactory.

The outcome of the manual verification was as follows:

- all VEMD records selected had a manual file recording the episode
- the triage category for each VEMD record generally agreed to manual files
- referral source differed in a substantial proportion of cases
- all recorded triage, nursing and doctor dates of treatment agreed to manual files
- the VEMD recorded triage, nursing, and doctor times were found to differ in a large number of the sampled records. However, many of these differences were minor in nature.

As a large number of minor differences were identified in the reported treatment times we conducted further analysis of the impact of these differences on reporting against whether hospitals were meeting standards for length of stay and times from triage to treatment. This analysis and the results were as follows.

We recalculated the number of patients who stayed in the emergency department for more than 12 hours using the times recorded in manual patient records where they were available. This was then compared with the relevant VEMD records. Only a small number of additional records with an extended stay were identified. This represented an understatement of extended stays of less than one per cent.

We recalculated the times from triage to treatment using the manual patient records and compared these to records in the VEMD. Overall, we found that the number of episodes not meeting DHS time to treatment targets was understated, however, in most cases and in total this variation was less than 5 per cent. However, the number of triage category 2 episodes not meeting DHS targets was understated by approximately 9 per cent. This variation ranged from 3 to 35 minutes above the 10 minute target, with an average variation of 14 minutes.

The "referred by" status recorded in the VEMD did not agree with manual files in approximately 12 per cent of the sample. The majority of these exceptions recorded in the VEMD that the patient had been referred by "self, family and friends", where other information on the file indicated that these patients had been referred by their doctor. The implications of this inaccuracy for demand management planning are discussed in Part 3 of the report.

DHS advised that data quality audits are planned for 2004. This needs to be a priority.

6.3.3 Conclusion

Our analysis of VEMD data found that procedures implemented by the DHS to validate emergency department data were effective in ensuring that business rules are complied with and essential data is captured.

Data accuracy checks showed some variation between patient files held in hospitals and data recorded in the VEMD. This was particularly the case with recorded treatment times. Where there is a variation between times noted on patient files and times recorded electronically in the VEMD, it is not possible to determine which of the recorded times are correct. The inconsistency highlights the potential for records to be incorrectly altered during data entry or during the transfer of the information to the DHS.

Recommendation

26. The Department of Human Services should initiate quality audits of hospital emergency department data.

RESPONSE provided by Secretary, Department of Human Services

Accepted.

Planning for this process is well advanced. Data quality audits will proceed in this calendar year concentrating on key dates and times e.g. arrival, triage, and first seen by doctor.

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Appendix A.
Data tables

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FIGURE App. A. A: HOSPITAL BYPASS AND HEWS BY QUARTER

Hospital	Dec-99	Mar-00	Jun-00	Sep-00	Dec-00	Mar-01	Jun-01	Sep-01	Dec 01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Dec-03	Mar-04
Angliss	1	1	4	23	21	6	21	9	6	5	3	7	2	6	9	20	11	3
Austin	13	10	23	79	44	60	51	48	18	1	23	33	9	6	11	27	16	5
Box Hill	21	11	31	44	47	39	45	42	18	9	17	17	6	8	13	34	25	7
Dandenong	25	15	39	81	60	66	49	25	41	11	27	41	12	7	30	78	31	30
Frankston	176	56	125	169	110	85	56	69	37	40	42	39	13	14	25	40	35	20
Maroondah	17	25	24	93	78	58	76	57	32	15	11	26	11	3	8	18	1	5
Monash	146	227	159	111	111	123	111	54	49	43	106	104	39	13	23	54	40	3
Royal Melbourne Hospital	14	16	14	182	162	133	173	137	26	5	60	117	74	30	8	40	35	12
St Vincent's Hospital	15	21	22	64	38	39	62	34	23	3	17	27	1	0	6	18	13	4
Sunshine (a)								0	6	4	28	21	7	3	5	20	5	1
The Alfred	127	141	34	77	113	74	30	74	50	24	15	31	2	2	2	13	28	9
The Northern Hospital	6	6	4	144	45	108	68	62	14	5	21	38	11	3	11	16	0	0
Western Hospital	27	36	24	41	14	31	14	3	2	24	46	80	31	18	27	70	22	7
Total Metro Bypass	588	565	503	1108	843	822	756	614	322	189	416	581	218	113	178	448	262	106
Periods of HEWS (b)													533	354	632	1171	812	278

(a) Sunshine hospital emergency department opened in July 2001.

(b) Each period of bypass is 2 hours, HEWS is one hour.

Source: Victorian Auditor General's Office, data provided by Department of Human Services.

FIGURE App. A. B: PATIENTS STAYING IN EMERGENCY DEPARTMENTS MORE THAN 12 HOURS IN 2002-03: DESTINATIONS

Hospital	Waiting for a bed	Waiting to go home	Waiting for transfer	Other	Total	All presentations staying >12 hours
						(%)
Royal Melbourne Hospital	3 425	1 313	288	654	5 680	12.17
Monash Medical Centre	3 053	1 561	581	39	5 234	10.11
The Alfred	2 239	1 174	608	127	4 148	10.72
Dandenong	1 633	1 120	205	217	3 175	7.01
Northern	2 146	763	136	26	3 071	6.37
Frankston	1 242	1 308	359	43	2 952	6.59
Box Hill	1 336	772	167	108	2 383	6.40
Maroondah	1 424	435	161	114	2 134	6.37
Western	1 200	611	136	23	1 970	6.08
Austin and Repatriation Medical Centre	1 115	270	57	92	1 534	3.87
St Vincent's	569	391	59	73	1 092	3.46
Sunshine	238	319	343	41	941	1.74
Angliss	526	210	39	34	809	2.17
	20 146	10 247	3 139	1 591	35 123	

Appendix B. Glossary

Glossary

Access block

The situation where patients in the Emergency Department who require inpatient care are unable to gain access to appropriate hospital beds within a reasonable timeframe.

ACEM (Australasian College of Emergency Medicine)

The ACEM is an incorporated educational institution whose prime objective is the training and examination of specialist emergency physicians for Australia and New Zealand.

Allied health

Medical personnel with specialist training to work in supporting roles in the health care field. These occupations include physiotherapy, occupational therapy and speech pathology.

Hospital Bypass

Hospital bypass occurs when an emergency department reaches its maximum safe capacity, and requests non-urgent ambulance presentations to proceed to the next nearest hospital. Bypass is only undertaken by major metropolitan hospitals where there is a viable alternative for ambulances to take diverted presentations to.

Clinical protocols

Detailed plans for the study of a medical problem and/or plans for a regimen of therapy.

DNW – (Did Not Wait)

A patient who presents in the emergency department and is triaged, but does not wait for further medical assessment or treatment.

Discharge

Discharge occurs when a patient leaves inpatient (hospital based) care.

Diversionary strategies

Strategies to prevent presentations to emergency departments, for example by providing patients with chronic conditions with better management, or providing alternative sources of medical care.

Elective admission

A scheduled or planned admission to hospital.

Elective Surgery

Planned surgery that is not an emergency requiring hospital admission within 24 hours.

Emergency Department

A hospital department that specialises in providing emergency care for people who are in need of urgent care and people who chose to seek treatment in the emergency department.

Episode of care

A phase of treatment for an admitted patient.

HEWS

Hospital Early Warning System – an internal escalation system to avert bypass.

Hospital in the home

The provision of care to hospital admitted patients in their place of residence as a substitute for traditional hospital accommodation.

MAS

Metropolitan Ambulance Service.

MRI

Magnetic resonance imaging - used to image internal parts of the body, particularly soft tissues.

Occupancy rate

The number of staffed beds at a hospital that are occupied by patients.

PACS

Picture Archiving and Communication System – an electronic diagnostic imaging service.

Patient

A person for whom a hospital accepts responsibility, for treatment or care.

PMTF

Patient management task force – an advisory panel convened by DHS in November 2000 in order to undertake a short, focussed review of patient management practices across the metropolitan health care system.

Presentation

A single visit to an emergency department.

Primary care

Ongoing preventative and curative medical care provided by General Practitioners in the community.

Transfer

When a patient is moved from one hospital to another, either to obtain specialised treatment or because of the patients preference.

Triage

A systematic process prioritising patients for care according to the urgency of their immediate need for treatment.

UR number

Unit record number – a unique patient identifier used in medical records.

VEMD

Victorian emergency minimum dataset - the Victorian database of treatments in emergency departments.

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(a) This report is included in Part 3.2, Human Services section of the *Report on Ministerial Portfolios,* June 2001.

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