



NEW SOUTH WALES AUDITOR-GENERAL'S REPORT PERFORMANCE AUDIT

Transporting and Treating Emergency Patients:
NSW Department of Health
Ambulance Service of NSW



THE AUDIT OFFICE
OF NEW SOUTH WALES

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Our major responsibility is to conduct financial or 'attest' audits of State public sector agencies' financial reports. We also audit the Total State Sector Accounts - consolidation of all agencies' accounts.

Financial audits are designed to add credibility to financial reports, enhancing their value to end-users. Also, the existence of such audits provides a constant stimulus to agencies to ensure sound financial management.

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Performance audits are reported separately, with all other audits included in one of the regular volumes of the Auditor-General's Reports to Parliament - Financial Audits.



AUDITOR-GENERAL'S REPORT

PERFORMANCE AUDIT

Transporting and Treating Emergency Patients

NSW Department of Health
Ambulance Service of NSW



The Legislative Assembly
Parliament House
SYDNEY NSW 2000

The Legislative Council
Parliament House
SYDNEY NSW 2000

In accordance with section 38E of the *Public Finance and Audit Act 1983*,
I present a report titled **Transporting and Treating Emergency
Patients: NSW Department of Health, Ambulance Service of NSW.**

R J Sendt
Auditor-General

July 2004

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Foreword

Most of us will, at some time in our lives, require emergency treatment in a hospital. Where the condition is sufficiently serious, we may need to be transported by ambulance.

All but the most critically-ill emergency patients will face some delay in receiving treatment. But if that delay is unreasonable, it can add to the stress felt by patients and their families.

This audit follows our earlier studies on ambulance response times, on waiting times for elective (i.e. non-urgent) surgery and on the 'Code Red' status of hospital emergency departments.

Those audits indicated that matching resources to the ever-increasing numbers of people seeking emergency treatment was certainly an issue, but not the only issue. We found that problems were also occurring at the 'interface' between different parts of the health system - when patients arrive in ambulances at emergency departments or when they need to be admitted from emergency departments to hospital wards.

This audit revisits how emergency patients are being dealt with, but from a 'whole of system' view. We wanted to understand better how the different parts of the health system work together to meet individual patients' needs.

The health system is complex. There are many inter-related services and many stakeholders - State and Commonwealth agencies, private doctors, nursing homes, health insurance providers and patients themselves - that all impact on emergency treatment. I hope that this report provides some insight into the factors underlying the performance of the State's health system in this vital area.

Bob Sendt
Auditor-General

July 2004

Executive Summary

Executive Summary

The Ambulance to Hospital System

The outcome for a patient requiring emergency treatment can be affected by the time taken for:

- an ambulance to respond to a call for emergency assistance and transport the patient to hospital, and
- the emergency department of a hospital to diagnose and treat the patient.

It is also important that:

- a patient who requires inpatient treatment is transferred from the emergency department to a ward as soon as practical after completing emergency care, and
- the patient is discharged or transferred to more appropriate care (e.g. outpatients, rehabilitation, palliative care) following successful completion of planned clinical care in the hospital.

Emergency treatment operates within a complex system comprising a number of funders (Federal and State governments, private health insurance agencies, charitable organisations and individuals) and providers (public and private acute hospitals, psychiatric hospitals, nursing homes, general practitioners and specialists, and non-government and community organisations). A complex web of factors, of which health interventions including emergency services are just one part, influences the health status of individuals.

The Audit

Our audit examined the way in which the Ambulance Service and public hospitals respond to and treat patients who seek emergency assistance (usually by dialling 000).

The scope of the audit did not include the appropriateness or quality of medical treatment but rather the processes in place to provide a timely service for emergency care.

Audit Opinion

Since 1996-97, emergency department attendances have increased by 23 per cent and the number of patients being admitted to hospital by 14 per cent, compared to a population increase of seven per cent. Emergency ambulance transports are growing at a similar rate to emergency department attendances.

The Department of Health has attributed much of the increase in emergency department attendances to the decline in bulk billing and the reduction in the availability of after-hours General Practitioner services.

New technology and techniques for diagnosing and treating patients have reduced costs and the time that patients need to spend in hospital. Expenditure has also grown: in 2002-03, NSW Health spent 30 per cent more on all programs in real terms than in 1996-97.

However the benefits of improvements and of increased expenditure are being overwhelmed by the increase in demand, which is compounded by shortages of inpatient beds and of medical, nursing and allied health staff.

Numbers of emergency patients needing to be admitted to hospital beds are increasing, partly driven by the needs of an ageing population. But the number of beds in public hospitals has decreased by 13 per cent since 1996-97. Some of this reduction has been achieved by improvements in efficiency. The number of acute hospital beds per 1,000 of population in NSW is the same as the national average, but bed occupancy has nonetheless risen to levels which many health professionals here and overseas believe lead to patient flow problems.

Since 1995 there has been a gradual increase in access block, which is a measure of the delay in transferring patients from emergency departments to a hospital ward. This has caused problems in the rest of the system.

The Ambulance Service has implemented many reforms and improvements. Its response times initially improved after 2001, but have since declined. Ambulances have to queue at emergency departments because crews cannot unload their patients, and the time taken to assess patients in most metropolitan emergency departments has not shown any improvement despite significant increases in expenditure.

The difficulty of finding beds has also affected the ability of hospitals to meet the needs of booked surgery patients. The number who have been waiting longer than one year has nearly doubled since early 2003.

The shortage of beds is in large part due to the difficulties in discharging aged care patients. The Department estimates that up to 900 inpatient beds are occupied by patients who should be in nursing homes or, with appropriate support, back in their own homes. Health's planned increase of 973 beds (563 permanent beds, and 410 more for winter demand) would largely be achieved if these patients could be cared for outside the public hospital system.

Recommendations

We recommend that the Department:

- ensure that funding is targeted to address the rising demand for emergency care through the most appropriate treatment, whether in hospital or community-based
- continue to seek short and long term means to alleviate shortages of medical, nursing and allied health staff
- reduce pressures on the Ambulance Service and emergency departments by:
 - exploring with the Commonwealth further trials of after-hours GP clinics to offer patients alternatives to attending emergency departments
 - implementing the Ambulance Service's processes for priority assessment of incoming calls as soon as possible
- reduce patient flow problems and high bed occupancy levels by:
 - improving bed management practices, processes and systems on an Area-wide basis, and by supporting higher levels of consistency in practice
 - increasing the number of staffed beds
- improve capacity to treat older patients by:
 - seeking from the Commonwealth increased numbers of nursing home beds and in-home support funding for aged patients
 - implementing transitional care beds and programs to better meet the needs of aged care patients and to reduce the number of acute care beds they currently occupy
 - including targets for aged care in Performance Agreements
- ensure that targets for *Emergency and Critical Care* and *Acute Service Access* in Performance Agreements are achievable with available resources
- continue to seek improvements to arrest the long term decline in waiting times for lower priority triage categories
- improve the quality of management information to support better decision making by:
 - linking CAD and EDIS
 - ensuring that hospitals where appropriate adopt real-time EDIS operation to improve timeliness and accuracy of data
 - monitoring and disseminating information on ambulance diversions and non-emergency transport performance

- review emergency department resources, processes, compliance and reporting to improve quality and consistency of practice and reduce undesirable variation in performance
- ensure that ambulance crews are able to hand over patients to the care of emergency department staff as soon as practical after their arrival
- implement formal and permanent means of improving planning and coordination between hospitals and the Ambulance Service.

Audit Findings

Chapter 1: Introduction

Emergency patients are those who require admission to hospital within 24 hours, or who require unplanned urgent medical care.

The Ambulance Service delivers about one quarter of all patients presenting to emergency departments of public hospitals in New South Wales. The remainder arrive by other means such as 'self-presenting' or are driven by a relative or friend.

On average 60 per cent of all overnight patients admitted to an inpatient bed do so via the emergency department.

Chapter 2: Capacity and performance

NSW Health's expenditure has increased in real terms since 1996-97. Expenditure on programs such as same-day surgery and Outpatients, which reduce the need for admission to overnight beds, has increased significantly. Expenditure on early-intervention programs such as Primary and Community Based Services and Population Health has also increased.

Despite this, metropolitan hospitals have been unable to cope with the growth in the number of emergency patients requiring overnight admission. This has been compounded by increases in the proportion of aged patients seeking treatment and in the complexity of conditions with which patients are presenting.

Bed numbers have decreased and bed occupancy levels have risen to levels which many health professionals and the Department acknowledge are contributing to increased access block. Shortages of medical, nursing and allied health staff restrict the ability to increase the capacity of the public health system.

The reduction in bed numbers and high occupancy levels has led to a long term increase in access block. This contributes to congestion in emergency departments which can affect assessment and treatment of patients. Ambulances, unable to unload patients, then have to wait at emergency departments or are diverted to other hospitals.

The increasing number of emergency patients requiring inpatient admission has also reduced the ability of public hospitals to provide booked surgery. The number of patients who have been waiting for over 12 months has nearly doubled since March 2003.

Chapter 3: Ambulance Service

The Ambulance Service delivers about one quarter of all patients seen by emergency departments in the public hospital system.

The response time of the Ambulance Service improved following the reforms and additional funding and staff after the Audit Office report of 2001. However more recently, response time performance in Sydney has declined to below the Service's own target levels.

Ambulance Service management mainly attributes this to the increasing time which ambulances lose in queues at emergency departments. Data show that turnaround times at many metropolitan hospitals are well in excess of the time allowed.

Introduction of the 'Code Red' system to divert ambulances when emergency departments and hospitals are at capacity has been successful in diverting some patients with less urgent or serious conditions away from busy hospitals, but appears to have had minimal effect on Ambulance Service performance and on time lost waiting at emergency departments. It is not possible to quantify the effect on the number of ambulance diversions or on changes in travelling time.

Chapter 4: Emergency Departments

Despite a significant increase in expenditure and the adoption of a number of innovations, waiting times in emergency departments have not improved.

Data provided by NSW Health indicate that the most urgent one per cent of cases arriving in emergency departments (T1 patients) are treated within the time allowed.

Less urgent patients (T3, T4 and T5) represent nearly 90 per cent of patients attending metropolitan emergency departments. In 2002-03 a lower percentage of these patients were treated within Health's recommended waiting times than in 1997-98.

Many metropolitan hospitals are now experiencing levels of access block in excess of 50 per cent. Access block in some rural hospitals is also increasing. As discussed in Chapter 2, access block is due to high bed occupancy levels in inpatient wards, and is not due to emergency departments.

A number of other measures of emergency department waiting time performance show significant variation which may be due to resources, quality of data, inconsistency of process or of compliance with guidelines.

There are also inconsistencies in the use of information systems across emergency departments and with the quality and timeliness of data which they provide.

Chapter 5: Inpatient wards

Increases in bed occupancy levels, widely attributed to increasing access block, have occurred in nearly all metropolitan Area Health Services. In most cases this has accompanied decreasing inpatient bed numbers.

There is also wide variation in performance in discharging patients over the weekend. Bed occupancy and access block tend to be higher on Monday to Wednesday, which may be due to lower weekend rates of discharge.

While some hospitals are able to temporarily increase bed numbers to accommodate fluctuations in demand, this has an adverse impact on budgets.

Most Areas manage beds on an individual hospital basis, and have limited information systems to support them. One Area has developed a web-based bed management tool which gives at-a-glance information to support patient placement decisions. Such tools need to be adopted more widely to make better use of beds.

However improved bed management can have little effect until bed occupancy levels are returned to more sustainable levels by increasing the number of beds to meet demand and the needs of aged patients.

Chapter 6: Coordination

At times of peak workload, it is clear that hospitals are transferring to the Ambulance Service some of the responsibility for emergency patient nursing care. When emergency departments are congested they may leave patients in the care of ambulance crews, which reduces the ability of the Ambulance Service to respond to new calls.

The introduction of Ambulance Liaison Officers has produced worthwhile benefits in teamwork and coordination between the Service and hospitals.

The data systems of the Ambulance Service and emergency departments are not integrated, nor is there any means of readily linking them to assist in analysis of patient data. This has concealed occasional lengthy delays in triaging patients.

Hospitals complain of the unreliability of the Ambulance Service's Patient Transport Service for non-emergency patients. The Ambulance Service now reports on the percentage of routine cases in metropolitan Sydney collected within 30 minutes of the time booked. However information which measures reliability at hospital or Area level, while now collected by the Service, is not available to hospitals.

Response from the NSW Department of Health

*Thank you for the copy of the report **Transporting and Treating Emergency Patients** and the opportunity to comment on the findings.*

NSW Health supports the report findings that there has been a higher than expected rise in the demand for emergency services above that of population growth, and that this increase is impacting on the capacity to provide health services in NSW.

As recognised in the report, this excess demand can be explained in large part by the ageing of the population and a greater reliance on emergency and hospital services due to health problems associated with older people.

Bed reductions over time are in line with national and international trends and in the main reflect improved clinical practices and the use of technologies that lead to shorter length of hospital stays by the majority of patients.

In recent times, a major factor contributing to the availability of beds within public hospitals has been that the numbers of community, nursing home and hostel places have not kept up with demand. As pointed out in the report, this means that in NSW up to 900 elderly people who would be more appropriately cared for in the community or in nursing homes or hostels are being inappropriately accommodated in hospital beds. Furthermore, the Australian Government reduced the funding for NSW by about \$400 million over the life of the 2003-08 Australian Health Care Agreement.

The inability of the Australian Government to increase the numbers of nursing home places or home support for the elderly patient who is no longer acutely ill but needs physical and social support is a major contributor to the availability of beds within the public hospital system, particularly within metropolitan Sydney.

The solution to this problem lies in identifying better types of care for the elderly in more appropriate settings, e.g. rehabilitation units, transitional care, care in the person's own home with appropriate support, or in nursing homes or hostels.

NSW Health is implementing a range of strategies to improve access, which focus on providing new solutions for the better care of the elderly. These include additional acute and transitional care beds as well as community-based or home care. In June 2004, the NSW Government allocated an additional \$57 million to the health budget to provide over 560 permanent new beds. This will lead to an increase in bed availability, particularly for metropolitan hospitals.

Staffing was also highlighted as an issue in the report. This is not just a problem in NSW. There are nationally recognised shortages of medical, nursing and allied health staff, particularly in speciality areas. A Premiers' Roundtable involving the Australian Government, jurisdictions, professional groups and other key stakeholders took place in early 2004 to address these issues nationally. NSW has incorporated the actions from the Roundtable in a Workforce Action Plan to address current and future shortages and issues in NSW. This Plan identifies specific actions to be implemented to address the available supply and distribution of medical, nursing and allied health staff, particularly in rural and remote regions of the State.

It is important to note that a whole-of-government approach is required to be adopted in addressing a range of issues as identified within the report, and that there be strong cooperation between the Federal and State Governments in this process.

However, NSW Health has identified a range of measures that it intends to adopt in 2004-05 to address a number of the concerns identified within the report including:

- Implementation of the 2004 Sustainable Access Strategy.
- Establishment of a Workforce Steering Committee to further develop, implement and monitor the Workforce Action Plan.
- Working closely with the Australian Government and the Divisions of General Practice to establish after hours general practice clinics based in, or on the grounds of, public hospitals.
- Improvements in bed management practices through business process re-engineering of patient flow problems. This is currently occurring in nine metropolitan hospitals (known as the 'Access Block Improvement Program').
- Implementing transitional care beds and programs to better meet the needs of aged care patients and to reduce the number of acute care beds they currently occupy.
- Improvements and establishment of better linkages to and between information systems within hospitals, the Ambulance Service and the Department, including reporting on a range of diverse key performance measures.

I am very pleased with the level of cooperation that existed between NSW Health and the Audit Office in the preparation of the report, and thank the staff of both agencies for their professionalism and cooperation.

(signed)

Robyn Kruk
Director-General

Dated: 16 July 2004

1. Introduction

1.1 Key parts of the emergency health system

Emergency patients are those who require admission to hospital within 24 hours, or who require unplanned urgent medical care.

The Ambulance Service delivers about one quarter of all patients presenting to the emergency departments of public hospitals in New South Wales. The remainder arrive by independent means such as 'self-presenting' or are delivered by a friend or relative.

On presentation to the emergency department, patients are:

- assessed as to their clinical condition
- allocated a priority for treatment according to the urgency of their clinical condition
- treated and discharged, or
- treated and transferred to a ward of the hospital for ongoing care.

Patients who are in need of urgent medical attention are treated first. Less urgent patients may have to wait.

1.2 The Emergency Department

Emergency departments are multidisciplinary units with expertise in managing acutely unwell patients during the first few hours in hospital.

The role of emergency departments has expanded beyond reducing the risk of premature death and disability for people suffering injury or acute illness to include more detailed assessment, care planning and initiation of ongoing care.

The emergency facilities are generally not designed for longer-term care. For this reason NSW Health has established a benchmark time of eight hours by which patients requiring ongoing care should be admitted to a ward of a hospital.

1.3 Inpatient wards

Many emergency patients need to be admitted to wards

Most patients are discharged from an emergency department after treatment.

However, around one quarter require further treatment in the hospital and are admitted to a bed in a hospital ward. These are known as inpatients, and will spend at least one overnight stay in hospital.

On average only 21 per cent of patients admitted to an overnight inpatient bed are booked patients: most overnight admissions are patients from the emergency department.

1.4 The Ambulance Service

The Ambulance Service is an integral part of the health care system. Its mission is to:

... provide responsive, high quality services in emergency clinical care, rescue and patient transport through quality of service, organisational performance, valuing our people, and meeting community needs.

1.5 Demand

Demand has increased steadily

The public health sector treats around 95 per cent of patients admitted through emergency departments, and is facing an increasing demand for its services.

Between 1996-97 and 2002-03:

- attendances at emergency departments of public hospitals increased by 23 per cent, and
- admissions (overnight and same-day) to hospital increased by 14 per cent. Most overnight admissions are from the emergency department.

Emergency ambulance transports have grown at approximately the same rate as emergency department attendances in the last few years.

By comparison the population of NSW increased by 7 per cent since 1996-97.

Despite the increasing demand, the number of people attending emergency departments is highly predictable over time. This is also true for winter peaks. For this reason unexpected changes in demand are not likely to be the primary reason why emergency departments do not meet target waiting time performance. It is recognised that there are variations in daily demand which can tax the ability of emergency departments to cope.

Factors contributing to rising demand include:

- growth in the total population of NSW
- ageing of the population
- increasing rates of chronic disease (partly due to people living longer)
- the availability of new technologies, new procedures and additional resources which has in turn encouraged demand for services.

The Department has noted that other factors contribute to increasing demand:

... the decline in bulk billing, the reduction in after-hours General Practitioner services and ever increasing out-of-pocket costs for consultations have resulted in a shift in patient load from the primary to the acute hospital sector.

1.6 Effects of the ageing population

The proportion of elderly people in the community is increasing, and older patients suffer from more complex and more acute conditions.

This is a major challenge for the health care system because the elderly consume a greater share of the resources of public health care than do other age categories.

Effect of ageing of population on cost of service for 2002-03 (Total Medical, Procedural and Surgical Admissions)				
Age of patients	Admissions	Percentage of total admissions	Average length of stay (days)	Average cost weight
0 months	69,256	6	4.2	0.94
1 month to 15 years	125,665	10	2.1	0.82
16 to 44 years	348,137	29	2.5	0.84
45 to 64 years	260,453	21	3.0	1.04
65 to 74 years	186,631	15	3.6	1.19
75 years and over	225,229	19	5.2	1.46
Total admissions	1,215,371	100	3.3	1.06

Ageing population will require more resources

The number of patients aged 65 years and over is increasing by three per cent each year. These patients currently represent one-third of overnight admissions. The proportion of bed days occupied by these patients is 46 per cent, but this is increasing by one per cent per annum.

People 65 and over currently represent 13 per cent of the total population, and this is expected to increase to 19 per cent by 2021¹.

The cost of patients aged 65 years and over has increased from 41 per cent to 43 per cent of total inpatient costs since 1999-2000.

Patients aged 70 and over have higher emergency department attendances per 1,000 population than any but the very youngest patients. For the oldest patients the number of presentations per 1,000 is itself increasing.

2. Capacity of the Ambulance to Hospital system

At a glance

NSW Health's expenditure has increased in real terms since 1996-97. Expenditure on programs such as same-day surgery and Outpatients, which reduce the need for admission to overnight beds, has increased significantly. Expenditure on early-intervention programs such as Primary and Community Based Services and Population Health has also increased.

Despite this, metropolitan hospitals have been unable to cope with the growth in the number of emergency patients requiring overnight admission. This has been compounded by increases in the proportion of aged patients seeking treatment and in the complexity of conditions with which patients are presenting.

Bed numbers have decreased and bed occupancy levels have risen to levels which many health professionals and the Department acknowledge are contributing to increased access block. Shortages of medical, nursing and allied health staff restrict the ability to increase the capacity of the public health system.

The reduction in bed numbers and high occupancy levels has led to a long term increase in access block. This contributes to congestion in emergency departments which can affect assessment and treatment of patients. Ambulances, unable to unload patients, then have to wait at emergency departments or are diverted to other hospitals.

The increasing number of emergency patients requiring inpatient admission has also reduced the ability of public hospitals to provide booked surgery. The number of patients who have been waiting for over 12 months has nearly doubled since March 2003.

2.1 The cost of health care

Total NSW Health expenditure has increased

In the year ended 30 June 2003, NSW Health spent \$8.9 billion on public health care, an increase of 30 per cent in real terms since 1996-97. Health now accounts for 25 per cent of all government expenditure, ahead of:

- education (24 per cent)
- public order and safety (10 per cent), and
- transport (9 per cent)².

2.2 Expenditure on programs

In line with the overall increase in expenditure on health care, expenditure on most health programs increased in real terms between 1996-97 and 2002-03.

The Department uses the Gross Non-Farm Product deflator to calculate real growth. As the table shows, Health's total expenditure using this deflator grew by 30 per cent in real terms between on most health programs increased in real terms between 1996-97 and 2002-03.

However the Australian Institute of Health and Welfare (AIHW) noted that:

... health prices increased, on average, 0.7 per cent per year more rapidly than the general inflation rate between 1991-92 and 2001-02³.

AIHW's Total Health Price Index reflects a higher rate of inflation than the Gross Non-Farm Product deflator. Real growth in Health's total expenditure using the AIHW deflator was 26 per cent between on most health programs increased in real terms between 1996-97 and 2002-03.

NSW Department of Health: expenditure to 30 June (\$ million)									
Program	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	2002-03	Growth 1996-97 to 2002-03	
	Current dollars							2002-03 dollars	
Primary and Community Based Services	416	490	533	631	655	686	729	255	54%
Aboriginal Health Services	15	18	20	25	27	29	39	22	128%
Outpatient Services	472	583	625	687	717	769	915	378	70%
Emergency Services*	486	539	600	673	700	784	948	395	71%
Overnight Acute Inpatient Services	2,948	3,093	3,132	3,001	3,119	3,325	3,467	110	3%
Same-Day Acute Inpatient Services	342	347	417	423	440	469	635	246	63%
Mental Health Services	385	435	480	510	550	589	670	232	53%
Rehabilitation and Extended Care Services	663	655	699	798	811	833	806	51	7%
Population Health Services	104	142	204	168	181	205	264	146	123%
Teaching and Research	143	192	270	276	306	326	392	229	141%
Total	5,974	6,494	6,980	7,192	7,506	8,015	8,865	2,062	30%

* Includes Ambulance Service expenditure

Emergency Services

The *Emergency Services* program includes expenditure on emergency departments and on the Ambulance Service.

Expenditure on emergency departments (excluding the Ambulance Service) increased in real terms by 84 per cent between 1996-97 and 2002-03. This has facilitated various initiatives which are discussed later in this report.

Same-Day Acute Inpatient Services

Increased expenditure on *Same-Day Acute Inpatient Services* has supported an increase in rates of day surgery, thereby reducing the number of patients needing to stay in hospital overnight.

Outpatient Services

Increased expenditure on outpatient treatments has also reduced the need for beds, as well as offering clinical benefits to the patient and other cost savings.

NSW Health reports show that around 170,000 medical and surgical procedures currently performed on outpatients would have been done as inpatient procedures five years ago. This means that 170,000 more patients would have been admitted to a bed in a hospital.

The Department's data show that the effect of outpatient improvements has been to reduce the number of same-day patients. The effect on the demand for overnight inpatient beds has been negligible.

Mental Health Services

Expenditure on this program has also increased in real terms. The Department contends that, by providing more facilities specific to the needs of these patients, the demand placed by them on emergency departments and inpatient wards has been reduced.

Overnight Acute Inpatient Services

This program, at \$3.5 billion or 39 per cent of total Health expenditure in 2002-03, is the largest in the NSW Health budget, and covers those patients who need to stay in hospital overnight. As around two-thirds of overnight patients are admitted from the emergency department, this program is crucial to the ability of the public hospital system to meet the needs of emergency patients. Expenditure on this program increased, in real terms, by only 3 per cent over the period 1996-97 to 2002-03.

The number of emergency-type patients admitted to overnight beds increased between 1996-97 to 2002-03, as did the number of overnight bed days. The average complexity of treatment increased by about 2 per cent over the period.

Overnight inpatient trends in acute hospitals			
	1996-97	2002-03	Change
Emergency & other patients			
Admissions	497,115	544,998	+10%
Overnight bed days	2,804,043	2,874,556	+3%
Cost weighted separations	712,899	793,897	+11%
Booked patients			
Admissions	236,986	148,192	-37%
Overnight bed days	1,135,567	669,006	-41%
Cost weighted separations	378,901	287,679	-24%
Total patients			
Admissions	734,101	693,190	-6%
Overnight bed days	3,939,610	3,543,562	-10%
Cost weighted separations	1,091,799	1,081,576	-1%

Emergency patients requiring admission are occupying an increasing proportion of resources: in 1996-97 they accounted for 71 per cent of overnight bed days, but this proportion had risen to 81 per cent by 2002-03. This reveals the effect of the 'crowding out' of booked patients, as elective procedures have to be cancelled or deferred to provide treatment for higher-priority emergency patient needs.

2.3 Access block

Access block arises when beds in inpatient wards are not available for patients who require them. It is calculated as the proportion of emergency department patients not transferred to a hospital ward within eight hours from commencement of active treatment in the emergency department.

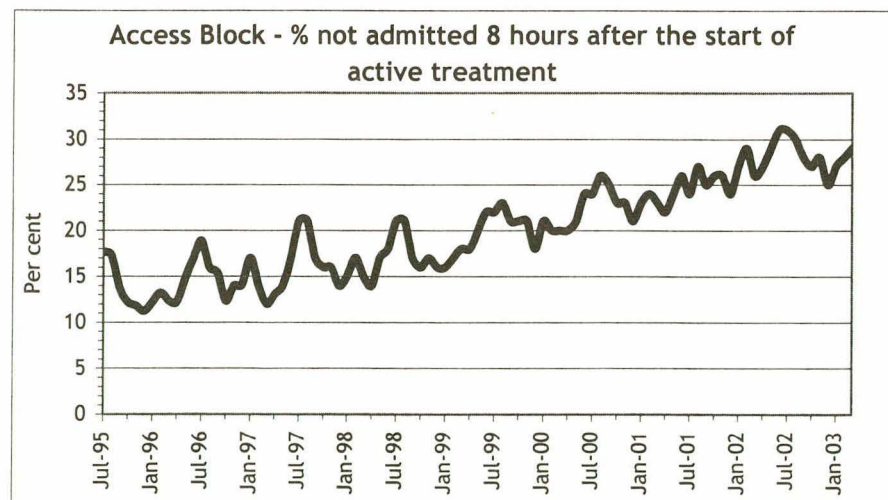
Access block is monitored and reported monthly and year-to-date on the Department's website.

Access block is a very important indicator of how the public health system is coping with the demand for emergency health care services:

Access block is the result of inadequate systems or processes to ensure beds are available at all times. The current systems, whilst achieving good individual patient care, do not focus on assessing patients and moving them through the Emergency Department efficiently and effectively and into a hospital ward quickly.

Source: *Access Issues at NSW Public Hospitals: key strategies*; NSW Department of Health, December 2003, p1

As indicated by the exhibit below, access block has been increasing across the state. Average access block in metropolitan hospitals in the year to March 2004 was 36 per cent, and access block regularly exceeds 50 per cent at some.



What access block means

Access block affects the performance of the entire ambulance and hospital system. Access block disrupts the smooth flow of patients from an ambulance through the emergency department to a hospital ward.

Other 'flow-on' effects of access block include:

- less urgent patients arriving by ambulance are more likely to remain on a stretcher and under the nursing care of the ambulance staff until a bed is found in the emergency department
- ambulances and crews, in this situation, are not able to respond to fresh calls for emergency assistance, which in turn affects the overall performance of the Ambulance Service
- ambulances are often required to divert to less busy emergency departments
- people with less urgent conditions arriving at the emergency department by independent means may face delays in the waiting room
- patients with less serious conditions face delays in receiving treatment.

Access block is discussed in more detail in *Chapter 4: Emergency Departments*.

Recommendations

We recommend that the Department ensure that funding is targeted to address the rising demand for emergency care through the most appropriate treatment, whether in hospital or community-based.

2.4 Bed capacity

Bed capacity is the number of beds available to receive patients. As patients cannot occupy beds without medical or nursing staff to care for them, beds available for patients are frequently referred to as 'staffed beds'. Where staff are not available, beds are 'closed' and are not counted as part of capacity.

Bed numbers have fallen

Total general hospital bed numbers have decreased by 2,274 or 13 per cent since 1996-97. The reduction has increased bed occupancy levels (the efficiency with which beds are utilised), as patients have to be accommodated in fewer beds.

NSW Health currently has 2.5 acute hospital beds per 1,000 population, the same as the national average⁴. The reduction in public hospital beds per 1,000 between 1996-97 and 2001-02 (the latest available data) was 16 per cent nationally and 21 per cent in NSW⁵.

NSW Health's annual reports show that the number of state government residential aged care nursing home places declined between 1996-97 and 2002-03 as 720 out of 772 specifically dedicated aged care beds in metropolitan hospitals were transferred to non-government operators. However the Department has advised that the beds were not closed, and that private ownership has not changed access to them. According to the Department the need for patients to undergo an aged care assessment and be placed on a list for entry into these type of beds has not changed.

There are up to 900 aged care patients in hospital

Aged patients have a twofold effect on the public hospital system.

As discussed in *1.6 Effects of the ageing population*, patients over 70 are more likely to attend an emergency department, and stay in hospital longer and incur higher costs of care than all but the youngest patients.

But aged patients are also more likely to need specialised nursing home care. It is estimated by the Department that in NSW at any one time up to 900 older people are waiting in public hospitals for residential aged care places. These account for about seven per cent of the total number of bed days in NSW public hospitals⁶.

Many aged patients, therefore, have no choice but to remain in hospital occupying beds that are not able to be used for other patients. This contributes significantly to access block.

The Commonwealth Government has primary responsibility for funding of aged care places. It announced increases in the number of aged care places in the latest budget:

As part of the 2004-05 Budget, the government announced a \$2 billion [aged care] package⁷ ... An estimated 27,900 new aged care places will be allocated over the next three years, including 13,030 in 2004⁸.

Average length of stay

Reducing the length of time patients occupy a hospital bed means more beds are available for new patients.

If reductions in length of stay are achieved, bed occupancy levels will reduce for a given number of beds and patients. Alternatively bed numbers can be reduced to retain the same occupancy levels.

The average length of overnight stay fell until 1999-2000, but has increased since then. The continuing decrease in the number of beds has resulted in occupancy levels increasing (see *5.2 Bed numbers and occupancy levels*).

**'Same-day' and
'Day-of-Surgery-
Admission' rates
have increased**

Surgical and medical techniques and technology have improved worldwide. For many inpatients this means an earlier discharge from hospital than would have been the case some years earlier.

Hospitals have increased the amount of elective surgery being done as 'same-day' or as 'day-of-surgery-admission' rather than a patient occupying a bed in hospital for at least one overnight stay. This frees up beds for other patients, and hence increases the number of patients able to be treated in the public hospital system.

'Same-day' and 'day-of-surgery-admission' are also claimed to offer benefits to patients in the form of lower complication rates and shorter length of stay:

Day only surgery significantly reduces the risk of infection and is recognised as an effective and appropriate way to provide better surgical services to patients ... day-of-surgery-admission means that patients ... don't have to spend unnecessary time in hospital before their surgery. It also decreases the chance of post-operative infections and blood clots.

Source: *Waiting Times for Elective Surgery in Public Hospitals: NSW Department of Health*; Auditor-General's Report, September 2003, p25-26

**Overall length of
stay has
improved**

Average overall length of stay (which includes overnight and same-day admissions) has reduced significantly - from 5.8 days in 1996-97 to 4.7 days in 2002-03 - across all metropolitan Area Health Services (see 5.2 *Bed numbers and occupancy levels*). Much of the reduction has been achieved by increasing rates of same-day surgery.

**Overnight length
of stay is
increasing**

The overnight acute average length of stay includes only those patients who spend at least one night in an inpatient ward. It fell from 5.8 days for metropolitan hospitals in 1996-97 to 5.4 days in 1999-2000, but has since increased again to 5.8 in 2002-03.

NSW Health largely attributes the increase in the overnight average length of stay between 1999-2000 and 2002-03 to the increasing proportion of aged patients and increasing complexity of patient condition. Thirty-one per cent of all inpatients were aged 65 and over in 1999-2000, but by 2002-03 this had increased to 34 per cent.

Recommendations

We recommend that the Department improve capacity to treat older patients by:

- *seeking from the Commonwealth increased numbers of nursing home beds and in-home support funding for aged patients*
- *implementing transitional care beds and programs to better meet the needs of aged care patients and to reduce the number of acute care beds they currently occupy.*

2.5 Bed occupancy levels

Bed occupancy levels have increased

Fewer beds, more patients and longer average overnight stays have caused bed occupancy levels to increase.

Many health professionals have associated high bed occupancy levels with increasing access block. The Department acknowledged in a recent paper that:

...the average number of beds available in NSW public hospitals fell consistently between 1993-94 and 2001-02. Bed occupancy has been rising at about 1 per cent per annum over the same period. In NSW, there has been an increase in bed occupancy from 82.4 per cent in 2000-01 to 86.7 per cent in 2002-03. In metropolitan hospitals, occupancy has been over 90 per cent since 2000-01. Such high occupancy levels lead to frequent access block, and are incompatible with smooth patient flow.

Recent UK research states that hospitals with occupancy levels above 85 per cent can expect to have regular bed shortages and periodic bed crises⁹, and Australian clinicians have presented similar arguments:

Queuing theory developed by Erlang nearly 100 years ago tells us that systems are most efficient when they operate at 85 per cent capacity. This applies to queues at the local bank waiting for a teller or at ticket booths at the MCG. It is no surprise that queuing theory also applies to acute care hospitals. Our acute care hospitals are operating at [over] 90 to 95 per cent and are therefore in crisis mode most of the time with little or no surge capacity.

Source: *Access Block and Overcrowding in Emergency Departments*; Australasian College for Emergency Medicine, April 2004, p5

NSW Health maintains that bed occupancy levels of 85 per cent would represent expensive spare capacity, and that health services worldwide have been trying to identify better ways to manage demand and utilise beds more efficiently, for example through better management of chronic care and more community-based services to substitute for inpatient care.

'Ward outliers'

Operating at occupancy levels close to capacity may mean that patients will be accommodated in wards not dedicated to care of their condition. For example a geriatric patient may have to be accommodated in a cardiac ward.

Such patients are referred to as 'ward outliers'. Doctors' rounds take longer if they have to locate 'outliers', particularly in large hospitals where wards may be widely separated. Costs may be increased, as may the risk that an outlier patient will not receive the same standard of care as similar patients in a 'home ward'. Many clinical staff also suggest that the length of stay in hospital is longer for outliers than for patients accommodated in their 'home wards':

This so-called 'outlier' phenomenon is inefficient, inconvenient for hospital staff and may adversely affect the quality of care provided.

Source: *Bed Management: review of national findings*; (UK) Audit Commission, June 2003, p7

High occupancy levels also increase the level of stress under which nursing staff operate, which may in turn have adverse consequences for patients:

As physicians and nurses feel rushed and overextended, the risk of error is increased, and errors could lead to adverse patient outcomes. Although largely anecdotal, recent evidence suggests that overcrowding will lead to medical errors.

Source: *Joint Position Statement on emergency department overcrowding*: Canadian Association of Emergency Physicians and National Emergency Nurses Affiliation; Canadian Journal of Emergency Medicine, Vol. 3 No 2, April 2001

Recommendations

We recommend that Area Health Services improve patient flow and bed occupancy levels by increasing the number of staffed beds.

2.6 Staff shortages

Staffing shortages compound the problem

Many Areas, particularly rural, have shortages of surgeons, anaesthetists and nursing staff.

Shortages of surgeons occur most frequently in the orthopaedic, ENT and ophthalmology specialities¹⁰. This is not confined to NSW, but is a national and, increasingly, worldwide problem.

Some hospitals reported shortage of nursing staff solely due to budget constraints. However other hospitals we visited had budgets adequate to meet their staffing requirements, but were unable to attract suitably qualified staff.

There are also shortages of specialist emergency doctors, partly because of failure to meet the number of training positions recommended in the 1997 AMWAC plan¹¹. Junior overseas doctors combining work experience with travel fill many emergency department intern and resident positions.

This has clear implications for any attempt to increase capacity of the health system, as trained professionals may not be able to be recruited in the short term.

Recommendations

We recommend that the Department continue to seek short and long term means to alleviate shortages of medical, nursing and allied health staff.

2.7 Booked surgery

Booked surgery is also falling behind

Increases in emergency department presentations are also a common cause of cancellation of elective surgery:

From 1999-2000 to 2001-02, emergency admissions to NSW public hospital increased by 11.3 per cent or 61,000. This increase in emergency workload undermines the ability of the public system to treat elective surgical patients.

Source: *Waiting Times for Elective Surgery in Public Hospitals: NSW Department of Health*; Auditor-General's Report, September 2003, p10

In February 2001 the Department set Area Health Services the target of zero 'long-wait' patients, those who have been waiting longer than 12 months for elective surgery. Performance Agreements for Chief Executives of Area Health Services reflected this target for June 2003. The Department subsequently requested that Areas achieve the target by January 2003¹².

The target of zero 'long-wait' patients by January 2003 was not met. The number of 'long-wait' patients has since nearly doubled, from 4,188 in March 2003 to 8,197 in March 2004.

2.8 Accountability for performance

Performance agreement targets have not been achieved

Performance Agreements for Chief Executives of Area Health Services also include targets for emergency departments and inpatient wards and for elective surgery.

Access block targets for some Sydney Area Health Services for 2001-02 and 2002-03 varied from 19 to 30 per cent. Actual levels of access block for these Areas in 2002-03 varied from 23 to 42 per cent. The target for 2002-03 for Northern Sydney Area Health Service, for example, was 30 per cent, and actual performance was 37 per cent.

The existence of clear targets for access block in performance agreements has had no appreciable effect on the capacity of Areas to achieve them, nor on the consequences for non-achievement.

Despite Health's recognition in documents such as *Access Issues at NSW Public Hospitals* of the demand placed on the system by aged care patients, there were no specific strategies or targets to address them in the 2002-03 performance agreements.

Recommendations

We recommend that the Department:

- *improve capacity to treat older patients by including targets for aged care in Performance Agreements*
- *ensure that targets for Emergency and Critical Care and Acute Service Access performance are achievable with available resources.*

2.9 Long term solutions

**More beds will
reduce
occupancy levels**

Declining bed numbers and increasing demand have led to high bed occupancy levels, which in turn have been accompanied by increasing levels of access block. It follows that an increase in bed numbers will, depending on changes in demand, reduce occupancy levels and access block.

Hospital staff emphasised that an uncontrolled increase in bed numbers may encourage inefficient use. Patients may be admitted unnecessarily and length of stay may be prolonged simply because beds are available. Any increase in bed numbers must therefore be calculated to achieve specific outcomes.

As an example, if the number of beds available in metropolitan Areas were increased by around 500, and assuming no other changes, it is estimated that the bed occupancy level would fall from 90.7 per cent to the 1996-97 level of 87.4 per cent.

The April 2004 NSW Mini-Budget Speech announced funding to increase the number of acute and transitional care beds to reduce occupancy rates in metropolitan hospitals. The Department has since announced that it will open an additional 973 beds. The 563 additional permanent beds or bed equivalents will comprise 148 new acute care beds, 316 transitional care or rehabilitation beds for aged patients, and 99 new mental health beds. The Department will also open another 410 beds to meet winter demand.

The Commonwealth Government announced in its 2004-05 Budget a cost-shared national transitional care program which should yield NSW 600 to 700 transitional aged care facility and community-based places over the next three years. The Transition Care places will be allocated on a state-wide basis to provide more appropriate care for older people.

Such an increase should be seen in the context of the 900 aged care patients which Health estimates are currently occupying beds.

Providing additional staff will be a problem

Increasing bed numbers necessitate an increase in nursing staff numbers. As current shortages indicate, it would be difficult for hospitals to find sufficient staff to provide this many extra beds. Use of agency staff, even if this many were available, would risk a budget overrun.

Nonetheless, during the course of this audit improvements have been made. An extra \$1.6 billion in recurrent health funding has been committed by the NSW Government over the next 4 years, and plans such as *Sustainable Access Plan 2004* which identify problems and offer solutions have been released.

3. The Ambulance Service

At a glance

The Ambulance Service delivers about one quarter of all patients seen by emergency departments in the public hospital system.

The response time of the Ambulance Service improved following the reforms and additional funding and staff after the Audit Office report of 2001. However more recently, response time performance in Sydney has declined to below the Service's own target levels.

Ambulance Service management mainly attributes this to the increasing time which ambulances lose in queues at emergency departments. Data show that turnaround times at many metropolitan hospitals are well in excess of the time allowed.

Introduction of the 'Code Red' system to divert ambulances when emergency departments and hospitals are at capacity has been successful in diverting some patients with less urgent or serious conditions away from busy hospitals, but appears to have had minimal effect on Ambulance Service performance and on time lost waiting at emergency departments. It is not possible to quantify the effect on the number of ambulance diversions or on changes in travelling time.

3.1 Recent improvements of the Ambulance Service

The Ambulance Service has sought to improve the way it delivers its services to the community.

Increased expenditure

The Government has increased its expenditure by 72 per cent since 1996-97 (a 51 per cent increase in real terms).

At the time of our 2001 performance audit into the Ambulance Service, actual staffing levels were below the establishment numbers, and increases agreed during reviews of staffing had not been achieved¹³. Increases in funding and staff numbers and operational reforms in recent years have largely addressed these deficiencies.

Much progress has been made with the implementation of improved technology, particularly the computer-aided dispatch system (CAD) and mobile data terminals (MDTs) in vehicles. These have contributed to a significant improvement in the quality and usefulness of management information.

The vehicle fleet has been largely updated with modern vehicles, and a program to replace or refurbish many of the Service's stations, particularly in rural areas, is in progress.

Implementation of CAD has enabled the Service to improve monitoring of its performance against agreed standards.

3.2 Responsiveness of the Ambulance Service

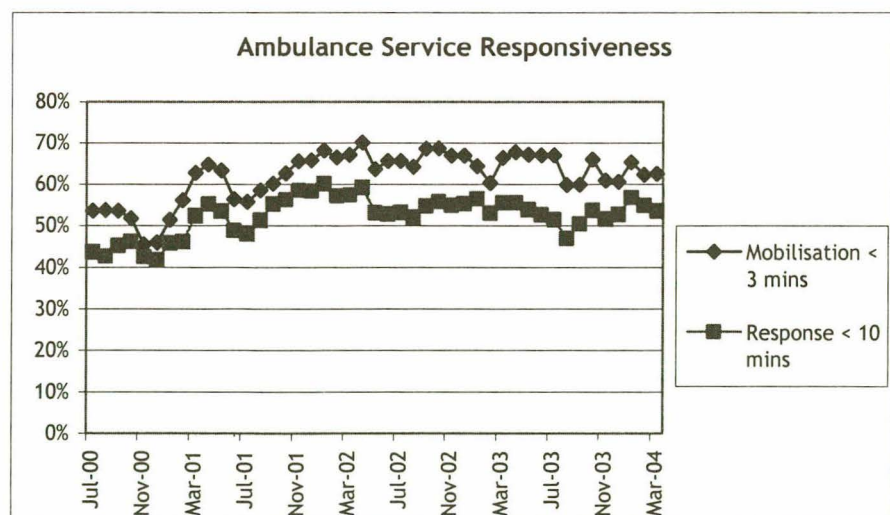
In common with other Australian states, the Ambulance Service uses the following performance indicators:

- mobilisation time
- response time
- turnaround time
- case cycle (transported) time for P1 (emergency) patients.

	Definition	Benchmarks for performance in Sydney
Mobilisation Time	The time elapsed between 'Call Recorded' and 'Vehicle Responding' indicating the amount of time to mobilise ambulance resources to calls.	95 per cent of responses within 3 minutes ¹⁴
Response Time	The time elapsed between 'Call Recorded' and 'Time on Scene' indicating the amount of time to respond to the scene from the call being received.	55 per cent of responses within 10 minutes ¹⁵
Turnaround Time	The time elapsed between 'Arrive Hospital/Destination' and 'Clear Case' indicating the amount of time to off load patient, complete documentation and prepare vehicle for next response.	30 minutes
Case Cycle Time	The Time elapsed between 'Call Recorded' and 'Clear Case' indicating the amount of time resources are engaged in the provision service to incidents attended.	60 minutes

Improvement has not been uniform

Since 2000 the Ambulance Service improved performance in all the above measures. However from late 2001 to mid 2002 mobilisation, turnaround and case cycle times deteriorated. Response time has been stable since early 2002.



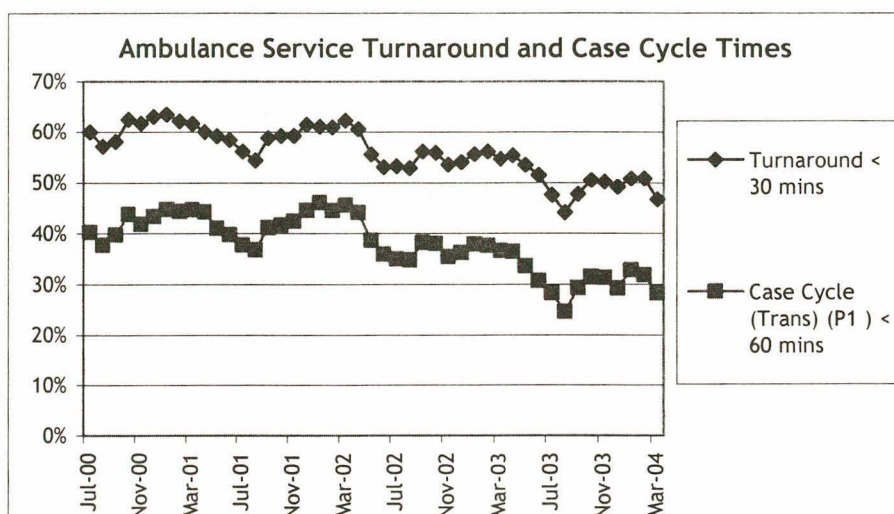
Mobilisation time As shown above, mobilisation time in Sydney reached levels approaching 70 per cent of responses within 3 minutes in 2002 and early 2003, but has since fallen to levels closer to 60 per cent.

Response time Response time in Sydney improved significantly from levels below 50 per cent in 2000 to 60 per cent in early 2002. It has since fallen to levels slightly above 50 per cent.

The Ambulance Service changed the Sydney target for response time for 2003:

The Department of Health and the Service had initially agreed on a 2002-03 target for Sydney, of achieving 61 per cent of responses within 10 minutes. The Service told us that this target was based on strategies scheduled for implementation in future years. Because of this the target was revised to 55 per cent¹⁶.

The trend in response time is still below the revised target of 55 per cent.



Turnaround time As shown above, turnaround time in Sydney was above 60 per cent until mid-2002. It has now fallen to below 50 per cent.

Case cycle time Case cycle time in Sydney was under 60 minutes in more than 40 per cent of cases until early 2002. Since then it has fallen to levels around 30 per cent.

The deterioration in turnaround and case cycle times leaves fewer ambulances available to respond to new calls for assistance. This in turn has an adverse impact on mobilisation time and response time.

Ambulances are losing time at emergency departments The 30 minute benchmark for turnaround time comprises two elements. The crew is allowed:

- 20 minutes to transfer a patient to the emergency department and complete the necessary documentation ('off stretcher' time), and
- an additional 10 minutes to prepare the vehicle for the next response.

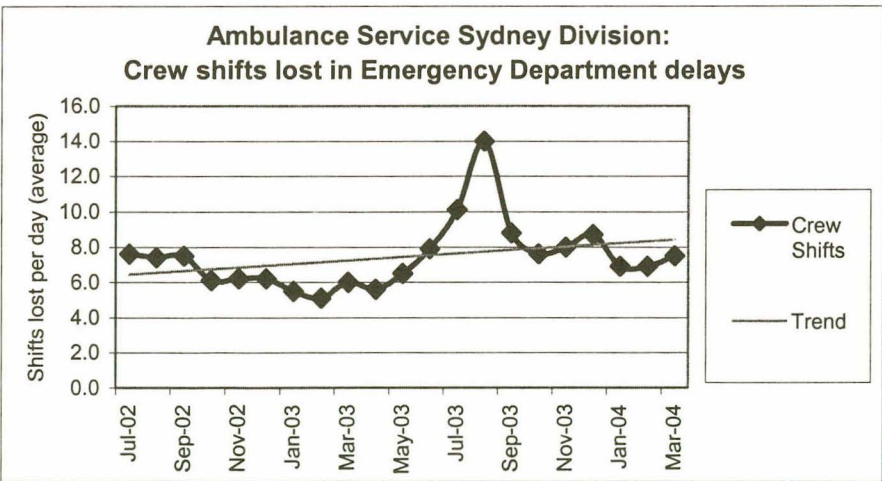
Average 'off stretcher' times in all metropolitan Areas are in excess of the 20 minutes allowed due to the frequent congestion in emergency departments.

Area	Average off-stretcher time (minutes)	% of cases in excess of 20 minutes
Central Sydney	29.8	58.5
Northern Sydney	23.8	47.0
South Eastern Sydney	26.3	54.6
South West Sydney	34.0	62.0
Wentworth	27.2	56.8
Western Sydney	27.9	56.0

Ambulance Service data indicate that about eight per cent of ambulance crew hours in Sydney is lost because ambulances and crews are queued at emergency departments. Management mainly attributes the deterioration in mobilisation, response, turnaround and case cycle times to this lost time.

The Service frequently incurs overtime when delays in crews handing over their patient at hospital result in them being unable to finish their shift on time, or to take a meal break in accordance with Award requirements. Clearly this adds to the Ambulance Service's costs.

The exhibit below shows the number of shifts lost in excess of the 30 minutes allowed for turnaround time¹⁷. The effect of increased time lost during winter 2003 is evident.



Impact of Code Red

When an emergency department is at full capacity ('Code Red'), the crew will divert appropriate cases to the nearest available hospital. As the alternative hospital will usually be more distant, this may mean that transport time will be longer. However it is not possible to quantify the impact, as the CAD system is not currently able to record the number of times an ambulance is diverted from one hospital to another, nor the time lost in doing so.

The introduction of the Emergency Department Network Access Scheme (EDNA) in mid 2002 has been successful in diverting some patients with less urgent or serious conditions away from busy hospitals. However it has not alleviated the effects on ambulances of congestion at emergency departments:

An indirect measure of diversion is changes in the number of ambulance patients presenting with less serious conditions. When a hospital goes red, these numbers should decline. Preliminary work by the Department of Health indicates that decreases occur in most metropolitan hospitals¹⁸ ...

... Overall, EDNA appears to have had minimal impact on reducing ambulance delays and improving patient flow. This may be due to the fact that there is limited spare capacity in the network ...

Hospitals report that it is increasingly difficult to improve patient flow when bed occupancy is high, nearing 100 per cent. They report that they frequently go beyond capacity or 'beyond red'¹⁹.

Ambulance turnaround and case cycle times have continued to deteriorate despite the introduction of EDNA, and the number of crew shifts lost is not improving following the winter and December peaks.

Recommendations

We recommend that the Ambulance Service improve the quality of management information by ensuring that it monitors and disseminates information on ambulance diversions and non-emergency transport performance.

3.3 Future initiatives

Demand management may offer future benefits

The Ambulance Service currently gives equal priority to all 000 emergency calls. It is clear, however, that some calls are of a lower level of urgency, and the patient's condition would not deteriorate if required to wait while more serious patients were attended to.

For this reason the Ambulance Service is introducing an assessment process for incoming 000 calls. The intention is to identify the 'true' emergency calls and to restrict a 'lights and sirens' response to these cases. More routine cases will have a lower level of priority.

This process is not intended to reduce the overall number of patient transports by the Ambulance Service, but to allocate priority and resources more appropriately. Similar procedures are already in place in most ambulance services in Australia and overseas.

Recommendations

We recommend that the Ambulance Service implement the priority assessment processes as soon as possible.

4. Emergency Departments

At a glance

Despite a significant increase in expenditure and the adoption of a number of innovations, waiting times in emergency departments have not improved.

Data provided by NSW Health indicate that the most urgent one per cent of cases arriving in emergency departments (T1 patients) are treated within the time allowed.

Less urgent patients (T3, T4 and T5) represent nearly 90 per cent of patients attending metropolitan emergency departments. In 2002-03 a lower percentage of these patients were treated within Health's recommended waiting times than in 1997-98.

Many metropolitan hospitals are now experiencing levels of access block in excess of 50 per cent. Access block in some rural hospitals is also increasing. As discussed in Chapter 2, access block is due to high bed occupancy levels in inpatient wards, and is not due to emergency departments.

A number of other measures of emergency department waiting time performance show significant variation which may be due to resources, quality of data, inconsistency of process or of compliance with guidelines.

There are also inconsistencies in the use of information systems across emergency departments and with the quality and timeliness of data which they provide.

4.1 Triage

Patients arriving at emergency departments are:

- assessed by specialised triage nurses on the nature and severity of their condition
- given a triage priority according to the urgency of need for medical treatment
- treated according to priority.

Emergency department waiting time performance is measured by waiting times by triage category, which are publicly reported.

Waiting times reflect the time taken from assessment (triage) to commencement of active treatment. The higher the triage category, the sooner treatment should commence.

Triage Category	Definition	Treatment acuity and maximum waiting time	Performance indicator threshold
T1	Immediately life-threatening condition	Need to receive immediate treatment, in practice within 2 minutes	100 per cent
T2	Imminently life-threatening condition	Need to have treatment within 10 minutes	80 per cent
T3	Potentially life-threatening condition	Need to have treatment within 30 minutes	75 per cent
T4	Potentially serious condition	Need to have treatment within 1 hour	70 per cent
T5	Less urgent condition	Need to have treatment within 2 hours	70 per cent

NSW Health has adopted the Australasian Triage Scale²⁰, which has also been adopted by Australian health authorities and the Australian Council on Health Care Standards.

Triage waiting time performance

Expenditure on emergency departments nearly doubled in real terms between 1996-97 and 2002-03. This has enabled many innovations to be implemented in emergency departments (such as those discussed in 4.4 *Recent improvements*).

Despite this and since 1997-98, only T1 waiting times have improved in metropolitan hospitals. Waiting times in all other triage categories have deteriorated.

T1

One per cent of patients attending emergency departments in metropolitan hospitals are assessed as T1, the highest priority.

T1 waiting times for metropolitan hospitals have been steady since mid-1999, with very close to 100 per cent of patients being treated within the 2 minute benchmark. AIHW data show that only Victoria and the Northern Territory equalled this performance²¹.

T2

Eight per cent of patients attending emergency departments in metropolitan hospitals are assessed as T2.

T2 waiting time performance has slowly declined from above 80 per cent of patients being treated within the 10 minute benchmark in 1997-98 to currently around 75 per cent, below the performance threshold of 80 per cent.

T3

Thirty six per cent of metropolitan patients are assessed as T3.

Metropolitan T3 waiting time performance declined steadily from approximately 65 per cent of patients being treated within the 30 minute benchmark in 1997-98 and 1998-99 to less than 50 per cent in 2001-02.

As a result of initiatives to address the decline, some metropolitan hospitals have since displayed a significant upturn in performance. However it is still around 60 per cent, below the performance threshold of 75 per cent.

T4	<p>Forty-four per cent of patients are assessed as T4.</p> <p>Waiting time performance in metropolitan hospitals declined from about 70 per cent of patients being treated within the 1 hour benchmark in 1997-98 to about 50 per cent in 2001-02.</p> <p>Performance at some metropolitan hospitals improved to around 65 per cent in mid-2003, but it has since fallen again.</p>
T5	<p>Eleven per cent of metropolitan patients are assessed as T5.</p> <p>T5 performance shows an unbroken declining trend from about 90 per cent of patients being treated within the 2 hour benchmark in 1997-98. Performance fell below 80 per cent between June and August 2002, but has since recovered to around 85 per cent, above the performance threshold of 70 per cent.</p>
Reliability of waiting times	<p>As discussed below in 6.3 <i>Lack of integrated information systems</i>, the information systems of the Ambulance Service and emergency departments do not automatically record the same time that ambulances arrive at the emergency department.</p> <p>In some hospitals we examined, the time that the patient had already waited in the ambulance before triage commenced was not included in waiting time. Waiting times for these patients were hence understated.</p>
Excessive waiting times	<p>Another indicator of performance is the number of patients waiting longer than twice the recommended waiting time by triage category.</p> <p>This may occur because the emergency department is:</p> <ul style="list-style-type: none">• unexpectedly busy• under-resourced• overcrowded due to access block, or• not efficient. <p>The following table shows the average percentage of patients waiting longer than twice the recommended waiting time at major metropolitan hospitals in 2003.</p>

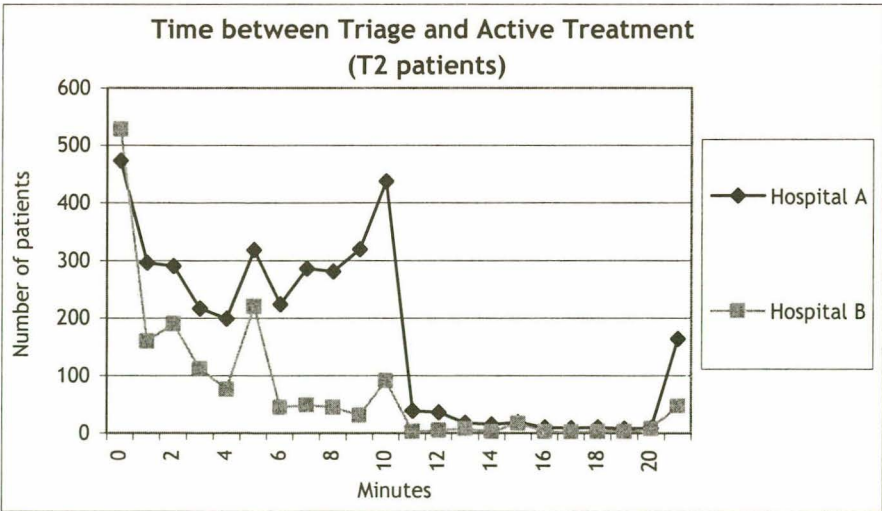
Major metropolitan hospitals: patients waiting over twice the recommended time by triage category 2002-03					
	% waiting longer than twice recommended time				
	T1	T2	T3	T4	T5
Mona Vale	0	2	12	6	0
Ryde	0	8	12	7	1
Auburn	0	9	14	10	2
Manly	0	7	14	12	2
Hornsby/Ku-ring-gai	0	20	21	13	2
Fairfield	0	2	19	15	2
Mount Druitt	0	3	16	19	2
Campbelltown	0	7	23	18	3
Wyong	0	28	24	21	1
Sutherland	0	17	29	19	3
Canterbury	0	14	33	35	4
Blacktown	0	2	48	36	3

As these hospitals are the same type, this variation may be due to lack of consistency of processes, resources or collection and reporting of data, or of implementation of guidelines in emergency departments.

Inconsistent triage results

The exhibit below compares the 'time from triage to active treatment' for two different hospitals.

T2 patients for these hospitals show markedly different patterns of performance which was not evident in the waiting times of patients in other triage categories.



A time distribution such as for Hospital B is typical of most hospitals. 53 per cent of T2 patients are seen within 3 minutes, with only 10 per cent in the 3 minutes before the 10 minute benchmark. The time distribution hence represents an exponential decay curve.

However Hospital A displays a markedly different pattern. 29 per cent of patients are seen in the first 3 minutes, but the same proportion is seen in the 3 minutes before the 10 minute benchmark. This time distribution curve has a pronounced step at the 10 minute mark.

We were not able reliably to establish the reasons for, or validity of, such variations. A range of possibilities exist, such as differences in resources or patient mix, or inconsistent triage or performance reporting practices. This is such a critical group of patients that we believe steps are warranted to ensure data are meaningful and comparable.

Variation in reported patient acuity

Different Area Health Services and hospitals show significant differences in the proportion of patients in each triage category.

Percentage of patients in each triage category 2002-03					
Area	T1	T2	T3	T4	T5
Children's Hospital (Westmead)	1%	3%	25%	32%	39%
Central Sydney	1%	8%	38%	41%	12%
Northern Sydney	1%	8%	31%	46%	14%
Western Sydney	1%	13%	35%	45%	6%
Wentworth	1%	17%	41%	38%	2%
South Western Sydney	1%	7%	48%	39%	5%
Central Coast	1%	9%	34%	50%	6%
Hunter	1%	6%	28%	56%	9%
Illawarra	1%	6%	31%	43%	19%
South Eastern Sydney	1%	8%	36%	41%	13%

Greater differences are evident when viewed at the level of individual hospitals within the same Area Health Service.

Percentage of patients in each triage category 2002-03					
Hospital	T1	T2	T3	T4	T5
St Vincent's	3%	12%	45%	35%	6%
Sydney	0%	4%	27%	56%	13%

Possible reasons for the variation include inconsistent practices, resources or reporting between different emergency departments or a different mix of patients.

Recommendations

We recommend that the Department:

- continue to seek improvements to arrest the long term decline in waiting times for lower priority triage categories
- review emergency department resources, processes, compliance and reporting to improve the quality and consistency of practice and reduce undesirable variation in performance.

4.2 Access block

Performance

Access block is deteriorating across the state and regularly exceeds 50 per cent at some hospitals.

This means that over half of the emergency patients at those hospitals who need to be transferred to an inpatient ward will wait longer than the benchmark time of 8 hours.

The exhibit shows the increasing trend in access block for the last five years in the ten metropolitan hospitals with the highest levels of access block.

Access block in metropolitan hospitals (% not admitted 8 hours after the start of active treatment)					
	1998-99	1999-2000	2000-01	2001-02	2002-03
St Vincent's	47%	48%	49%	52%	61%
Canterbury	28%	28%	40%	44%	50%
Prince of Wales	35%	40%	52%	58%	50%
Belmont	13%	30%	27%	44%	49%
Wollongong	23%	28%	35%	39%	47%
Hornsby/Ku-ring-gai	35%	48%	45%	51%	45%
Penrith-Nepean	32%	34%	42%	48%	45%
Concord	13%	18%	29%	34%	42%
Westmead	35%	41%	43%	44%	42%
Mount Druitt	19%	30%	35%	38%	41%
NSW	18%	21%	24%	27%	29%

Health's website shows that average access block in metropolitan hospitals in the year to March 2004 was 36 per cent.

Rural and non-metropolitan hospitals are experiencing access block more frequently, while some of these hospitals show a rapid increase in levels of access block over the last five years.

Access block in non-metropolitan hospitals (% not admitted 8 hours after the start of active treatment)					
	1998-99	1999-2000	2000-01	2001-02	2002-03
Albury Base	15%	17%	17%	23%	28%
Port Macquarie	11%	13%	13%	16%	28%
Lismore	5%	6%	7%	10%	15%
Wagga Wagga	5%	6%	6%	12%	13%
Tweed Heads	7%	8%	9%	9%	12%
Dubbo	1%	4%	8%	9%	12%
Orange	2%	4%	3%	7%	12%
Coffs Harbour	1%	1%	2%	3%	8%

Average access block in non-metropolitan hospitals in the year to March 2004 was 31 per cent.

Access block is undesirable for patients

The literature suggests that increasing levels of access block have adverse consequences for patients and for the health system:

Emergency departments are specialist multidisciplinary units with expertise in managing acutely unwell patients for the first few hours in hospital. Neither the facilities (generally poor privacy, small trolleys, 24-hour lighting) nor the staff are appropriate for providing longer term inpatient care. Very few patients who require an inpatient bed benefit from staying in the emergency department longer than 4 hours, and no emergency department benefits by caring for patients beyond this time. If the 30 per cent or so of patients who are admitted spend twice as long in the emergency department, this represents a 30 per cent increase in workload for emergency department staff ...

... our findings confirm what has been reported previously ... thirty to forty per cent of adults admitted to principal referral or major metropolitan hospitals experience unacceptable delays getting to destination wards. These delays are likely to be associated with poorer clinical outcomes and increased length of stay after the emergency department phase of care, and impair the ability of emergency departments to deliver high standard emergency care.

Sources: *Reducing patient time in the emergency department*; Drew B Richardson, MJA 2003; 179 (10): 516-517 The Medical Journal of Australia 2003 <http://www.mja.com.au/> and *Access block in NSW hospitals, 1999-2001: does the definition matter?* Roberto Forero and others, MJA 2004; 180 (2): 67-70

Clinicians also emphasise the undesirable effects of access block from the perspective of patient satisfaction, patient safety and patient clinical outcomes.

4.3 Other measures of performance

The quality of emergency treatment

There are few routinely-used measures of the quality of emergency department treatment, but one such measure is the unplanned re-presentation rate. These are usually referred to as 'unplanned returns':

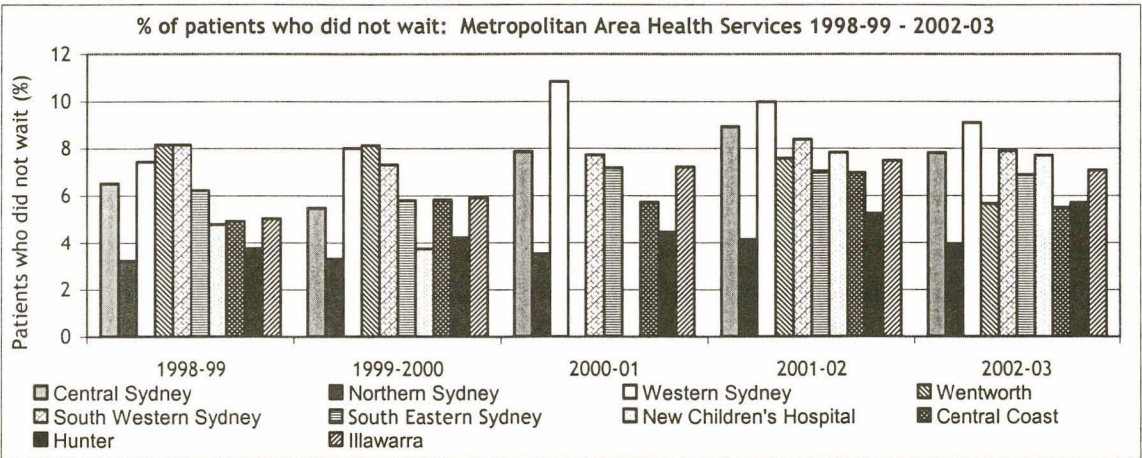
'Unplanned Return Visit' - the person unexpectedly returns for the same condition. The visit may be following a result of a previous inpatient episode.

Source: *Emergency Department Data Definitions Version 2.0*; NSW Department of Health, April 1997, p22

The re-presentation rates for metropolitan hospitals for 2002-03 varied from 2 to 6 per cent. High re-presentation rates do not appear to be associated with access block: hospitals with low re-presentation rates tend to have high levels of access block, and vice versa.

Quality indicators: patients not waiting

The Department also reports numbers of patients who decided not to wait in the emergency department for assessment and treatment of their condition, but returned later for treatment at the same hospital.



There are wide variations in performance

- The performance information suggests a wide variation in:
- re-presentation rates
 - patients waiting longer than twice the recommended time
 - time between triage and active treatment for T2 patients, and
 - the percentage of patients who did not wait for treatment.

This may indicate inconsistency in practices, resources, reporting or compliance with practice guidelines. In either event the inconsistency does not support reliable reporting for improvement purposes.

4.4 Recent improvements

NSW Health has implemented a number of initiatives and innovations to streamline care for patients seeking emergency treatment. Some of these are discussed below.

Emergency Medicine Units (EMUs)

Patients requiring short-term observation or treatment are normally admitted to an inpatient ward. Access block can, however, delay admission.

Twelve hospitals with high levels of access block were provided with extra funds to set up observation units within their emergency departments. The units:

- contain 10 to 12 beds and are known as Emergency Medicine Units (EMUs)
- house patients who require short-term observation and treatment, usually between 24 to 48 hours, but who do not necessarily need to be admitted to a ward.

EMUs are considered a success:

Access block performance remained constant for the EMU group from 2002 to 2003, while there was deterioration in non-EMU hospitals. Given that those hospitals selected for EMU funding already had exceptionally high access block, no deterioration in access block performance for the EMU group should be seen as an achievement.

Source: *Emergency Medicine Units: Evaluation of activity and performance*; Senior Performance Analyst Health System Performance Branch and Clinical Advisor on Emergency Services, Strategic Development Division /Director, Emergency Department, St George Hospital, January 2004

Rapid Emergency Assessment Teams (REATs)

Another initiative is the fast-tracking of treatment for patients with semi-urgent illness or injury by teams of senior emergency staff.

These are referred to as Rapid Emergency Assessment Teams (REATs). The major hospitals across Sydney, the Central Coast and Newcastle with high activity levels and poor waiting time performance were targeted for the initiative.

REATs assess patients and commence treatment prior to the usual full assessment. This intervention also improves waiting time performance.

REATs are also considered a success:

- Improvements in triage performance and average waiting times have been achieved in the majority of REAT emergency departments
- Declines in triages 2 and 3 performance were observed for the non-REAT group.

Source: *Rapid Emergency Assessment Teams: Evaluation of performance*; Senior Performance Analyst Health System Performance Branch and Clinical Advisor on Emergency Services, Strategic Development Division /Director, Emergency Department, St George Hospital, January 2004

Other initiatives

Clinical Initiatives Nurses (CINs) are trained and qualified to commence emergency treatment more quickly and without the direct supervision of a doctor.

Aged Care Services Emergency Teams (ASETS) are intended to improve the care of older people who attend emergency departments. These multidisciplinary teams are working with emergency department staff in providing early identification and management of older people with complex care needs.

Evaluation of ASETS demonstrates that this early identification of the older person's needs and risk factors minimises the requirement for them to remain in hospital, prevents readmissions once they are discharged and minimises their loss of function and mobility. Importantly it leads to the safer management of the frail older person through their time in hospital.

NSW Health has yet to conduct an evaluation of CINs.

4.5 Management information systems and data

Emergency departments use different information systems

All metropolitan hospitals use the Emergency Department Information System (EDIS) for patient care and waiting time performance information. Different hospitals however use different software platforms.

The way EDIS is used also differs across hospitals:

- patient data in most hospitals are initially recorded in a paper system and later transferred to EDIS
- a small number of hospitals enter data directly into EDIS in real time
- some hospitals use EDIS to monitor patients and their treatment and for analysis to improve patient flow
- few emergency departments appear to use available performance data to monitor performance and identify opportunities for improvement.

Those hospitals using EDIS for real-time data entry spoke of its advantages over paper-based entry, including accuracy of data and transparency and ease of ensuring that patients receive treatment according to their triage classification.

Some hospitals with real-time EDIS commented that it offered no guarantee of accuracy, as treatment of patients must receive priority over data entry:

Because the [patients] are in need of immediate attention, punching data into the EDIS record is not the first priority for the attending clinical staff ... Although it is best practice for triage data to be entered in real time, this is often unachievable by the one Triage Nurse able to be allocated to the Triage area. For this reason some Triage Category 3 data is also entered retrospectively, especially when triage has a large number of presentations to assess.

Sources: Email from Area Health Service, 8 April 2004, and internal memorandum from the Nursing Unit Manager of a metropolitan hospital, 3 May 2004; identities have been suppressed.

While it is appropriate that patient care should receive priority, Area Health Services and hospitals are accountable for the quality and timeliness of the data that measure their performance. Procedures and resources should be adequate to ensure this.

The use of both paper-based and real-time systems increases the risk of inconsistency between data from different hospitals. Paper-based systems can also facilitate retrospective adjustments, whereas real-time systems often incorporate audit trails to assist the detection of manipulation.

Those hospitals using paper systems mentioned no specific barrier to adoption of real-time EDIS, beyond the need for more terminals and training. Real-time use of EDIS in all hospitals would improve consistency, reliability and transparency.

Implications for accountability

Some of the variations in waiting times and other measures of performance have the potential to undermine the reliability of the performance information which NSW Health publishes on its website. It is essential for public confidence in the system that variations in performance or process are explainable, and do not suggest inconsistency in practice.

Recommendations

We recommend that the Department improve the quality of management information to support better decision making by ensuring that hospitals where appropriate adopt real-time EDIS operation to improve timeliness and accuracy of data.

4.6 Responding to demand on emergency departments

GP clinics may reduce workload in some emergency departments

Hunter Area Health Service has established five after-hours general practice clinics in response to a perceived lack of accessible after-hours GP services. Other States are also adopting similar initiatives.

A key objective of the clinics is to ease pressure on emergency departments by providing:

- more appropriate care to patients with non-urgent complaints, such as coughs, colds and minor injuries
- care to patients who may otherwise have to attend an emergency departments and who are too ill to wait until the next day to access their own GP.

The clinics were not intended to reduce access block.

However not all parties agree that the clinics can reduce pressures on emergency departments:

... after-hours medical centres ... are often proposed as a solution to overloaded emergency departments ... The problem with all this is that the general community is lead to believe that GP clinics are the answer to overloaded emergency departments, and hospital managers and funders are further tempted to try to shift the so-called 'non-emergency' patients ... It is clear from extensive data (and also logical) that it is admitted patients that block up hospital beds ... the lowest acuity patients represent marginal costs, and are generally fitted between other cases, so cause minimal delay and consume minimal resources.

Source: *Emergency Medicine and General Practice: the issues and the facts*; Australasian College for Emergency Medicine, www.acem.org.au/open/documents/current.htm, S Ieraci, July 1999

Around 60,000 people are expected to use the Hunter service each year. The Commonwealth, NSW Health and general practitioners fund the clinics.

The Ambulance Service is also trialling ways to better manage increasing demand through various protocols (see 3.3 *Future initiatives*).

Recommendations

We recommend that the Department explore with the Commonwealth further trials of after-hours GP clinics to offer patients alternatives to attending emergency departments.

5. Inpatient Wards

At a glance

Increases in bed occupancy levels, widely attributed to increasing access block, have occurred in nearly all metropolitan Area Health Services. In most cases this has accompanied decreasing inpatient bed numbers.

There is also wide variation in performance in discharging patients over the weekend. Bed occupancy and access block tend to be higher on Monday to Wednesday, which may be due to lower weekend rates of discharge.

While some hospitals are able to temporarily increase bed numbers to accommodate fluctuations in demand, this has an adverse impact on budgets.

Most Areas manage beds on an individual hospital basis, and have limited information systems to support them. One Area has developed a web-based bed management tool which gives at-a-glance information to support patient placement decisions. Such tools need to be adopted more widely to make better use of beds.

However improved bed management can have little effect until bed occupancy levels are returned to more sustainable levels by increasing the number of beds to meet demand and the needs of aged patients.

5.1 Performance of inpatient wards

From the patient's point of view, it is important that there are sufficient beds in inpatient wards to ensure that:

- patients do not wait unnecessarily in the emergency department when they need to be admitted
- planned admissions for surgery are not cancelled because of a lack of beds
- patients are admitted to wards appropriate for their clinical needs.

Some hospitals have improved patient flow and bed management by initiatives such as transitional care beds for aged patients awaiting placement in a nursing home. Patients occupying these beds generally:

- incur lower costs as they require less intensive nursing care, and
- benefit from an environment that is more appropriate to their clinical needs.

Some factors that impact on the efficient flow of patients through the hospital system are discussed below.

5.2 Bed numbers and occupancy levels

Bed occupancy across New South Wales has risen from 83.0 per cent to 86.3 per cent between 1996-97 and 2002-03.

For metropolitan hospitals, bed occupancy has risen from 87.4 per cent in 1996-97 to 90.7 per cent in 2002-03. The table below shows the relationship between the change in the number of beds, average length of stay and bed occupancy rate.

Changes in bed numbers from 1996-97 to 2002-03									
Areas	General hospital beds			Average overall length of stay (days)			Bed occupancy level %		
	1996-97	2002-03	Change	1996-97	2002-03	Change	1996-97	2002-03	Change
Metropolitan	12,029	10,875	-10%	5.8	4.7	-19%	87.4	90.7	+4%
Rural	5,880	4,784	-19%	5.0	5.2	+4%	73.2	76.3	+4%
Other ²²	246	223	-9%	NA	4.5	NA	NA	89.0	NA
Total	18,156	15,882	-13%	5.5	4.8	-13%	83.0	86.3	+4%

5.3 Discharge rates

For the efficient management of beds, it is essential that patients are promptly discharged from hospital following the successful completion of planned clinical care.

In the interests of patient flow and efficient bed management, rates of discharge should be reasonably consistent throughout the week. If this is achieved, incoming patients are more likely to be found a bed.

Trends in discharge rates indicate significantly fewer patients are discharged over weekends compared to weekdays. This has contributed to higher bed occupancy rates and access block between Mondays and Wednesdays.

The main reasons for this are:

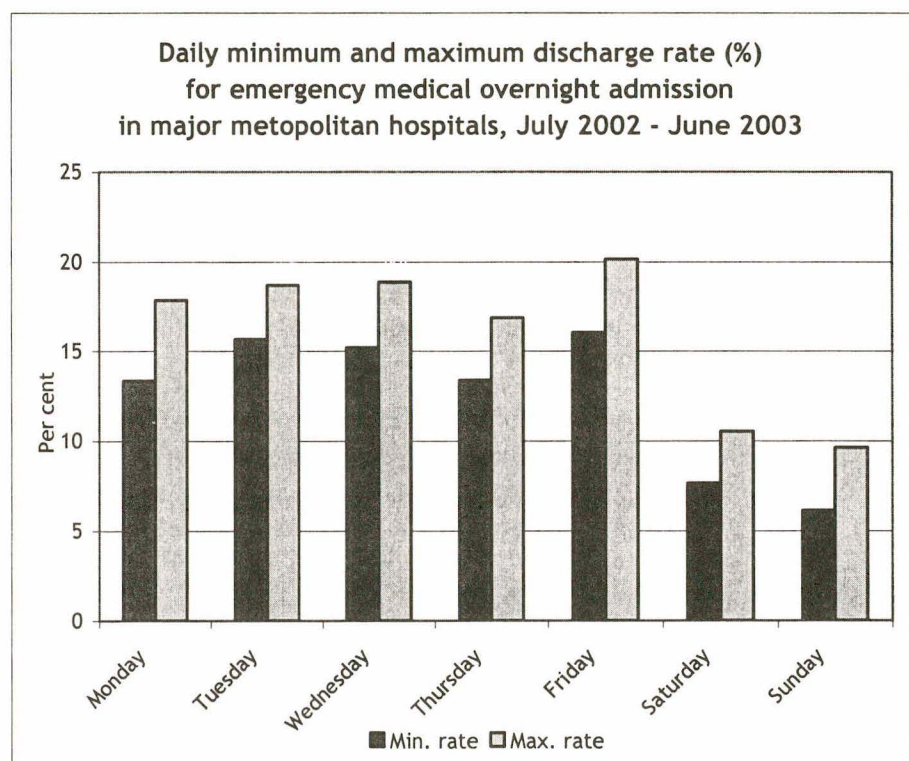
- nursing homes do not usually accept new aged care patients on weekends
- diagnostic and pharmacy services in hospitals are often not available out-of-hours
- specialists normally do not undertake routine 'rounds' of hospital wards on weekends.

Analysis of weekend discharge rates by NSW Health indicates wide variations in bed and discharge management practices.

A review of NSW hospital discharge data for emergency medical overnight patients in the period July 2001 - June 2002, indicates that access block and hospital occupancy are highest on Monday to Wednesday. A factor potentially contributing to this is the evident lower rates of discharge on weekends. Generally in NSW, there is an even flow of emergency medical overnight admissions to hospitals throughout the week.

On Fridays discharges increase by about 25 per cent over the Monday to Thursday rate. On Saturdays the rate falls to 1/2 of the Monday to Thursday rate and on Sunday the rate is 1/3 of the Monday to Thursday rate. These rates can differ significantly between specialties at the one hospital and within specialties between hospitals.

Source: *Weekend/Monday discharge processes for emergency overnight medical patients in selected clinical specialties and hospital sites*; NSW Department of Health, September 2003, p9



Discharge management

Many hospitals now provide out-of-hours services such as imaging, pathology and pharmacy. Most staff agreed that the increasing availability of these services meant that more patients could be discharged at weekends.

A study by NSW Health identified other initiatives to increase the rate of weekend discharge:

Irrespective of specialty or peer group, some or all of the following features characterized specialties with higher weekend discharge rates.

Discharge Planning

- more frequent rounds during the week by the AMO
- more than one case conference per week
- case conferences, which included all relevant nursing, allied health and medical staff
- better systems for early identification of patients with complex discharge needs
- better systems for identifying and communicating expected ALOS
- a nurse unit manager who is perceived as providing strong leadership in facilitating discussion with medical staff on potential discharges
- good teamwork expressed in communication, strong leadership from senior clinicians.

Decision to discharge

- better delegations/authority to the registrar for discharge
- registrar cover for the specialty on weekends
- AMOs who did rounds on at least one day on the weekend.

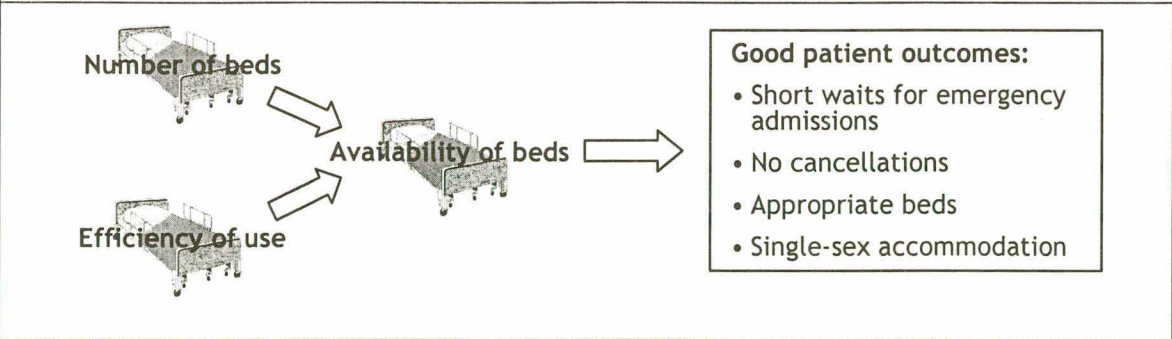
Hence one strategy for maximising weekend discharges is for weekday and out-of-hours staff to agree on the criteria for discharge of patients. The patient’s attending specialist may agree with the weekend registrar, for example, that the patient can be discharged if his or her temperature has remained at a normal level for 24 hours.

5.4 Improvement and innovation

Bed management

Bed managers in most hospitals attempt to maximise discharge rates and bed availability by coordinating emergency department and inpatient cycles. Bed management teams can meet several times daily in pursuit of this goal.

Effective bed management
The right balance of capacity and process management achieves good patient outcomes²³.



There is not widespread Area-wide support for bed management, such as the availability of IT infrastructure and policies and procedures to assist hospitals in managing beds. Ultimately the system relies on staff physically checking whether or not beds are occupied, and lack of consistent data has inhibited the ability to improve the quality of decision making.

Western Sydney AHS has developed, as part of its patient flow strategy, a web-based 'Bed Board' which captures bed availability data from the patient information management systems of the hospitals in the Area and provides at-a-glance information to support patient placement decisions. Status of all beds in all hospitals across the Area can be viewed.

Western Sydney's 'Bed Board'

The Patient Navigation Campaign is a strategy proposed to address a multitude of patient flow issues across WSAHS. The strategy will require establishing structures and developing policies to ensure the most up to date information regarding patient movements and hospital capacity is captured and available from a centralised source

...

The Bed Board will include Unit by Unit information regarding staffed bed levels, bed availability and activity intensity. Ideally, the tool will also be linked to operating theatre schedules, emergency departments and housekeeping tracking systems to provide up to the minute status on bed demand and turnover.

It is planned that this information will be available four times a day (as a minimum) and ideally displaying 'live' data. A proposed design is shown below and reflects all of the information required by Operational Managers/Bed Managers to effectively utilise our available resources.

WSAHS CDO Live Report - Microsoft Internet Explorer provided by Western Sydney Area Health

File Edit View Favorites Tools Help

Address: http://westnetdev/CDO/live_data_report.asp?sheetid=1

WSAHS CDO Bed Board

Home | Administration | Reports | Help | Log Out

Live Data Report **Occupancy Status** **Live Date & Time** Date: 22 Mar 2004 Time: 08:00 - 15:00 Submit

Update: 83% 22 Mar 2004 15:02:26

Pending Admissions Facility Data

Emergency	Predicted Historical Emergency	Theatre Addits	Booked Pre-admissions (Day Only)	Booked Pre-admissions (excl Day Only)	Inter-hospital transfers	Clinics/Rooms	Estimated Discharges	Projected Historical Discharges
16	18.3		5	7				36.8
View Patient Details		Enter Theatre Addits	View Details	View Details	Enter Inter-hospital transfers	Enter Clinics/Rooms	Enter Estimated Discharges	

PIMS Input Data [Sheet: General (1) Acute (2) Day Only (3) W&CH (4) Other (5)]

Ward	Description	Platform	Open	Closed	Empty	Occupied	Outliers	Transfer	Occupancy
A&C	Infectious Diseases/ Immun/ Derm	20	29	0	2	27	7	6	93%
ASA	Cardiology Acute	17	22	3	0	22	0	13	100%
ASC	Cardiology Stepdown Ward	14	27	0	-2	29	3	10	107%
ASZ	Cardiac Assessment Unit	5	5	0	3	2	0	5	40%
BZA	ENT/Plastic/Head and Neck/Facio-Max Dental/Burns/Breast surgery Ward	56	27	0	0	27	8	4	100%
BSC	Colo Rectal/Hepato Biliary/Gastro Ward	10	39	0	1	38	8	4	97%
BZA	Respiratory Ward	14	20	1	2	18	1	3	90%
RKC	Sumatran Control	1	1	1	1	7	7	1	17%

Done Local Intranet

Start Emergency... Novell-del... HiPatient... Microsoft... CDO Live... 3:54 PM

Short term initiatives

Inpatient wards which have spare bed capacity may be able to re-open beds to accommodate peaks in demand provided nursing staff are available to care for the additional patients. This is usually achieved by engaging agency nurses and, in some cases, by redeploying staff or working overtime.

Some hospital wards have all available beds in use, and must seek other means to increase capacity. Gosford hospital, for example, has contracted with the private hospital sector to provide short term additional beds to alleviate access block.

These short term responses will usually have adverse impact on expenditure and budgets.

Hospitals frequently meet increasing demand for beds for emergency patients by restricting the number of booked procedures, particularly in winter when emergency demand is usually highest. When this is necessary it increases the length of time that patients must wait for elective surgery (see 2.7 *Booked surgery*).

Long term solutions

Estimating the future medium to long term demand for hospital beds needs to take into account the impact of the ageing population on length of stay, costs and other resources.

Improving access block and reducing the number of long-wait patients depends on sufficient bed numbers to meet elective and emergency demand, and the specific needs of all types of patients.

Improvements to bed and discharge management will assist in maximising bed utilisation.

An increase in the number of beds would clearly assist existing demand issues.

A substantial increase in available bed numbers would be achieved by reducing the blockage caused by aged patients. This is a complex problem and will require consultation and coordination of effort with the Commonwealth Government.

Recommendations

We recommend that Area Health Services reduce patient flow problems and high bed occupancy levels by improving bed management practices, processes and systems on an Area-wide basis and by supporting higher levels of consistency in practice.

6. Coordination

At a glance

At times of peak workload, it is clear that hospitals are transferring to the Ambulance Service some of the responsibility for emergency patient nursing care. When emergency departments are congested they may leave patients in the care of ambulance crews, which reduces the ability of the Ambulance Service to respond to new calls.

The introduction of Ambulance Liaison Officers has produced worthwhile benefits in teamwork and coordination between the Service and hospitals.

The data systems of the Ambulance Service and emergency departments are not integrated, nor is there any means of readily linking them to assist in analysis of patient data. This has concealed occasional lengthy delays in triaging patients.

Hospitals complain of the unreliability of the Ambulance Service's Patient Transport Service for non-emergency patients. The Ambulance Service now reports on the percentage of routine cases in metropolitan Sydney collected within 30 minutes of the time booked. However information which measures reliability at hospital or Area level, while now collected by the Service, is not available to hospitals.

6.1 The Ambulance Service

Ambulances carrying patients often queue at emergency departments. This usually coincides with queues of other patients in the waiting room of the emergency department.

Ambulance Service data show that about eight per cent of crew hours are lost in Sydney because of queues due to emergency departments being overloaded. That is because the total number of patients in and arriving at the emergency department exceeds the capacity of the department to assess, treat and discharge or transfer patients.

This outcome has implications for the Ambulance Service.

Firstly, ambulances are not free to respond to fresh calls for emergency assistance. This in turn affects the overall performance of the Ambulance Service.

Secondly, patients transported by ambulance remain in the nursing care of the ambulance crew until a bed can be found in the emergency department. This can have implications for patient care if not managed appropriately.

If a patient's condition deteriorates, the ambulance crew will alert emergency department staff. Any patient with an acute condition, whether brought by ambulance or by other means, has priority for entry to the emergency department.

The NSW Department of Health has recently reminded Area Health Services and the Ambulance Service that the hospital has overriding responsibility for the patient once on hospital premises.

Code Red

The decision for a hospital to go Code Red is usually made by the hospital executive (the Director of Nursing and/or Medicine or the General Manager). Hospitals notify the Network Access Coordinator (NAC) at the Ambulance Service of their capacity status. Ambulances can only redirect patients with less serious conditions²⁴.

When an ambulance officer assesses that it is appropriate to divert to another hospital because of Code Red status, the ambulance may travel for up to an additional 30 minutes and may pass two hospitals before reaching an emergency department that is less busy.

Again there are implications for the Ambulance Service, which is forced to bear a penalty of:

- extra travelling time and associated costs
- opportunity costs in not being free to respond to fresh calls for assistance
- in some cases, the cost of overtime.

Ambulance Liaison Officers cannot overcome capacity shortfalls

NSW Health and the Ambulance Service have taken steps to improve coordination with emergency departments.

Area Health Services have, for example, funded the appointment of Ambulance Liaison Officers (ALOs) at most metropolitan emergency departments. This was intended to be for the winter 2002 peak, but the positions have been retained.

Initially the role of the ALOs was to provide extra resources at the ambulance/emergency department interface. This helped resolve tensions between ambulance crews and emergency department staff when working under stressful conditions.

The role has since evolved and ALOs are increasingly involved with hospital staff in developing strategies to address access block and improve bed management. However, there has not been a demonstrable effect on ambulance performance times.

The ALOs work under difficult conditions. Generally emergency department staff praised the efforts of ALOs. However ALOs can achieve only so much in the face of increasing demand for emergency services and existing capacity limitations.

While the ALO positions continue to address some of the short term symptoms of congestion in emergency departments, their limited ability to alleviate the longer term causes of access block needs to be recognised.

The Ambulance Service Patient Transport Service

The Ambulance Service Patient Transport Service (PTS) routinely transports patients from hospitals to their homes, to and from nursing homes, and between hospitals.

The Ambulance Service has invested heavily in this type of patient transport. It employs, for example, over eighty Patient Transport Officers and has purchased special purpose vehicles for the role.

However the Service still relies upon its general service ambulance vehicles to meet much of the demand for non-emergency transport. Hence ambulance queues at emergency departments will have some impact on the capacity of the Ambulance Service to maintain this form of patient transport at the levels required by the hospitals.

Staff of several hospitals complained about the timeliness and general reliability of services provided by the PTS. Although the Ambulance Service records and reports the percentage of non-emergency cases collected within 30 minutes of the booked time, this information is not passed on to hospitals. Accordingly hospitals are unable to assess the reliability, or otherwise, of non-emergency routine patient transport.

Consequently a number of Area Health Services and hospitals use their own vehicles or outside contractors to improve reliability of routine patient transport and to better control costs²⁵.

Efforts by the Ambulance Service and NSW Health to negotiate a coordinated approach to this type of patient transport are important in reducing risk of duplication of administrative overhead and idle capacity in both the Ambulance Service and hospital fleets.

Potential improvements

There are times when ambulances are required to queue at hospitals with less urgent T4 and T5 patients.

Some Ambulance and Emergency Department staff suggested that these non-urgent patients join other patients (who arrive by independent means) in the waiting room of the emergency department. This practice would only be appropriate for patients who do not require stretchers, and has already been adopted in some Emergency Departments.

Wider adoption of this approach would free the ambulance to respond to other calls for assistance without detriment to the patient.

Recommendations

We recommend that the Department implement formal and permanent means of improving planning and coordination between hospitals and the Ambulance Service.

6.2 Emergency Departments

Unless a patient in need of care can be found a bed in the emergency department promptly, queues of patients will form in the waiting room, and ambulance queues will also form.

Some hospitals have holding areas where patients arriving by ambulance are transferred to the emergency department premises (but not to a bed in the emergency department). In this situation several patients may remain on stretchers in the care of one ambulance crew, freeing other crews to respond to the next call for assistance.

Other hospitals claim to accept patients delivered by ambulance no matter how crowded the emergency department. In these cases patients may be temporarily accommodated on trolleys in hospital corridors until a bed is found in the emergency department. These patients are in the care of emergency department staff, not ambulance staff.

However several hospitals claiming to adopt this practice recorded average off-stretcher times in excess of 60 minutes.

Recommendations

We recommend that ambulance crews be able to hand over patients to the care of emergency departments as soon as practical after their arrival.

6.3 Lack of integrated information systems

The Ambulance Service uses a computer aided dispatch system (CAD) to dispatch ambulances following an emergency call, and generally monitor performance in responding to calls.

The Emergency Department Information System (EDIS) provides hospitals with performance information on patient care.

CAD and EDIS are not linked

CAD and EDIS systems are not integrated and do not communicate directly. CAD and EDIS do not, therefore, automatically record the same time that ambulances arrive at the emergency department.

We compared EDIS and CAD data at certain hospitals and found examples of a significant difference between arrival time recorded by CAD and that shown in EDIS. The start of triage shown in EDIS was identical to arrival time, but as the patient had already waited in the ambulance before triage commenced, waiting times for these patients were understated.

In several cases, triage of patients with an acute condition (T2) did not commence until well after the 10 minutes allowed for when the time patients spent in the ambulance is taken into account (as shown by CAD as the arrival time).

One hospital we examined explained:

Normal practice at [this] hospital for category 1 and 2 patients is for immediate assessment at triage, followed by the triage nurse escorting the patient and [Ambulance] officers to the Resuscitation Bays. During the transfer the Triage nurse maintains patient safety, commences the Patient Assessment form, and remains with the patient until the Resuscitation Nurse receives handover. Following this the Triage Nurse returns to Triage, inserts the patient onto EDIS and alerts the Administration Officer of the need for a bedside registration. Therefore the data entry attended by the Triage nurse is retrospectively entered, rather than real time ... The obvious problem associated with retrospective data entry is the need to backdate the Triage seen time, which can result in variations in clock times used by [this hospital and the Ambulance Service].

'Informal' triage We also observed that some emergency departments conduct an 'informal' triage of the patient in the ambulance on arrival. If the patient's condition is acute (T1 or T2), formal triage will commence immediately and the patient will be found a bed in the emergency department.

If the 'informal' triage shows that the patient is not acute and no bed can be found, the patient will not be formally triaged and entered into EDIS until a bed is found. In these cases actual waiting times do not reflect the time that patients wait in the ambulance.

We brought these matters to the attention of NSW Health which has proposed the trial of a new definition of 'arrival time' to capture the time between ambulance arriving at the emergency department and commencement of triage. Any delay in commencing triage, or in initiating treatment after triage, would then automatically be measured by EDIS.

Compliance with the new definition could be confirmed by comparing Ambulance and EDIS records.

It is not possible to perform a similar check on delays for patients who self-present at the emergency department, as there is no independent check of the patient arrival time such as is provided by CAD.

Difficulty of reconciling the systems

We found other inconsistencies in the integrity of data. Significant numbers of patients brought by ambulance and recorded in CAD data could not be located in EDIS data. This may occur when the patient is not destined for the emergency department but is being transferred directly to a ward. However many patients coded in EDIS as having been brought by ambulance were not shown in CAD data.

Without the ability to match patients in the two systems it is difficult to conduct detailed analysis. For example it may not be possible to measure the total time taken to treat a patient from 000 call to the time the patient was admitted to an inpatient ward.

There are also implications for the health and safety of ambulance officers. If a patient brought by ambulance is subsequently found to be suffering from an infectious disease, it may be necessary to urgently identify the attending ambulance officers and provide them with treatment. With present data limitations there would be a delay with potentially serious consequences for officer welfare.

If CAD and EDIS used a common patient identifier, any patient would be able to be tracked through both systems. EDIS has an 'ambulance client number' field which is intended as an identifier, but it is not routinely used. As an interim step, entering the CAD incident number, which is a unique identifier, into the EDIS 'ambulance client number' field could link the two databases to facilitate interrogation and comparison.

Patient data are recorded by the ambulance crew in the Case Sheet, and some of this is manually transferred to emergency department patient records. The ability to transfer this information electronically from CAD to EDIS would improve accuracy and timeliness and would reduce duplicated clerical effort.

Recommendations

We recommend that the Department improve the quality of management information to support better decision making by linking CAD and EDIS.

Appendices

Appendix 1 About the audit

Audit objectives To determine how efficiently and effectively the Ambulance Service, emergency departments and the broader hospital system (particularly inpatient wards) coordinate and manage the transportation and treatment of patients requiring emergency care.

Audit scope The scope of the audit was to:

- review the factors that impact on treatment and movement of patients from initiation of cycle (usually with an 000 call for an ambulance) through arrival at the emergency department to discharge (or admission to hospital)
- concentrate on emergency departments in Metropolitan areas (Sydney-Newcastle-Wollongong-Central Coast), as these are more likely to operate at or near capacity compared to rural hospitals
- review Ambulance Service and emergency department performance in rural areas to identify any issues which may be specific to rural performance.

The audit did not include the health outcomes of patients.

Audit focus The focus included:

- quality of communication and clarity of accountability within and between the ambulance service and hospitals
- use of management information to improve performance
- quality of data systems
- effectiveness of and compliance with clinical protocols and quality systems
- coordination between the ambulance service, emergency departments and other hospital departments and other health service providers such as GPs and nursing homes
- quality of overall emergency system planning (including alternative models such as Trauma Bypass) and of planning at hospital and emergency department level
- management of the impact of seasonality on service delivery
- access to specialist advice and services
- capacity and flexibility of staffing arrangements, resources and resource allocation practices.

Audit criteria	<ol style="list-style-type: none"> 1. Management of Demand and Priority of Access The Ambulance Service and Emergency Departments are able to monitor demand trends and ensure that the highest priority for emergency transport and treatment is directed to the most urgent patients. Strategies to minimise the impact of non-emergency patients will be reviewed. 2. Management of Ambulance Service and Emergency Department Resources Adequate systems, procedures, guidelines and monitoring support the efficient and timely management of transport and treatment of emergency patients. In light of some findings during the Waiting Times audit, compliance with procedures will also be reviewed. As Access Block is a major constraint on emergency department performance, it is also proposed to include examination of the factors which affect the ability to admit emergency department patients to hospital wards. 3. Coordination between Ambulance Service and Emergency Departments Systems, procedures and protocols of the ambulance service and emergency departments are integrated and consistent. The 'Code Red' audit will be reviewing specific coordination and communication. 4. Planning, Budgeting, Monitoring and Reporting and Improvement Demand for ambulance service and emergency department treatment is reflected in planning and budgeting within the health system. Effectiveness of monitoring by boards and senior management will also be reviewed.
Audit approach	<p>Determine whether the ambulance to hospital system operates efficiently and effectively and review the major issues (problems, risks, concerns and opportunities):</p> <ul style="list-style-type: none"> • the management and monitoring of the ambulance service/ emergency department/inpatient system • changes in demand and demand management • work practices • capacity (staffing, inpatient bed numbers, funding) • governance • factors outside the control of the Department of Health.
Audit cost	<p>Including printing and all overheads the estimated cost of this audit is \$286,379.</p> <p>The audit team comprised Kirsty Hall, Neville Johnson, Geoff Moran and Denis Streater.</p>

Previous audits This audit follows on from audits recently done into the public health system. Some of the main findings of those reports are shown.

Hospital Emergency Departments: Delivering Services to Patients (March 2000):

Although waiting times for seriously ill patients have decreased, waiting times for around 95 per cent of emergency department patients have increased or remain unchanged and performance against benchmarks for access block has declined each year²⁶.

Ambulance Service Readiness to Respond (March 2001):

This performance audit indicates that the Service has considerable work to do to reach its aspirations of being recognised amongst leading examples of best practice services²⁷.

Waiting Times for Elective Surgery in Public Hospitals (September 2003):

By all measures used by NSW Health, patients are waiting longer for elective treatment today than six or seven years ago²⁸.

Code Red: Hospital Emergency Departments (December 2003):

The Emergency Department Network Access Scheme (EDNA) was introduced by the Ambulance Service and the Department of Health to improve ambulance patients' access to hospital services by reducing ambulance delays at emergency departments ... since EDNA was introduced, there has not been an overall reduction in ambulance delays at hospitals. EDNA has had some impact on sharing demand but it is limited by the fact that there is very little spare capacity available in the network. Under these conditions, EDNA can not markedly improve patient access. More fundamental changes to hospital practices are required²⁹.

An audit currently in progress, *Emergency Mental Health Services in NSW* (third quarter of 2004), will cover aspects of emergency health care for mental health patients.

Appendix 2

Terms used in this report

Access block	Access block is the proportion of admitted patients not moved to a hospital ward within 8 hours from commencement of active treatment.
Admitted patients	Patients accepted by a hospital for inpatient care.
ALO	Ambulance Liaison Officers
AMWAC	<p>The Australian Medical Workforce Advisory Committee. AMWAC was formed in early 1995 to assist with the development of a more strategic focus on medical workforce planning in Australia.</p> <p>AMWAC is an advisory body which reports to the Australian Health Ministers' Advisory Committee, and through it to Australian Health Ministers.</p> <p>The prime focus of AMWAC's work is Australian medical workforce research and data analysis, although AMWAC also aims to provide workable policy solutions where appropriate.</p>
Area Health Service (Area)	An Area Health Service is the administering authority for public health activities within a designated geographic area. Currently, there are 17 Area Health Services covering the whole of New South Wales. In addition, the Ambulance Service, Corrections Health Service and the Children's Hospital at Westmead operate as separate entities within their respective fields.
ASET	Aged Care Services Emergency Teams (ASETS) are multidisciplinary teams intended to improve the care of older people who attend emergency departments.
Attending Medical Officer (AMO)	A senior clinician (a visiting practitioner, staff specialist or academic clinician) with admitting rights to a hospital ³⁰ .
Australian National Diagnosis Related Groups (AN-DRGs)	AN-DRGs describe the acute inpatient casemix of a hospital. That is, they describe the services provided by the hospital by grouping together patient episodes that are clinically similar, and use similar levels of resources ³¹ .
Average length of stay (ALOS)	<p>The average number of days each admitted patient stays in hospital. This is calculated by dividing the total number of occupied bed days for the period by the number of actual separations in the period.</p> <p>The Department reports two different measures of average length of stay. The overall average length of stay includes Same-Day admissions. By definition these patients have a length of stay of one day or less.</p> <p>The Department also reports the Overnight Acute average length of stay.</p> <p>In 2003 the overall average length of stay (including Same-Day patients) was 4.8 days, whereas the Overnight Acute average length of stay was 5.5 days.</p>
Bed occupancy rate	The percentage of available beds which have been occupied over the year. It is a measure of the intensity of the use of hospital resources by inpatients.

Bed Days	The total number of bed days of all admitted patients accommodated during the period being reported taken from the count of the number of inpatients at midnight (approximately) each day. Details for Same-Day patients are also recorded as Occupied Bed Days where one Occupied Bed Day is counted for each Same-Day patient.
Booked Patients	Formerly referred to as an elective patient, the booked patient requires non-emergency admission to hospital (i.e. admission is required but need not occur within 24 hours) and has been booked on the hospital's booking or waiting list.
Case Cycle Time	The Time elapsed between 'Call Recorded' and 'Clear Case' indicating the amount of time resources are engaged in the provision service to incidents attended.
CIN	Clinical Initiatives Nurses (CINs) are trained and qualified to commence emergency treatment more quickly and without the supervision of a doctor.
Code Red	<p>A hospital is designated 'Code Red' when it has reached its capacity to treat emergency patients. Going code red alerts the Ambulance Service to divert ambulances carrying patients with less serious conditions to neighbouring hospitals. This is designed to ensure that patients get faster access to care and that ambulances and their crews are not delayed at the emergency department and unavailable to respond to other calls.</p> <p>The scheme can only be fully effective if neighbouring hospitals have the capacity to treat diverted patients without themselves going code red³².</p>
Cost Weights	<p>Cost weights describe the cost (and complexity) of patients within particular AN-DRGs, as compared to the average for all episodes within the scope of the classification.</p> <p>Cost weights are calculated by dividing the average cost of episodes within an AN-DRG by the average cost of all episodes (i.e. across all AN-DRGs). Therefore, a cost weight greater than 1 represents AN-DRGs where on average, the episodes are more expensive than the overall average. Conversely, AN-DRGs with a cost weight of less than 1 are those where the average cost of the episodes is lower than the average cost for all acute inpatient episodes of care.</p> <p>Caution must be taken in interpreting cost weights. Because they represent relativities between classes, they can only be compared to other classes in the same set. That is, they cannot be compared across years, or across different cost weight sets³³.</p>
Day of Surgery Admission (DOSA)	DOSA involves patients who require an overnight stay in hospital following their procedure but are admitted to hospital on the day of surgery.

EDNA	<p>The Emergency Department Network Access Scheme (EDNA) was introduced by the Ambulance Service and the Department of Health to improve ambulance patients' access to hospital services by reducing ambulance delays at emergency departments.</p> <p>EDNA monitors bed capacity in both the emergency department and hospital wards and alerts ambulance crews when capacity changes. The aim is to spread demand more evenly across the network by redirecting ambulance patients with less serious conditions to other hospitals.</p> <p>Three standard indicators are used for hospital capacity. Green represents normal operations, orange is nearing capacity and red indicates both the hospital and the emergency department have reached full capacity and have no spare beds. Hospitals are required to expedite bed management practices in response to changes in capacity³⁴.</p>
Elective patient	See booked patient.
Emergency Patients	Patients whose clinical conditions indicate that they require admission to hospital within 24 hours.
EMU	Emergency Medicine Units (EMUs) are observation units within their emergency departments containing 10 to 12 beds. They are intended to house patients who require short-term observation and treatment, usually between 24 to 48 hours, but who do not necessarily need to be admitted to a ward.
General Practitioner	<p>A doctor (also known as a family doctor or family practitioner) who is the main agent of primary health care, through whom patients make first contact with health services for a new episode of illness or fresh developments of chronic diseases³⁵.</p> <p>Practitioners recognised by the Health Insurance Commission include vocationally registered practitioners, participants in the Royal Australian College of General Practitioners (RACGP) training program and fellows of the RACGP³⁶.</p>
Inpatient	Patients who are formally admitted to a hospital or health service facility. Formally admitted patients can be same-day or overnight ³⁷ .
KPIs	<p>Key performance indicators.</p> <p>KPIs are [performance] measures that demonstrate the current and future condition of an entity in terms of the programs it supports and the results it achieves ... KPIs exist within a context defined by objectives. KPIs are useful instruments for several reasons:</p> <ul style="list-style-type: none"> ▪ service improvement ▪ management improvement ▪ accountability ▪ legal requirements³⁸.
Long-Wait Patients	<p>'Ready-for-care' medical and surgical patients who have been waiting for elective surgery longer than 12 months are termed 'long-wait' or 'extended wait' patients.</p> <p>'Long-wait' patients may seek or be offered earlier treatment by a different surgeon and/or different hospital.</p>

Mobilisation Time	The time elapsed between 'Call Recorded' and 'Vehicle Responding' indicating the amount of time to mobilise ambulance resources to calls.
Outpatient	Patients who receive medical, surgical, allied health or diagnostic services in a hospital outpatient facility, who are not formally admitted to the hospital at the time of receiving the service ³⁹ .
PAS	Patient Administration System
Performance agreement	An agreement between the Director-General and public health organisations, as outlined under the Health Services Act 1997. The agreement contains agreed objectives and goals and defines accountabilities and measures performance.
PTS	The Ambulance Service's Patient Transport Service (PTS) routinely transports patients from hospitals to their homes, to nursing homes, and between hospitals.
Public Patient	A patient admitted to a public hospital who has agreed to be treated by doctors of the hospital's choice and to accept shared ward accommodation. This means the patient is not charged.
REAT Resource Distribution Formula (RDF)	A funding formula that looks at each Area's population demographics, its specific health needs, and its outflows and inflows of patient deliveries.
Response Time	The time elapsed between 'Call Recorded' and 'Time on Scene' indicating the amount of time to respond to the scene from the call being received.
Same-Day Surgery	Same-day surgery involves the patient being admitted and discharged on the day of surgery.
Separations	Separations are episodes of care from admission to discharge, transfer or death. Target separation levels form part of the performance agreement between health entities and the Department and are one of the factors in determining funding levels. A weighting is applied to recognise the various levels and complexities of separations.
Transport Time	The time elapsed between 'Depart Scene' and 'Arrive Hospital/Destination' indicating the amount of time to transport patients to a medical facility or other destination.
Triage	<p>An essential function of emergency departments where many patients may present at the same time. Triage aims to ensure that patients are treated in the order of their clinical priority and that their treatment is timely.</p> <p>Waiting time for triage performance is calculated as the time elapsed between triage and commencement of active treatment. Commencement of active treatment is defined as the earlier of nurse seen time and doctor seen time.</p>
Turnaround Time	The time elapsed between 'Arrive Hospital / Destination' and 'Clear Case' indicating the amount of time to off load patient, complete documentation and prepare vehicle for next response.

Descriptions of Department of Health Programs The name and purpose of each program of the Department of Health is summarised in Note 17 of the *Notes to and forming part of the financial statements for the year ended 30 June 2003* in the Annual Report.

17. Programs/Activities of the Agency

Program 1.1 Objective	Primary and Community Based Services To improve, maintain or restore health through health promotion, early intervention, assessment, therapy and treatment services for clients in a home or community setting.
Program 1.2 Objective	Aboriginal Health Services To raise the health status of Aborigines and to promote a healthy life style.
Program 1.3 Objective	Outpatient Services To improve, maintain or restore health through diagnosis, therapy, education and treatment services for ambulant patients in a hospital setting.
Program 2.1 Objective	Emergency Services To reduce the risk of premature death and disability for people suffering injury or acute illness by providing timely emergency diagnostic, treatment and transport services.
Program 2.2 Objective	Overnight Acute Inpatient Services To restore or improve health and manage risks of illness, injury and childbirth through diagnosis and treatment for people intended to be admitted to hospital on an overnight basis.
Program 2.3 Objective	Same-Day Acute Inpatient Services To restore or improve health and manage risks of illness, injury and childbirth through diagnosis and treatment for people intended to be admitted to hospital and discharged on the same day.
Program 3.1 Objective	Mental Health Services To improve the health, well being and social functioning of people with disabling mental disorders and to reduce the incidence of suicide, mental health problems and mental disorders in the community.
Program 4.1 Objective	Rehabilitation and Extended Care Services To improve or maintain the well being and independent functioning of people with disabilities or chronic conditions, the frail aged and the terminally ill.
Program 5.1 Objective	Population Health Services To promote health and reduce the incidence of preventable disease and disability by improving access to opportunities and prerequisites for good health.
Program 6.1 Objective	Teaching and Research To develop the skills and knowledge of the health workforce to support patient care and population health. To extend knowledge through scientific enquiry and applied research aimed at improving the health and well being of the people of New South Wales.

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- ⁴ *Australian Hospital Statistics 2001-02* (AIHW cat. no. HSE 25); Australian Institute of Health and Welfare, 2003, Table 2.2
- ⁵ *Australian Hospital Statistics 1996-97* (AIHW cat. no. HSE 5); Australian Institute of Health and Welfare, 1998, Table 2.4 and *Australian Hospital Statistics 2001-02* (AIHW cat. no. HSE 25); Australian Institute of Health and Welfare, 2003, Table 2.2
- ⁶ 800 patients x 365 days per year divided by grand total of 4,036,880 actual bed days in 2003 (from Activitybytimeagegrouppeerandweights.xls)
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- ¹⁴ *Ambulance Service of New South Wales: Readiness to respond*; Auditor-General's Report, March 2001, p21
- ¹⁵ *Ambulance Service of NSW Annual Report 2002-03*; p9
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- ¹⁸ *Code Red: Hospital Emergency Departments*; Auditor-General's Report, 15 December 2003, p26
- ¹⁹ *Code Red: Hospital Emergency Departments*; Auditor-General's Report, 15 December 2003, p29
- ²⁰ Australasian College of Emergency Medicine; Policy Document - The Australasian Triage Scale, PO6 November 1993, Updated November 2000, www.acem.org.au/open/documents/triage.htm
- ²¹ *Australian Hospital Statistics 2001-02* (AIHW cat. no. HSE 25); Australian Institute of Health and Welfare, 2003, Table 4.13
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- ²⁵ 'Hospitals are not satisfied with non-emergency services'; *Ambulance Service of New South Wales: Readiness to respond*; Auditor-General's Report, March 2001, p41
- ²⁶ *Hospital Emergency Departments: Delivering Services to Patients*; Auditor-General's Report, March 2003, p2
- ²⁷ *Ambulance Service of New South Wales: Readiness to respond*; Auditor-General's Report, March 2001, p2
- ²⁸ *Waiting Times for Elective Surgery in Public Hospitals: NSW Department of Health*; Auditor-General's Report, September 2003, p3
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- ³² *Code Red: Hospital Emergency Departments*; Auditor-General's Report, 15 December 2003, Foreword
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- ³⁷ *Performance Reports Health: Glossary*; Council on the Cost and Quality of Government;
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Performance Audits by the Audit Office of New South Wales

Performance Auditing

What are performance audits?

Performance audits are reviews designed to determine how efficiently and effectively an agency is carrying out its functions.

Performance audits may review a government program, all or part of a government agency or consider particular issues which affect the whole public sector.

Where appropriate, performance audits make recommendations for improvements relating to those functions.

Why do we conduct performance audits?

Performance audits provide independent assurance to Parliament and the public that government funds are being spent efficiently and effectively, and in accordance with the law.

They seek to improve the efficiency and effectiveness of government agencies and ensure that the community receives value for money from government services.

Performance audits also assist the accountability process by holding agencies accountable for their performance.

What is the legislative basis for Performance Audits?

The legislative basis for performance audits is contained within the *Public Finance and Audit Act 1983, Part 3 Division 2A*, (the Act) which differentiates such work from the Office's financial statements audit function.

Performance audits are not entitled to question the merits of policy objectives of the Government.

Who conducts performance audits?

Performance audits are conducted by specialist performance auditors who are drawn from a wide range of professional disciplines.

How do we choose our topics?

Topics for performance audits are chosen from a variety of sources including:

- our own research on emerging issues
- suggestions from Parliamentarians, agency Chief Executive Officers (CEO) and members of the public
- complaints about waste of public money
- referrals from Parliament.

Each potential audit topic is considered and evaluated in terms of possible benefits including cost savings, impact and improvements in public administration.

The Audit Office has no jurisdiction over local government and cannot review issues relating to council activities.

If you wish to find out what performance audits are currently in progress just visit our website at www.audit@nsw.gov.au.

How do we conduct performance audits?

Performance audits are conducted in compliance with relevant Australian standards for performance auditing and operate under a quality management system certified under international quality standard ISO 9001.

Our policy is to conduct these audits on a "no surprise" basis.

Operational managers, and where necessary executive officers, are informed of the progress with the audit on a continuous basis.

What are the phases in performance auditing?

Performance audits have three key phases: planning, fieldwork and report writing.

During the planning phase, the audit team will develop audit criteria and define the audit field work.

At the completion of field work an exit interview is held with agency management to discuss all significant matters arising out of the audit. The basis for the exit interview is generally a draft performance audit report.

The exit interview serves to ensure that facts presented in the report are accurate and that recommendations are appropriate. Following the exit interview, a formal draft report is provided to the CEO for comment. The relevant Minister is also provided with a copy of the draft report. The final report, which is tabled in Parliament, includes any comment made by the CEO on the conclusion and the recommendations of the audit.

Depending on the scope of an audit, performance audits can take from several months to a year to complete.

Copies of our performance audit reports can be obtained from our website or by contacting our publications unit.

How do we measure an agency's performance?

During the planning stage of an audit the team develops the audit criteria. These are standards of performance against which an agency is assessed. Criteria may be based on government targets or benchmarks, comparative data, published guidelines, agencies corporate objectives or examples of best practice.

Performance audits look at:

- processes
- results
- costs
- due process and accountability.

Do we check to see if recommendations have been implemented?

Every few years we conduct a follow-up audit of past performance audit reports. These follow-up audits look at the extent to which recommendations have been implemented and whether problems have been addressed.

The Public Accounts Committee (PAC) may also conduct reviews or hold inquiries into matters raised in performance audit reports. Agencies are also required to report actions taken against each recommendation in their annual report.

To assist agencies to monitor and report on the implementation of recommendations, the Audit Office has prepared a Guide for that purpose. The Guide, *Monitoring and Reporting on Performance Audits Recommendations*, is on the Internet at www.audit.nsw.gov.au/guides-bp/bpglist.htm

Who audits the auditors?

Our performance audits are subject to internal and external quality reviews against relevant Australian and international standards. This includes ongoing independent certification of our ISO 9001 quality management system.

The PAC is also responsible for overseeing the activities of the Audit Office and conducts reviews of our operations every three years.

Who pays for performance audits?

No fee is charged for performance audits. Our performance audit services are funded by the NSW Parliament and from internal sources.

For further information relating to performance auditing contact:

Stephen Horne
Assistant Auditor-General
Performance Audit Branch
(02) 9275 7278
email: stephen.horne@audit.nsw.gov.au

Performance Audit Reports

No.	Agency or Issue Examined	Title of Performance Audit Report or Publication	Date Tabled in Parliament or Published
64*	Key Performance Indicators	<i>Government-wide Framework Defining and Measuring Performance (Better practice Principles) Legal Aid Commission Case Study</i>	31 August 1999
65	Attorney General's Department	<i>Management of Court Waiting Times</i>	3 September 1999
66	Office of the Protective Commissioner Office of the Public Guardian	<i>Complaints and Review Processes</i>	28 September 1999
67	University of Western Sydney	<i>Administrative Arrangements</i>	17 November 1999
68	NSW Police Service	<i>Enforcement of Street Parking</i>	24 November 1999
69	Roads and Traffic Authority of NSW	<i>Planning for Road Maintenance</i>	1 December 1999
70	NSW Police Service	<i>Staff Rostering, Tasking and Allocation</i>	31 January 2000
71*	Academics' Paid Outside Work	<i>Administrative Procedures Protection of Intellectual Property Minimum Standard Checklists Better Practice Examples</i>	7 February 2000
72	Hospital Emergency Departments	<i>Delivering Services to Patients</i>	15 March 2000
73	Department of Education and Training	<i>Using Computers in Schools for Teaching and Learning</i>	7 June 2000
74	Ageing and Disability Department	<i>Group Homes for people with disabilities in NSW</i>	27 June 2000
75	NSW Department of Transport	<i>Management of Road Passenger Transport Regulation</i>	6 September 2000
76	Judging Performance from Annual Reports	<i>Review of Eight Agencies' Annual Reports</i>	29 November 2000
77*	Reporting Performance	<i>Better Practice Guide A guide to preparing performance information for annual reports</i>	29 November 2000
78	State Rail Authority (CityRail) State Transit Authority	<i>Fare Evasion on Public Transport</i>	6 December 2000
79	TAFE NSW	<i>Review of Administration</i>	6 February 2001
80	Ambulance Service of New South Wales	<i>Readiness to Respond</i>	7 March 2001

No.	Agency or Issue Examined	Title of Performance Audit Report or Publication	Date Tabled in Parliament or Published
81	Department of Housing	<i>Maintenance of Public Housing</i>	11 April 2001
82	Environment Protection Authority	<i>Controlling and Reducing Pollution from Industry</i>	18 April 2001
83	Department of Corrective Services	<i>NSW Correctional Industries</i>	13 June 2001
84	Follow-up of Performance Audits	<i>Police Response to Calls for Assistance</i> <i>The Levying and Collection of Land Tax</i> <i>Coordination of Bushfire Fighting Activities</i>	20 June 2001
85*	Internal Financial Reporting	<i>Internal Financial Reporting including a Better Practice Guide</i>	27 June 2001
86	Follow-up of Performance Audits	<i>The School Accountability and Improvement Model (May 1999)</i> <i>The Management of Court Waiting Times (September 1999)</i>	14 September 2001
87	E-government	<i>Use of the Internet and Related Technologies to Improve Public Sector Performance</i>	19 September 2001
88*	E-government	<i>e-ready, e-steady, e-government: e-government readiness assessment guide</i>	19 September 2001
89	Intellectual Property	<i>Management of Intellectual Property</i>	17 October 2001
90*	Intellectual Property	<i>Better Practice Guide</i> <i>Management of Intellectual Property</i>	17 October 2001
91	University of New South Wales	<i>Educational Testing Centre</i>	21 November 2001
92	Department of Urban Affairs and Planning	<i>Environmental Impact Assessment of Major Projects</i>	28 November 2001
93	Department of Information Technology and Management	<i>Government Property Register</i>	31 January 2002
94	State Debt Recovery Office	<i>Collecting Outstanding Fines and Penalties</i>	17 April 2002
95	Roads and Traffic Authority	<i>Managing Environmental Issues</i>	29 April 2002
96	NSW Agriculture	<i>Managing Animal Disease Emergencies</i>	8 May 2002
97	State Transit Authority Department of Transport	<i>Bus Maintenance and Bus Contracts</i>	29 May 2002
98	Risk Management	<i>Managing Risk in the NSW Public Sector</i>	19 June 2002

No.	Agency or Issue Examined	Title of Performance Audit Report or Publication	Date Tabled in Parliament or Published
99	E-government	<i>User-friendliness of Websites</i>	26 June 2002
100	NSW Police Department of Corrective Services	<i>Managing Sick Leave</i>	23 July 2002
101	Department of Land and Water Conservation	<i>Regulating the Clearing of Native Vegetation</i>	20 August 2002
102	E-government	<i>Electronic Procurement of Hospital Supplies</i>	25 September 2002
103	NSW Public Sector	<i>Outsourcing Information Technology</i>	23 October 2002
104	Ministry for the Arts Department of Community Services Department of Sport and Recreation	<i>Managing Grants</i>	4 December 2002
105	Department of Health Including Area Health Services and Hospitals	<i>Managing Hospital Waste</i>	10 December 2002
106	State Rail Authority	<i>CityRail Passenger Security</i>	12 February 2003
107	NSW Agriculture	<i>Implementing the Ovine Johne's Disease Program</i>	26 February 2003
108	Department of Sustainable Natural Resources Environment Protection Authority	<i>Protecting Our Rivers</i>	7 May 2003
109	Department of Education and Training	<i>Managing Teacher Performance</i>	14 May 2003
110	NSW Police	<i>The Police Assistance Line</i>	5 June 2003
111	E-Government	<i>Roads and Traffic Authority Delivering Services Online</i>	11 June 2003
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113	Sydney Water Corporation	<i>Northside Storage Tunnel Project</i>	24 July 2003
114	Ministry of Transport Premier's Department Department of Education and Training	<i>Freedom of Information</i>	28 August 2003
115	NSW Police NSW Roads and Traffic Authority	<i>Dealing with Unlicensed and Unregistered Driving</i>	4 September 2003
116	NSW Department of Health	<i>Waiting Times for Elective Surgery in Public Hospitals</i>	18 September 2003

No.	Agency or Issue Examined	Title of Performance Audit Report or Publication	Date Tabled in Parliament or Published
117	Follow-up of Performance Audits	<i>Complaints and Review Processes (September 1999) Provision of Industry Assistance (December 1998)</i>	24 September 2003
118	Judging Performance from Annual Reports	<i>Review of Eight Agencies' Annual Reports</i>	1 October 2003
119	Asset Disposal	<i>Disposal of Sydney Harbour Foreshore Land</i>	26 November 2003
120	Follow-up of Performance Audits NSW Police	<i>Enforcement of Street Parking (1999) Staff Rostering, Tasking and Allocation (2000)</i>	10 December 2003
121	Department of Health NSW Ambulance Service	<i>Code Red: Hospital Emergency Departments</i>	15 December 2003
122	Follow-up of Performance Audit	<i>Controlling and Reducing Pollution from Industry (April 2001)</i>	12 May 2004
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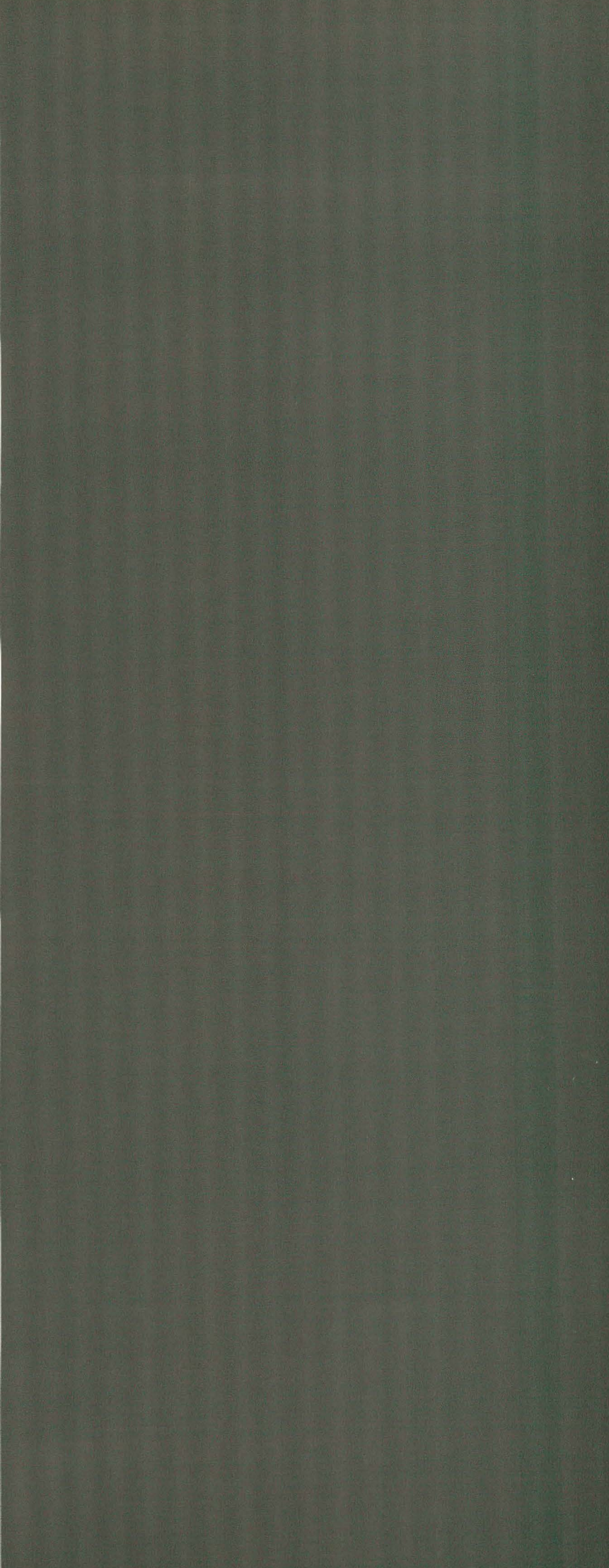
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