AUDITOR-GENERAL'S REPORT

PERFORMANCE AUDIT

Readiness to Respond
Ambulance Service of New South Wales
Follow-up of 2001 Performance Audit

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 **Readiness to Respond: Ambulance Service of New South Wales, Follow-up of 2001 Performance Audit.**

Peter Achterstraat
Auditor-General

Sydney
June 2007

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Foreword

The Ambulance Service is a key part of the State's health system. It provides initial emergency clinical care, patient transport and rescue services.

In our 2001 report 'Ambulance Service of NSW: Readiness to respond', the Audit Office recommended a number of improvements to the Service's organisation and operations. The Service accepted all of the recommendations except one that was outside its powers. The Government subsequently changed the Service's governance structure to address the remaining recommendation.

In this audit we assess the Ambulance Service's response to our 2001 audit.

I hope this report will increase awareness of the work being done to maintain and improve ambulance services in New South Wales.

Peter Achterstraat
Auditor-General

June 2007

Executive summary

The focus of our audit

The Ambulance Service of NSW (the Service) provides a 24 hour, seven day a week service to bring initial clinical care to emergency patients and to transport them to emergency departments of hospitals. It also provides transport for non-urgent patients who cannot travel to treatment by other means.

Our 2001 performance audit examined the operations of the Service at a time when the Service was a focus of media attention. The Minister for Health advised the Auditor-General that the audit warranted immediate attention and an early report.

The audit examined the full range of the Service's organisation and operations. The audit report, tabled in March 2001, contained eight broad recommendations, with 29 specific sub-recommendations. The sub-recommendations included changes to the Service's governance structure and to most facets of the Service's organisation and operations. The Minister welcomed the report and said that it highlighted areas where urgent change was needed.

Following the tabling of the report, the Government changed the Service's governance structure to simplify accountabilities. The Service accepted the other 28 sub-recommendations and established a program to implement them.

In this follow up audit we assessed:
- progress in implementing the recommendations of the 2001 audit report
- changes in performance that have occurred as a result of implementing the recommendations.

Audit opinion

The Service has substantially implemented the 28 recommendations of the 2001 audit report that it accepted. It has also introduced significant new initiatives to improve performance that were not part of the 2001 recommendations. It has made substantial changes to its organisation and operations to implement these changes. Many of the changes are still proceeding.

The Service has addressed a key finding of the 2001 audit report - that it did not have adequate, relevant or credible management data for decision making. The Service now has five years of operational data from the Computer Aided Dispatch (CAD) system.

The improved quality of operational data has enabled the Service to improve its day to day management and to implement the changes to its operations recommended in the 2001 audit report.

We commend the Service for the extensive changes it has made to implement the recommendations of the 2001 audit report, for its new initiatives and for the improvements in range and accuracy of data and performance indicators. We expect that the changes will be reflected in the Service's performance indicators in future.

Key audit findings

Chapter 1   **Improvements in performance since the 2001 audit**

The Service's response time has shown some improvement, consumer satisfaction has remained high and the Service is developing new performance indicators:

- response time, the key operational indicator examined in the 2001 audit, has improved slightly since 2001 despite demand for ambulance services increasing faster than population growth

- customer satisfaction, found to be at a high level in the 2001 audit, has continued at a high level

- the Service is developing performance indicators for several areas of clinical practice including outcomes of patients treated for indicated cardiac arrest, cardiac chest pain, and trauma, but it is too early to draw conclusions from the data currently available

- the Service is also monitoring and reporting on patient safety, performance for defibrillation, non-transports, variations to clinical practice, and certification.

Performance at the ambulance/emergency department interfaces has improved:

- the time taken to transfer patients to emergency departments after ambulance arrival has improved significantly from 2004 to 2006

- the Service has implemented measures to improve patient flow that have contributed to the reduced time to transfer patients.

The Service performed within the range of the other Australian authorities:

- the Service benchmarked its key performance indicators against other Australian ambulance authorities

- detailed comparisons of performance between authorities are difficult because of differences in operating environments.

Chapter 2   **Progress in implementing the recommendations of the 2001 audit report**

The Government simplified the Service's governance framework by:

- restructuring the Ambulance Board in 2002 and simplifying the reporting structure of the Service's Chief Executive Officer

- making the Service a unit of NSW Health in 2006.

The Service improved its information management by:

- using the Computer Aided Dispatch (CAD) system for reporting. It now has five years of operational records from CAD

- widening the range of indicators it monitors to include clinical, patient safety, workforce, financial and customer satisfaction indicators.

The Service increased information available to the public by:

- increasing its links to the community

- publishing significant performance data in its annual report and in Productivity Commission reports available on the web.

The Service has worked with hospitals to improve integration of services by:

- implementing initiatives to improve patient flow into emergency departments and reduce ambulance queues

- establishing a dedicated non-emergency patient transport arm to improve responses to hospital requests for non-urgent transport.

The Service has improved its structure and systems by:

- reorganising its management structure to clarify reporting lines and by making changes to make its systems more effective.

The Service has developed staff training by:

- broadening training to assist staff to manage rapid changes in technology and clinical procedures

- introducing courses to raise awareness of any potential for corruption.

The Service has improved matching of rosters to workload by:

- developing systems to match rosters to workload at station and shift levels

- negotiating changes to rostering and staff deployment with the union to more closely match resources to workload.

Response from the Department of Health

I write in response to the Follow-up of 2001 Performance Audit of the Ambulance Service of NSW: Readiness to Respond Audit Report.

It is very pleasing to see the Audit Office has acknowledged and commended the Ambulance service for the substantial organisational and operational changes that have been implemented since the 2001 performance audit along with the additional Ambulance Service initiatives, which have contributed to improvements in performance.

There has been a significant growth in demand for ambulance services since 2001 and the rate of demand growth has been greater than the rate of population growth. Increasing demand reflects the wider range of care and advice being sought from ambulance officers as the community ages and more chronic illness is managed in a community.

While response times remain the key performance indicator, the Ambulance Service has also focused on delivering safe, efficient and compassionate emergency health services in light of increased activity levels and the wider range of clinical interventions available to ambulance officers. This has required a number of organisational changes and significant investment.

The significant increases in resources allocated by the NSW Government have contributed substantially to the Ambulance Service improvements in recent years. In 2001 the Government funded 65 operational positions to support operational reforms in Sydney. In 2003/2004 the Government announced additional funding of $41 million over four years for an additional 240 operational positions and 65 vehicles in rural and regional areas. In 2005 the Government allocated an additional $59 million to improve ambulance services in metropolitan Sydney with funding for 250 additional operational positions and 61 vehicles to be implemented over four-years. In total 688 additional operational positions have been funded between 2001 and 2007.

Ambulance Service responsiveness has also benefited from improvements in patient flow management in hospital emergency departments under the NSW Health Sustainable Access Program. Reducing the time between ambulance arrival and patient admission has meant that more ambulances are available to respond to emergencies. The introduction of a patient allocation matrix in Sydney in winter 2005, increases in the number of hospital beds, improved surge management in emergency departments and giving priority to maintaining emergency capacity have contributed to improvements in performance across the NSW hospital system as a whole.

In 2006/2007 the Ambulance Service is focusing on delivering services that meet changing community health needs while also managing increasing demand on core emergency response services.

The Ambulance Service is working with NSW Health to implement the State Plan:

- *Reducing avoidable hospital admissions by training Ambulance officers to refer people with chronic or urgent health needs, but who do not require admission to hospital via an emergency department, to community based health care providers; and*

- *Improving access to quality health care throughout New South Wales by implementing comprehensive cardiac care and mental health strategies.*

The Ambulance Service will continue to work collaboratively with Area Health Services, health care professionals, community based health services and NSW Health to provide quality pre-hospital emergency care throughout New South Wales.

I would like to take this opportunity to acknowledge the Audit team for the professional and collaborative manner in which this follow-up Performance Audit was conducted.

(signed)

Robert D McGregor AM
A/Director-General

Dated: 22 May 2007

1. Improvements in performance since the 2001 audit

At a glance

> **The key question we wanted to answer was:**
>
> Have changes to performance occurred as a result of implementing the recommendations?
>
> **Our Assessment:**
>
> The Service's response time has shown some improvement, consumer satisfaction has remained high and the Service is developing new performance indicators:
>
> - response time, the key operational indicator examined in the 2001 audit, has improved slightly since 2001 despite demand for ambulance services increasing faster than population growth
> - customer satisfaction, found to be at a high level in the 2001 audit, has continued at a high level
> - the Service is developing performance indicators for several areas of clinical practice including outcomes of patients treated for indicated cardiac arrest, cardiac chest pain, and trauma, but it is too early to draw conclusions from the data currently available
> - the Service is also monitoring and reporting on patient safety, performance for defibrillation, non-transports, variations to clinical practice, and certification.
>
> Performance at the ambulance/emergency department interfaces has improved:
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> - the time taken to transfer patients to emergency departments after ambulance arrival has improved significantly from 2004 to 2006
> - the Service has implemented measures to improve patient flow that have contributed to the reduced time to transfer patients.
>
> The Service performed within the range of the other Australian authorities:
>
> - the Service benchmarked its key performance indicators against other Australian ambulance authorities
> - detailed comparisons of performance between authorities are difficult because of differences in operating environments.

Introduction

An overview

The Service is one of the largest integrated ambulance authorities in the world. In 2005-06 the Service had a staff of 3,540 plus 84 volunteers, of which 3,070 of the staff and 84 volunteers were ambulance officers. It made 999,000 responses and transported 655,000 patients, including 9,350 by plane or helicopter.

The number of patients transported has in the past two years been increasing faster than population growth, possibly because the population is ageing.

This chapter examines the Service's performance since 2001, as shown by several key published Service performance indicators. It provides an introduction to chapter 2, which discusses the extent the Service has implemented the recommendations of the 2001 audit.

Sydney Operations Centre at Everleigh

Source: Ambulance Service of NSW 2007.

Experienced operations centre assistants ask triple zero callers a standard series of questions and record responses in the Computer Aided Dispatch system (CAD system). Operations officers then dispatch the closest available ambulance.

1.1 Has the performance of the Service improved?

Our assessment   The 2001 audit reported difficulty in obtaining accurate measures of the Service's operational performance because the Service was still moving from a paper based reporting system to a Computer Aided Dispatch (CAD) system. The Ambulance Service commenced using its CAD system for reporting shortly after completion of the audit. The Service now has five years of operational records.

The key operational indicator examined in the 2001 audit was 'Response time'. The Service has been able to improve its response time slightly since 2001, despite demand for services increasing faster than population growth. The Service's actions to improve response time included increasing the number of ambulances and crews, rostering staff to match demand and locating ambulances on call near areas of high demand.

Customer satisfaction was at a high level at the previous audit and has continued at a high level.

The Service is developing indicators for clinical outcomes of patients treated by ambulance officers. Initially it is measuring indicators of outcomes of patients with indicated cardiac arrest. It is developing indicators for outcomes of other clinical conditions.

Response time   'Response time' is the time from first recording of an emergency call to arrival of a trained ambulance team at the scene, ready to provide the patient with initial clinical care.

Response time is a component of the emergency cases ambulance operation cycle as shown in the figure below.

Emergency Cases Ambulance Operating Cycle

Source: Ambulance Service of NSW 2007

Response time was the key performance indicator examined in the 2001 Audit Report. The report stated that response time was 'arguably the single most important performance indicator for an ambulance service'. However response data at that time came from paper case sheets filled in by officers who were also attending to patients. The report indicated doubts about the accuracy of the data available.

Response times have been accurately measured since 2001 using the Service's Computer Aided Dispatch (CAD) system.

The Service now uses its 'Ambulance Service Call Priority System' to classify emergency calls to determine the urgency of response that is required (See Box below).

The Service's response time performance indicators are the times in minutes to reach 50 percent and 90 percent of potentially life threatened patients from the time the call was logged into the CAD system.

The graph below shows the statewide response time indicators for potentially life threatened cases.
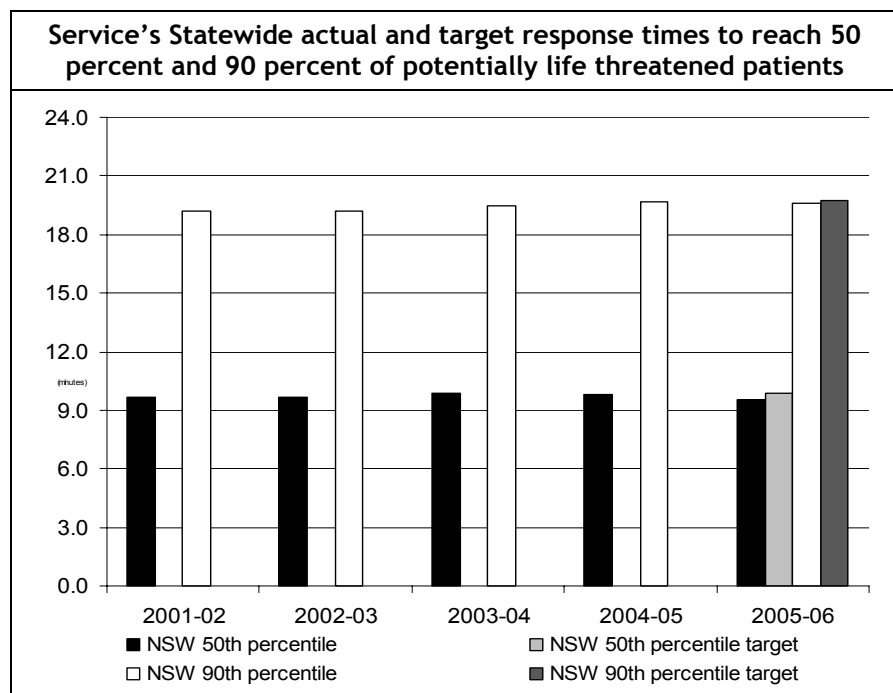
Service's Statewide actual and target response times to reach 50 percent and 90 percent of potentially life threatened patients

Source: Ambulance Service of NSW 2007

Note: The Department of Health did not set target response times until 2005-06

In broad terms, the graph shows that since 2001-02, a trained ambulance team has reached 50 percent of potentially life-threatened patients within 10 minutes and 90 percent within 20 minutes.

In detail, the 50 percent and 90 percent response time indicators worsened slightly until 2003-04 and since then have improved slightly. Overall, response times Statewide improved slightly from 2001-02 to 2005-06.

Department of Health sets targets

The Department of Health and the Service set targets for response times in 2005-06 and will set targets for future years. As shown in the figure above, the targets set for 2005-06 were achieved.

Ambulance Service Call Prioritisation System

The Service's operation centres maximise benefits to the community by giving priority to critical and life threatening cases.

The call prioritisation system was implemented in May 2005. Before that the Service gave all calls equal priority.

Call-takers in operations centres answer "000" calls and lead callers through a series of questions in order to make a decision about the level of urgency with which the patient requires treatment.

Detailed medical advice is used to generate specific questions that the call-taker asks the caller. The questions are structured to elicit the most important information first and the type of questions selected varies according to the answers given by the caller. As soon as sufficient information has been obtained the call is classified as:

- potentially life threatening, requiring immediate response under lights and sirens
- urgent, requiring undelayed response without warning devices.
- non-urgent

Information about the call is electronically notified to a dispatcher who allocates the job to the nearest appropriate Ambulance resource. The dispatcher gives priority to potentially life threatening cases but the Service responds to all cases. The level of response may be changed based on further information from the caller. Additional information is also relayed to the ambulance crew while they are responding to the job.

Once an Ambulance has been dispatched the call-takers tells the caller that an Ambulance is on the way and gives the caller first aid advice. Instructions for the most appropriate type of first aid are also provided based on the information that the caller has previously provided. Call-takers remain on the phone with the caller for as long as necessary, often until the Ambulance arrives at the scene.

Summary

The call prioritisations system improves overall clinical outcomes by giving priority of ambulance response to the most critical cases.

Source: Information provided by the Ambulance Service of NSW 2007

The Sydney results below show a similar pattern to the results for the State.

Service's Sydney actual and target response times to reach 50 percent and 90 percent of potentially life threatened patients

Source: Ambulance Service of NSW 2007

Note: The Department of Health did not set target response times until 2005-06

Many factors influence ambulance response time indicators. Recently, demand for services has increased faster than population growth. Traffic congestion also has increased. These tend to increase response times and therefore reduce performance.

Response times also were increasing because of increasing delays in off-loading ambulances at hospital emergency departments, as discussed in Section 1.2 below.

The Service advises that response times have improved since 2004 because the government increased funding and because emergency departments and the Service implemented measures to improve patient flow.

The Service advises that since 2001 the NSW Government has contributed the significant funding and staffing increases to improve ambulance services including:

- in 2001 it funded 65 operational positions to support the initial operational reforms in Sydney
- in 2003-04 it allocated $41 million over four years for an additional 240 funded operational positions and 65 vehicles for rural and regional areas
- in 2005 it allocated funding of $59 million for 250 additional funded operational positions and 61 vehicles for metropolitan Sydney.
- between 2001 and 2007 funding has also been provided to support projects such as Call Prioritisation, Mental Health, Trauma Coordination, and health telephone advice.

In total 688 additional operational positions have been funded between 2001 and 2007.

The Government has also funded 800 additional in-patient beds in hospitals since 2004. This has reduced delays in transferring emergency department patients whose treatment had been completed to in-patient wards.

As the new in-patient beds became available, emergency departments and the Ambulance Service were able to introduce initiatives to improve patient flow through the emergency system.

The patient flow initiatives included:

- the Ambulance Service Call Prioritisation System
- the Sub-Acute Fast track Elderly (SAFTE) Care Program
- the Switch Program to improve performance of Ambulance Service Operations Centres
- the Patient Allocation Matrix System rostering staff to match demand
- increasing deployment of rapid response vehicles (locating ambulances on call near areas of high demand)
- refinements to rosters that provide more crews during periods of peak demand
- Working with emergency departments to improve ambulance unloading times.

As these initiatives have been introduced, response time indicators have improved. We discuss the patient flow initiatives in section 2.5.

The Service now publishes its statewide and Sydney 50 percent and 90 percent response times in its annual report. They are also published in the Productivity Commission's 'Review of Government Services' as discussed in section 1.3 below.

The Service also analyses response times and other data from the CAD system to assist with ambulance management.

Client satisfaction

The Service monitors 'level of patient satisfaction' with the service they received in the last 12 months.

Satisfaction with NSW Ambulance Service, 2003 to 2006 (percentages)				
Year	2003	2004	2005	2006
Very satisfied or satisfied	97.3	98.0	97.0	98.0
Dissatisfied or very dissatisfied	1.7	1.0	2.0	1.0
Neither satisfied nor dissatisfied	1.0	1.0	1.0	1.0

Source: Ambulance Service of NSW February 2007

The high level of satisfied patients suggests that the Service has been successful in meeting patient needs.

This indicator is also monitored by other Australian Ambulance authorities and results are published by the Productivity Commission (see section 1.3 below).

The patient allocation matrix system

The patient allocation matrix gets patients to the right hospital for the patient's condition and allows hospital emergency departments to accurately predict work-load.

The matrix was implemented in Sydney in June 2005, the Hunter region in June 2006 and on the Central Coast in December 2006.

There has been considerable interstate interest.

An ambulance crew determines the primary clinical condition of the patient and enters this information into the mobile data terminal in the Ambulance.

The matrix system matches the patient's clinical condition to available emergency departments and reviews current ambulance arrivals at each hospital. It then advises the crew which emergency department is the most appropriate for the patient. Ambulance officers may override the advice but are required to provide an exception report if another emergency department is selected.

To enable the matrix system to make this analysis the Ambulance Service:

- determined each emergency department's clinical capabilities and ambulance capacity per hour, in consultation with the Area Health Services and NSW Health

- undertook a study to determine travel times and ambulance arrival rates by hour of day and day of week and modelled different capacity scenarios to determine the most efficient distribution of work load across the hospital network

- developed a system to keep track of current ambulances unloading at and en route to each emergency department.

The matrix system updates to record that an additional ambulance is en route to the selected emergency department. It takes this into account when it prepares advice on the next incident.

Emergency staff can see on their ambulance status board the ambulances at their department and en route and patient condition.

The Matrix is part of the NSW Health Sustainable Access Program and involves NSW Health, Area Health Services and the Ambulance Service.

In summary

The matrix system smooths the flow of patients to emergency departments. It shares load between emergency departments in accordance with capability and capacity. It minimises ambulance queues and off-stretcher time and improves patient flow through emergency departments. Overall, it enables the emergency system to operate more effectively.

Source: Information provided by the Ambulance Service of NSW 2007.

Clinical outcomes The Service's ambulances bring the first clinical care to the patient.

Ambulance officers have to treat a diverse range of patient conditions. This makes measuring clinical outcomes complex. The Service did not measure clinical outcomes of treatment in 2001 but is now developing a range of indicators. It has begun measuring outcomes of patients with indicated cardiac arrest. Studies show that early treatment of cardiac arrest on the scene by trained ambulance officers can be lifesaving.

The Service has agreed with NSW Health to monitor three indicators for cardiac arrest. Results for 2005-06 are shown below. The indicators are still in development and may be modified.

Indicators of the Service's clinical outcomes of patients with indicated cardiac arrest.	
	2005-06
1. Patients with suspected myocardial infarction administered aspirin (except where contraindicated)	72.4%
2. Patients with return to spontaneous circulation following defibrillation after cardiac arrest that was witnessed by both the public and ambulance officers	25.1%
3. Time on scene less than 20 minutes for patients with non-traumatic chest pain.	77.4%

Source: Ambulance Service of NSW February 2007.

The Service also is monitoring indicators for patient safety, such as variations from clinical practice and compliance with root cause analysis reporting.

The Service is currently developing clinical indicators for the management of pain in limb injuries, for asthma and for spinal injuries. Indicators for case cycle times and time to destination for responses to severe trauma are also being developed.

Cost effectiveness In reviewing the Financial Aspects of the Ambulance Service of NSW in 2005 the Independent Pricing and Regulatory Tribunal (IPART) found that the costs of running the Ambulance Service are either in line with, or well below, those for similar services in other Australian jurisdictions. This suggests that the Ambulance Service is cost-efficient relative to other jurisdictions.

However this information is not updated annually at present. There is scope for development of a performance indicator to show trends in the Service's cost effectiveness (see discussion in section 1.3 below).

1.2   Has coordination between the Service and emergency departments of hospitals improved?

Our assessment

The 2001 audit reported friction and poor coordination between the Service and hospital emergency departments. Emergency departments could not take ambulance patients at peak times because of a shortage of available beds in the hospital. Ambulance queues and off-stretcher time were increasing at emergency departments.

The Service has measured off-stretcher time with its CAD system since 2001. Off-stretcher times worsened until 2004, then from 2004 significantly improved and ambulance queues reduced. The main causes of improvement were the increase in the number of available hospital beds and the introduction of initiatives to improve patient flow. The Service undertook a number of the initiatives to improve patient flow.

Off-stretcher time

Off-stretcher time is the time from ambulance arrival at the emergency department to completion of patient transfer. Off-stretcher time is a part of the Ambulance Operating Cycle, as shown in the *Emergency System Ambulance Operating Cycle* diagram above. Shorter off-stretcher times improve patient survival and quality of life. They also release ambulances more quickly to respond to other incidents.

Off-stretcher time is primarily an emergency department responsibility, as the ambulance patient can only be transferred when emergency department staff can take responsibility for the patient.

Ambulance Officers report patient condition to nursing staff
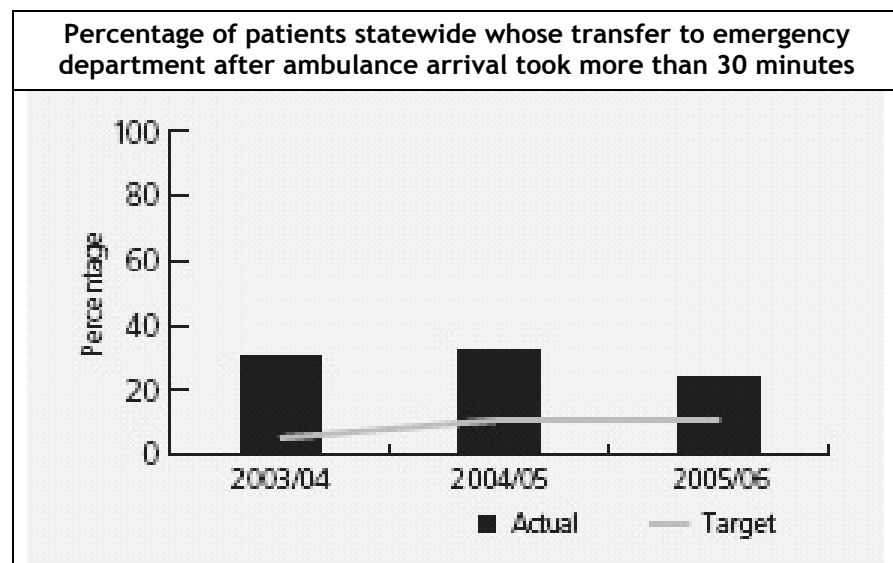

Source: Ambulance Service of NSW 2007

The off-stretcher time performance indicator used in NSW and by some Australian ambulance services is 'the percentage of patients whose transfer to emergency department after ambulance arrival took more than 30 minutes'. The Service began accurately measuring this indicator with its CAD system in 2001.

Ambulance queues and the off-stretcher time performance indicator both worsened until 2004-5. In 2004-05, 32 percent of patients were not transferred to emergency departments within 30 minutes.

In 2004 NSW Health increased the number of available in-patient beds. It also began a program of initiatives to improve patient flow from initial call for an ambulance to discharge of the patient to the community. The Service undertook a number of these patient flow initiatives. See Section 2.5 below.

Performance improved from 2004-05. As shown in the figure below, the percentage of patients whose transfer took more than 30 minutes improved from 32 percent in 2004-05 to 24 percent in 2005-06. As performance improved, ambulance queues reduced and the ambulances were freed more quickly to respond to new emergencies.

Percentage of patients statewide whose transfer to emergency department after ambulance arrival took more than 30 minutes

Source: NSW Department of Health Annual Report 2005-06 p 51.

The graph above shows state-wide figures. The Service also monitors the indicators for time for patient transfer to individual emergency departments after ambulance arrival. The indicators vary between emergency departments, in part because of differences of emergency department layout, hospital access and other factors. The results are used by managements of emergency departments and by the Service to analyse and improve their performance.

1.3 Does the Service perform adequately when benchmarked against other ambulance services?

Our assessment

The Service and other Australian ambulance authorities benchmark their performance and provide performance data for publication in the Productivity Commission's annual 'Report on Government Services'.

While the Service's performance is within the range of the other authorities, it is difficult at present to make detailed comparisons of performance because of differences in operating environments. The Productivity Commission provides very little analysis of the impact of local factors on any differences in the measured performance of ambulance authorities.

Developing common indicators

The Service is one of 11 members of the Council of Ambulance Authorities (CAA) of Australia/New Zealand. The CAA has established agreed performance indicators for operations and is working to establish common clinical indicators. The Productivity Commission publishes comparative performance data of Australian ambulance authorities.

Response times

The comparative response times in 2005-06 for NSW and other Australian ambulance services are shown below for potentially life threatening cases (Priority 1), the CAA standard.

Ambulance Priority 1 – 90th and 50th percentile response times 2005-06 - Response times in minutes								
	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Statewide 50th percentile	**9.5**	9.0	8.0	9.7	9.6	10.2	7.5	8.5
Statewide 90th percentile	**19.6**	17.0	16.0	15.9	17.4	21.1	13.3	21.0
Capital city 50th percentile	**9.1**	9.0	9.0	9.1	9.4	9.2	7.5	8.3
Capital city 90th percentile	**16.6**	14.0	15.0	15.4	15.2	15.3	13.3	21.0

Source: Ambulance Service of NSW February 2007.

Before 2004-05 the NSW response times to the Productivity Commission were for all emergency cases, including life threatening and urgent cases. Other states were calculating response times for potentially life threatening cases only. Therefore it was not possible to directly compare the response times of ambulance authorities.

The Service's response times in the Productivity Commission's 'Report on Government Services' can now be compared directly with those of other Australian authorities.

Customer satisfactions

The percentage of clients that is satisfied or very satisfied with its Service is high across all Australian Ambulance Authorities. The following table shows the figures for 2006.

Customer Satisfaction 2005-06							
	NSW	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT*
Percentage satisfied	**98.0**	97.0	98.0	95.0	99.0	97.0	98.0

Source: Productivity Commission, *Report on Government Services, 2007*.
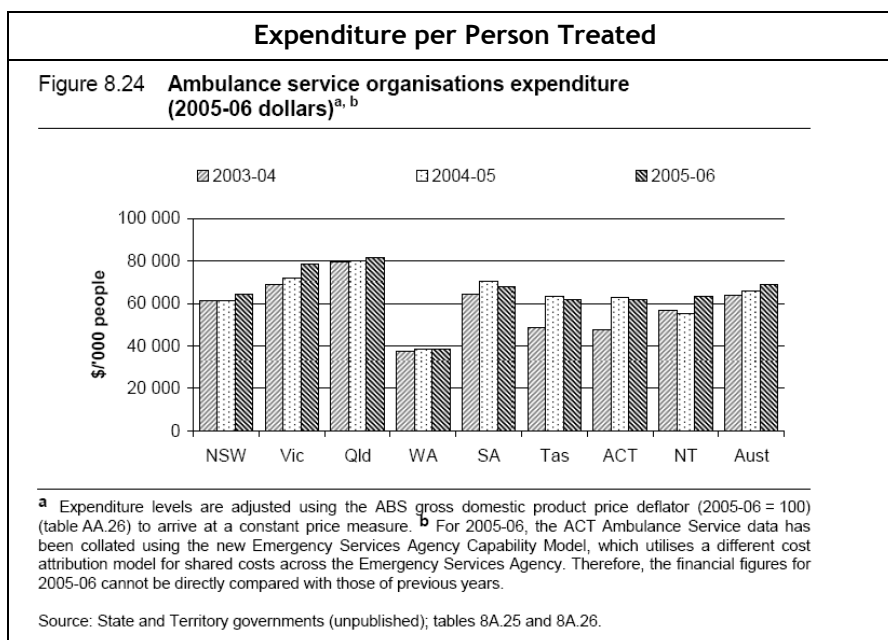
Clinical outcomes

The Service, as discussed in Section 1.1 above, has introduced monitoring of outcomes of patients with indicated cardiac arrest. Other Australian ambulance services are also attempting to monitor these indicators. The Productivity Commission published results for Australian ambulance authorities in 2006-07 but New South Wales and several other states were not included because of a change in definitions.

Cost effectiveness

The Productivity Commission has taken the initiative to prepare an indicator of cost effectiveness of ambulance services. It publishes 'Expenditure per person treated' in its annual 'Report on Government Services'.

However at present this indicator is calculated for the Productivity Commission by the Australian Bureau of Statistics. It is not a CAA indicator and is not included in the NSW Service's current key performance indicators.

Expenditure per Person Treated

Figure 8.24 **Ambulance service organisations expenditure (2005-06 dollars)[a, b]**

a Expenditure levels are adjusted using the ABS gross domestic product price deflator (2005-06 = 100) (table AA.26) to arrive at a constant price measure. **b** For 2005-06, the ACT Ambulance Service data has been collated using the new Emergency Services Agency Capability Model, which utilises a different cost attribution model for shared costs across the Emergency Services Agency. Therefore, the financial figures for 2005-06 cannot be directly compared with those of previous years.

Source: State and Territory governments (unpublished); tables 8A.25 and 8A.26.

Source: Productivity Commission, *Report on Government Services, 2007*.

As shown above, the results of the NSW Service are within the range of the other authorities. It is difficult at present to draw any further conclusions because of the different local conditions of ambulance authorities, variations in investment patterns and differences in level of service provided. The Productivity Commission does not provide any significant analysis of these differences.

Conclusions   The Australian ambulance authorities have a forum, the 'Council of Ambulance Authorities' to develop and review performance indicators for ambulance services. The NSW Service is a participant and a contributor.

The important outcomes to date are that the authorities have agreed on a common set of performance indicators, they have installed the means to measure these indicators, they publish the results and they discuss their processes and innovations.

2. Progress in implementing the recommendations of the 2001 audit report

At a glance

> **The key question we wanted to answer was:**
>
> Has there been progress in implementing the recommendations of the 2001 audit report?
>
> **Our assessment**
>
> The Government simplified the Service's governance framework by:
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> - restructuring the Ambulance Board in 2002 and simplifying the reporting structure of the Service's Chief Executive Officer
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> The Service increased information available to the public by:
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> The Service has worked with hospitals to improve integration of services by:
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> The Service has improved its structure and systems by:
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> The Service has developed staff training by:
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> The Service has improved matching of rosters to workload by:
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> - developing systems to match rosters to workload at station and shift levels
> - negotiating changes to rostering and staff deployment with the union to more closely match resources to workload.

2.1 Introduction

The 2001 Audit Report contained eight broad recommendations and 29 sub-recommendations. The 29 sub-recommendations covered most facets of the Service's organisation and operations and defined the specific problems that needed to be addressed.

The Service accepted the 28 sub-recommendations it was able to implement and established a program to implement them. The Government implemented the remaining sub-recommendation that the governance framework of the Service be simplified.

This chapter provides the reader with an understanding of the extent that that the Service has implemented the 2001 sub-recommendations. The 29 sub-recommendations are discussed in this chapter under seven headings:

- Governance
- Information Management
- Public information
- Ambulance Health Interface
- Operational structure
- Staff training
- Workforce flexibility.

The above headings differ from the broad recommendations used to group the sub-recommendations in the 2001 Audit Report. See Appendix 4.

2.2 Governance

Our assessment

The 2001 audit found that there would be benefits if the reporting relations of the CEO of the Service could be changed to clarify accountabilities. These changes would require structural reorganisation at Ministerial level.

2001 Audit Recommendation

- The governance framework for the Service should be simplified to reinforce direct lines of accountability of the Service to its Board, and of the Board to the Minister.

The Government has made the recommended changes. In 2001 it restructured the Board and simplified the reporting structure. In 2006 the Service became a unit of NSW Health.

Accountabilities restructured

The 2001 Audit Report found that the Chief Executive Officer (CEO) of the Service had complex accountabilities. Formally the CEO reported to the Service Board. However the CEO's performance agreement was reviewed annually by the Director-General of NSW Health and he also had a direct relationship with the Minister.

Following the tabling of the audit report in March 2001, the Government restructured the Ambulance Board and simplified the CEO's accountability.

In 2004 the Public Accounts Committee further examined the issues raised in the 2001 audit report. It pointed to a number of governance issues: for example that the Service was not covered by the Health Service Act 1997 and it was only obliged to consult with NSW Health, but its funding was included in the NSW Health budget allocation. The Committee also noted that the performance agreement with NSW Health did not include any reciprocal actions by NSW Health.

The Government changed the Health Services Act in March 2006 so that the Service became a division of NSW Health and the Ambulance Service Board became an advisory council. The CEO of the Service now reports to the Director-General of the Department of Health.

2.3   Information Management

Our assessment

The 2001 audit report noted that the Service had deficiencies in availability and use of management information. It suggested that information provided to the Board should be enhanced and that an information based culture needed to evolve.

2001 Audit Recommendation

- Expand the range of key performance indicators for performance measurement.
- Ensure that the Board regularly receives reports which address issues of levels of activity, staffing levels/utilisation and significant equipment deficiencies.
- Finalise deliberations with the Council of Ambulance Authorities to benchmark and report the comparative performance of ambulance services.

The Service now has five years of accurate operational records from its CAD system. It uses this information in day-to-day management and to calculate published indicators of performance.

The Service has also widened the range of indicators it monitors to include clinical, patient safety, workforce, financial and customer satisfaction indicators. It benchmarks key indicators against other Australian ambulance authorities.

Performance is monitored

At that time of the 2001 audit the Service was in transition from paper based reporting to using the Computer Aided Dispatch (CAD) system for reporting. The Service now has five years of detailed operational records from the CAD system. It uses this information to analyse aspects of the operational cycle and improve its performance.

The Service also monitors a number of performance indicators. Appendix 3 provides a list of the Service's current published performance indicators.

Targets are set

The Service's 2006 performance agreement with the Director–General of NSW Health includes targets for key Service performance indicators. The targets for 50 and 90 percentile response times and for cardiac indicators are discussed in Section 1.1 above. The agreement also lists performance levels achieved in the previous year.

The Service provides a written report to the Ambulance Advisory Council for its meeting every two months. The report includes performance achieved against NSW Health's performance targets and other managerial information including staffing levels, utilisation, significant equipment deficiencies and indicators for the aero-medical division.

Results are benchmarked against other states

The Service is member of the Council of Ambulance Authorities (CAA) of Australia/New Zealand, which comprises representatives of all State/ Territory Services. New Zealand and Papua New Guinea have observer status. CAA has adopted international indicators or developed its own indicators. Australian ambulance services are reporting against these indicators, both for internal management as discussed above and for benchmarking between services.

In 2001 the Service was making limited use of quantitative comparisons with interstate ambulance services because of concerns about its data quality and compatibility. The Service has been changing its data collection to the CAA standards – for example, it changed its measurement of response times to the CAA standard in 2006. Its indicators are now generally the same as the CAA indicators.

The Service now has more accurate performance information and it benchmarks its performance against similar services interstate. There are some uncertainties about direct comparisons of results because of local differences in operating conditions. For further discussion see Section 1.3 above.

2.4   Public information

Our assessment

The 2001 audit reported that the Service had no specific mechanism for consulting with local communities and that the Service needed to improve its public performance reporting.

2001 Audit Recommendations

- Implement means of regularly identifying customer and stakeholder expectations and perceptions of the Service's performance.

- Develop means of keeping the broader community informed of the Service's progress, directions and plans.

- Re-establish public reporting of reliable responsiveness data and trends.

- Identify external relationships to ensure interchange of information and consistency of standards.

The Service has increased its links to the community and publishes significant performance data in its annual report. The Productivity Commission collates and publishes comparative information on the performance of the NSW Service and other Australian ambulance services.

Increasing community participation	The 2001 audit reported that the Service appeared not to have maintained its mechanisms for community involvement.

The Service now surveys community satisfaction with its services, as discussed in Section 1.1. It also actively seeks consumer and community recognition and involvement through initiatives including:

- consumer representatives on Service Committees
- targeting a high media profile
- joint projects with Rural Fire Service and State Emergency Services
- "Life, Live it, Save it" cardiac education for over 55s, promoted through community clubs
- "Be an Ambulance Hero" program running through primary schools.

Reporting to the public

After the Service commenced using the CAD system for reporting in 2001 it had more reliable data available for public reporting and for benchmarking against other ambulance authorities.

The Service now reports its performance on several of its key performance indicators in the annual report and on the Service website. Some of these key indicators were discussed in Chapter 1. The Service has not yet included NSW Health targets for these indicators in its published reports.

The Productivity Commission collates comparative performance of 14 Australian ambulance services for key CAA indicators in its annual 'Report on Government Services'. This report is available to the public on the web. This allows the public to make comparisons between authorities (See discussion in Section 1.3).

2.5 Ambulance/Hospital Interface

Our assessment

The 2001 audit reported friction and lack of coordination at the ambulance/emergency department interfaces. It also reported that hospitals were dissatisfied with the Service's non-emergency patient transport service.

2001 Audit Recommendations

- Clearly set out future directions and clinical relationships and networks within the Health system.
- Develop an appropriate package of non-emergency transport services for hospitals.

The Service worked with hospitals to improve patient flow into emergency departments and reduce ambulance queues.

The Service also establishing a dedicated non-emergency patient transport arm and is using its CAD system to optimise responses to hospital requests for non-urgent transport.

These initiatives have improved cooperation and efficiency and reduced tensions between the Service and other parts of NSW Health.

Ambulance/ Emergency Departments Interface

About 70 percent of ambulance responses are for emergencies. The other 30 percent are non-urgent (see 'Non-urgent patient transport' below).

In 2001 some emergency departments lacked capacity. At times they could only accept ambulances with life-threatened emergency patients. Ambulances with emergency patients who were not life threatened were then:

- being diverted to other, more distant hospitals or
- queuing at emergency departments waiting to transfer patients.

Both of the above delayed patient treatment in emergency departments, reduced ambulance availability for other emergency work and impacted on ambulance costs.

The causes of emergency departments' lack of capacity were complex, and included a shortage of beds in in-patient wards. In 2004 NSW Health began increasing the number of in-patient beds in hospitals. It also commenced the Sustainable Access Program – an integrated set of initiatives to improve patient flow through the emergency system.

The Service has been working with other units of NSW Health on a number of these initiatives. The Service's patient flow initiatives include:

- the Ambulance Service Call Prioritisation System (see box 'The Ambulance Call Prioritisation System' in section 1.1)
- the Patient Allocation Matrix System to direct ambulances to the most appropriate emergency department (see box 'The Patient Allocation Matrix System' in section 1.1)
- the Sub-Acute Fast Track Elderly (SAFTE) Care Program. SAFTE reduces demand on emergency departments by assisting aged patients not in need of immediate emergency treatment to go directly to the appropriate aged care support service (see box 'Sub-Acute Fast Track Elderly (SAFTE) Care Program' in section 2.5)
- electronic status boards in emergency department to provide advance information from ambulances of patient arrival time and condition before ambulance arrival
- the 'Switch' program to improve performance of Service operations centres (see box 'Switch Program' in section 2.5)
- refinements to rosters to provide more crews during periods of peak demand (see Section 2.8)
- ambulance liaison officers at emergency departments to assist patient flow at the ambulance-emergency department interface .

Sub-Acute Fast Track Elderly (SAFTE) Care Program

SAFTE program is a NSW Health initiative to enable qualified ambulance officers to refer aged patients to an experienced SAFTE clinical team to assess and coordinate the various aspects of the patient's care.

To date the SAFTE Program is a trial program in limited areas in Sydney.

Until recently ambulance officers called to elderly patients had little choice but to take them to emergency departments. The SAFTE Program aims to improve quality of life for elderly patients not in need of immediate emergency treatment. Ambulance officers now have the option of linking elderly patients to community aged care support services.

Ambulance officers refer patients who meet the SAFTE criteria to a referral centre, which assigns a SAFTE Care clinical team to visit the patient at home within 48 hours.

The SAFTE program also reduces demand on emergency departments.

Summary

The SAFTE Program improves the quality of life of elderly patients and reduces demand on emergency departments.

Source: Information provided by the Ambulance Service of NSW 2007.

Non-urgent Patient Transport

The non-emergency transport arm of the Service takes hospital and nursing homes patients who cannot travel by other means to day treatment and other similar destinations. The 2001 audit reported that hospitals were not satisfied with the Service's non-emergency patient transport. Hospitals were increasingly turning to outside contractors.

The Service was at that time using its ambulances to provide most non-emergency patient transport. Its resources were being stretched. One reason was that hospitals were booking non-emergency transports at times that best suited them, but these were often times when most ambulances were committed.

The Service responded to this dissatisfaction by establishing a dedicated Sydney-wide non-emergency service. The non-emergency unit uses the Service's CAD System to analyse requests for non-urgent patient transport and dispatch the most appropriate vehicle, either a patient transport vehicle or an ambulance. The Service currently provides about 60 percent of non-urgent patient transport in Sydney.

The Service also, in November 2005, introduced a new inter-hospital transfer charge scale developed by IPART to better reflect the Service's costs. The new scale includes higher charges for out-of-hours non-emergency transport services.

Switch Project

SWITCH is a project that aims to make the work practices and processes in the Sydney Operations Centre more efficient.

The SWITCH project commenced in February 2006 with diagnostic and solution design activities. New performance management systems and enhanced supervision commenced on 16 August 2006. Further changes are planned later in 2007.

Work processes in the Sydney Operations Centre, the Ambulance Service's major call centre for "000" calls, were analysed to identify potential improvements in work flow and work practices.

On the basis of the analysis, key performance indicators were determined for the time taken to answer calls, and the deployment time. Deployment time is the time from the call being allocated a priority to the time a dispatcher allocates an ambulance.

Performance against the key performance indicators is assessed for individuals and this is used to coach staff and to improve performance.

Between August 2006 and April 2007, call processing times have improved, on average, by nearly 10 seconds per call and there has been an overall improvement in call processing and job activation times for emergency cases. These improvements have been achieved despite demand for services increasing at the rate of 5000 emergency calls per month.

The next stage of SWITCH focuses on improving performance for non-emergency cases, the physical work environment and rostering of staff to better match the daily pattern of call activity.

Summary

The SWITCH project is developing and implementing systems for better management of the emergency workload and call handling processes.

Source: Information provided by the Ambulance Service of NSW 2007.

2.6   Operational Structure

Our assessment   The 2001 audit identified a number of structural problems in the Service that were affecting its effectiveness and efficiency.

2001 Audit Recommendations

- Review relationships and accountabilities between Area and Operations Centres in the new Metropolitan/Rural structure.

- Review the Service's revenue sources and charging structures.

- Review the contribution the Service makes to the State's rescue capabilities.

- Review arrangements and strategies for Retained and Honorary Officers, Patient Transport Officers and communications staff.

- Review strategies for the deployment of Paramedics.

- Review and update previous risk assessments and control reviews, including approval of overtime.

- Consider additional change management techniques to address more effectively barriers and impediments to the effective implementation of new technologies and structures.

The Service has reorganised its management structure to clarify reporting lines and made changes to make its systems more effective.

Tensions between Areas and Operations   The Service restructured its service delivery in 1998 from four Divisions to eight Areas covering the State. Concurrently, it rationalised eleven manual communications centres into four Operations Centres. Areas and Operations reported separately to the Service's management. The 2001 audit reported that these changes, with the concurrent introduction of the CAD system, had adversely affected internal relations and performance.

Following a major review of operations by consultants in 2002, the Service adopted a new management structure with five divisions (4 Areas plus Aero-medical). Each Area is now responsible for its own operations centre, thus removing the separate lines of reporting of Areas and Operations.

The Service subsequently has embarked on a program of progressive improvement of the operation centres (See box 'Switch Project' in Section 2.5 above).

Honorary officers   The 2001 audit report noted that other states use honorary or volunteer officers much more extensively than NSW but made no recommendation.

The Service still has a lower proportion of honorary staff compared to other Australian ambulance authorities. Most operational and support staff are salaried personnel.

Paramedics working in 'skill mix'   The 2001 audit report noted that whether paramedics - highly qualified ambulance officers - should work in pairs of paramedics or in a 'skill mix' with less qualified ambulance officers was being hotly debated at the time.

The 'skills mix' disparity within the Service mix has been addressed, with the number of skill mix stations significantly increased.

Change management	The 2001 audit report noted that changing staff profiles and changes in organisation structure needed careful change management.
	The service has introduced a number of change management initiatives to assist in managing the changes introduced following the 2001 audit report.
Risk assessment	The 2001 audit report, in discussing excess overtime and control reviews, noted that a previous risk assessment should be updated.
	The Service undertook a risk assessment of its activities in May 2002. Risk management is now integrated with the annual internal audit program and with routine performance monitoring.

2.7   Staff Training

Our assessment	The 2001 audit recommended improvements in staff training and development to manage rapid changes in technology and clinical procedures and to address any potential for corruption.

2001 Audit Recommendations

- Implement enhanced management training and development programs.
- Maximise opportunities for workplace-based distance learning and training.
- Increase ethics training and awareness activities.

The Service has developed staff training to address these issues.

Developing management skills	The 2001 audit report noted that the Service's information and skill needs were increasing and it would be necessary to upgrade managerial skills.
	The Service undertook an organisational restructure in 2002. It introduced a requirement for all ambulance executives (top three levels in the organisation) to have a set of core management competencies. These core competencies are now incorporated into all executive position descriptions.
	The Service now assesses managers against the core competencies. Results of this assessment form the basis of development and training plans for managers.
	Training programs are being developed for other levels of management. In 2006 the Service commenced frontline supervisor training for managers at District Officer level and above. A Diploma of Business targeted to Operations Managers will commence in 2007.
Developing ambulance officers skills	The 2001 audit report also noted that training and skill development of ambulance officers required further attention and that a previous audit had recommended self-paced work-place based distance learning methods.
	The Service is progressively upgrading ambulance officers' clinical and technical skills to enhance the base level of skills of ambulance officers and increase the number of highly skilled paramedics. Priority has been given to upgrading skills of officers located in rural and remote areas to provide a consistent level of patient care throughout NSW.

A continuing professional development program has been introduced. Because of the distribution of ambulance officers across the state, the focus is on delivering clinical and non-clinical training and education to officers via the internet. The Service has established online communities of practice amongst ambulance officers. An experienced officer works online with a group of officers dispersed across the state to discuss and develop specific skills.

Developing honorary officers skills

The Service has formalised a policy on volunteer officers. Training and recertification programs for volunteer officers and additional training have been provided to remote honorary services in far western NSW.

More recently the Service has developed a series of pilot programs with the SES and the RFS for their volunteers to be trained as Community First Responders. These pilots are designed to assess the impact of such services on communities and the training and supervision required from the Ambulance Service. Pilot projects have been established. Further evaluation of support and resource requirements will be needed before such schemes can be considered for wider application.

An injured farmer receives emergency medical treatment

Source: Ambulance Service of NSW 2007.

Over 130 honorary ambulance officers work alongside professional ambulance officers in remote areas of New South Wales.

Ethics, awareness of corruption

The 2001 report noted that a number of allegations of corruption were received during the audit on issues such as rorting of rosters and overtime.

The Ambulance Service, assisted by the Independent Commission against Corruption (ICAC) has introduced:

- Training for staff in ethical conduct
- Drug and alcohol policy
- Training for managers in complaint investigation
- Anti-harassment training.

2.8   Workforce flexibility

Our assessment   The 2001 audit reported that overtime was high and growing because the Service was unable to roster its staff to match workload patterns. The Service had difficulties making changes to rosters because of conditions of the ambulance officers' award and also because it lacked the information and capability to match rosters to workload patterns.

2001 Audit Recommendations

- Fully implement rostering automation software for all roster preparation.

- Develop and implement resource modelling tools to determine optimal staffing levels and deployment strategies.

- Develop capabilities to analyse workload, utilisation and responsiveness at station and shift level.

- Review interpretation and application of current Award conditions.

- Improve flexibility of Award conditions.

- Review management and work practices contributing to inflexibility.

The Service has strengthened its ability to predict workload and match rosters to workload at station and shift levels. It also has carried out demand modelling and was able to justify a funding increase for additional ambulance personnel.

The Service has negotiated a number of changes to rostering and staff deployment with the union, although the award has not been changed. Rosters now more closely match workload.

Overtime and Rostering   The 2001 audit reported that the Service's overtime was high and growing. In 1999-2000 overtime increased by 23 percent over the previous year and made up 14 percent of total employee related expenses.

One of the main causes of the high overtime was that the Service was unable to roster its staff resources to match workload patterns. There were two main problems:

- workload analysis - the CAD system was still being commissioned and the Service could not readily analyse demand and match staffing levels with caseloads.

- flexibility of workforce -there were difficulties in negotiating changes to rosters and moving officers to cover vacancies. Some impediments appeared to require changes to the Award.

Matching resources to workload   The Service has strengthened its capacity to analyse workload and capacity at station and shift levels and made changes to staff deployment. The main changes were:

- rosters were changed to match caseload demand

- on-road supervisors were changed to 24 hour rosters

- demand modelling led to funding approval for additional ambulance personnel.

These changes led to better matching of staffing to workload and improved effectiveness and efficiency.

Rostering automation

The Service accepted the 2001 audit report recommendation to implement rostering automation software and has examined available products. It advises that a system suitable for the Service's needs has not yet been found.

Negotiating changes in rostering and work practices

The ambulance officer's award expired on 31 December 2003 but continues to operate until replaced. Limitations of the award still exist. The Industrial Relations Commission is currently hearing an industrial case involving the award and evidence and submissions are ongoing.

Relations with the ambulance officer's union (the Health Services Union) have improved and, within the constraints of the current award, the Service and the union have addressed many work practices. The improved data and the increase in staffing obtained in 2002-03 assisted negotiations. Public disputes have been rare.

The Service has made a number of workforce deployment and rostering changes. For example it has introduced an afternoon shift in Sydney to cover periods of peak demand.

Appendices

Appendix 1   About the audit

Audit Objective   The objective of this audit was to examine whether the Ambulance Service has addressed the recommendations in the 2001 audit and the changes in performance from implementing the recommendations.

Lines of inquiry   1. Has there been progress in implementing the recommendations of the 2001 audit report?

2. Have changes in performance occurred as a result of implementing the recommendations?

Audit criteria   In answering the lines of inquiry, we used the following audit criteria (the 'what should be') to judge performance. We based these standards on our research of current thinking and guidance on better practice. They have been discussed, and wherever possible, agreed with those we are auditing.

For line of inquiry 1, we assessed the extent that each sub-recommendation of the 2001 audit report had been implemented.

The audit report, tabled in March 2001, contained eight broad recommendations, with 29 specific sub-recommendations. The 29 sub-recommendations covered most facets of the Service's organisation and operations and defined the specific problems that needed to be addressed.

In this follow up report, we grouped the findings on the 29 sub-recommendations under seven headings:
- Governance
- Information Management
- Public information
- Ambulance Health Interface
- Operational structure
- Staff training
- Workforce flexibility.

The above headings differ from the broad recommendations used to group the sub-recommendations in the 2001 Audit Report. See Appendix 4.

For line of inquiry 2, we assessed

- Has Ambulance Service responsiveness improved?

- Has coordination between the Ambulance Service and emergency departments of hospitals improved?

- Does the Ambulance Service perform adequately when benchmarked against other ambulance services?

We examined the above by examining changes in key published Service performance indicators since 2001.

Audit scope

The audit was a follow up of the 2001 performance audit of the Ambulance Service. It examined the extent the Service has implemented our 2001 recommendations and the extent of change from implementing the recommendations.

The audit did not seek to:

- assess the impact on performance of each sub-recommendation that has been implemented
- make an overall assessment of whether the Ambulance Service is implementing current best practice for ambulance services
- examine the performance of emergency departments or other parts of the Department of Health where they also participated in implementing sub-recommendations
- make recommendations on future changes to the Service.

However we have provided some information on new initiatives that the Service has introduced since 2001 that were not covered by the sub-recommendations.

Audit approach

We acquired subject matter expertise by:

- interviewing staff and examining relevant documents, including guidelines, reports, studies, strategies and reviews relating to the ambulance services
- interviewing key stakeholder representatives
- drawing comparisons where appropriate with other states and countries
- reviewing government and best practice guidelines relevant to the above.

Audit selection

We use a strategic approach to selecting performance audits which balances our performance audit program to reflect issues of interest to Parliament and the community. Details of our approach to selecting topics and our forward program are available on our website.

Audit methodology

Our performance audit methodology is designed to satisfy Australian Audit Standards AUS 806 and 808 on performance auditing, and to reflect current thinking on performance auditing practices. We produce our audits under a quality management system certified to International Standard ISO 9001. Our processes have also been designed to comply with the auditing requirements specified in the Public Finance and Audit Act 1983.

Acknowledgements

We gratefully acknowledge the co-operation and assistance provided by NSW Health. In particular, we wish to thank our liaison officers and staff who participated in interviews, assisted with document review or provided other material relevant to the audit.

We were also assisted by discussions with a number of external bodies including the Health Sector Union.

Audit team

Our team leader for this performance audit was Chris Yates, who was assisted by Neville Johnson. Sean Crumlin provided direction and quality assurance.

Cost

Including staff costs, printing costs and overheads the estimated cost of the audit is $129,000.

Appendix 2   Chronology of events

Date	Action
July 1998	Initial testing of Computer Aided Dispatch (CAD) system
Feb 2000	Minister for Health Craig Knowles wrote to the Audit Office that 'I consider this (audit of the Ambulance Service) to be an important performance audit in the context of the considerable resources committed to the delivery of this emergency service and the vital nature of this service to the community. This audit warrants immediate attention and an early report'.
May 2000	Audit Office issued work plan for audit to Ambulance Service.
March 2001	Auditor-General presented performance audit 'Ambulance Service of New South Wales: Readiness to Respond' to NSW Parliament
6 March 2001	Minister for Health Craig Knowles reported to Parliament that since 1995 the Ambulance Service budget had increased by 81 per cent – a real increase in recurrent funding…The dividend for the community is yet to be realised.
	The Minister also stated 'many of the attempts to improve performance have been frustrated, especially at the industrial level' … 'Across the board there is a considerable mismatch between the staff available and when services are required'.
14 March 2001	Minister for Health Knowles announced changes in the composition of the NSW Ambulance Service Board.
	The Minister said a report released last week by the Auditor General on the performance of the Service had highlighted areas where urgent change was needed.
Annual Report 2000-01	Chairman of the new Ambulance Board said 'wide ranging changes are being implemented'.
February 2002	Review of operations by consultants *Operational Research in Health* and *Deloittes* completed and final report 'Operational Review Sydney' issued 22 February 2002.
Ambulance Service Annual Report 2001-02	Ambulance Board Chairman's Report outlines a range of reforms continuing to flow from the audit report.
15 July 2003	NSW Public Accounts Committee resolved to conduct a follow up inquiry on the 2001 audit report with terms of reference:
	▪ Implementation of the report's recommendations
	▪ The value of the audit report, in terms of accountability and in improving the performance of government.
3 June 2004	NSW Public Accounts Committee issued 'Inquiry into the NSW Ambulance Service: Readiness to Respond' Report No 3/53 (146) – June 2004.

23 February 2005	Government issued Government Response to the Public Accounts Committee inquiry into the NSW Ambulance Service: Readiness to respond'.
18 March 2006	Ambulance Services Act 1990 repealed and the Service ceased to be a statutory corporation governed by a Board of Directors. It became a health service function of the Director –General of Health under Chapter 5A of the *Health Services Act 1997*.
	The Director-General of Health now has responsibility for all functions relevant to the provision of Ambulance Services. The Board has been replaced with an Advisory Council to advise the Director-General in relation to the exercise of the Director-General's functions relating to the provision of ambulance services.
	The Director-General has delegated operational responsibility for the day to day management to the Chief Executive of the Service.
5 September 2006	The Audit Office advised the Minister for Health and the Director-General, Department of Health that it was commencing a follow-up audit of the 2001 performance audit of the Ambulance Service.

Appendix 3   Ambulance Service key published performance indicators:

(provided by the Ambulance Service of NSW)

OPERATIONAL	
Response Times	- Response to potentially life threatening cases (50th percentile response times (minutes) – state - Response to potentially life threatening cases (50th percentile response times (minutes) – metro - Response to potentially life threatening cases (90th percentile response times (minutes) – state - Response to potentially life threatening cases (90th percentile response times (minutes) – metro - Priority activation times within a set range – time first vehicle assigned minus time in queue - Average emergency time to queue - Routine cases arriving no later than 20 minutes of appointment time – State - Routine cases arriving no later than 20 minutes of appointment time – Metro
Emergency Call taking processes at all Operations Centres – overall compliance and accuracy	- Pro QA Compliance Score – Sydney Division - Pro QA Compliance Score – Northern Division - Pro QA Compliance Score – Western Division - Pro QA Compliance Score – Southern Division

Appendix 4 Cross Reference of Follow-up Audit grouping of sub-recommendations to numbering of sub-recommendations in 2001 report

2007 Follow up Audit Grouping of Recommendations	2001 Report Reference
2.2 Governance	
Recommendation from the 2001 audit report	
▪ The governance framework for the Service should be simplified to reinforce direct lines of accountability of the Service to its Board, and of the Board to the Minister	1.a
2.3 Information Management	
Recommendations from the 2001 audit report	
▪ Expand the range of key performance indicators for performance measurement	1.b
▪ Ensure that the Board regularly receives reports which address issues of levels of activity, staffing levels/utilisation and significant equipment deficiencies	4.a
▪ Finalise deliberations with the Council of Ambulance Authorities to benchmark and report the comparative performance of ambulance services.	2.b
2.4 Public information	
Recommendations from the 2001 audit report	
▪ Implement means of regularly identifying customer and stakeholder expectations and perceptions of the Service's performance	6.a
▪ Develop means of keeping the broader community informed of the Service's progress, directions and plans.	6.b
▪ Re-establish public reporting of reliable responsiveness data and trends	2.a
▪ Identify external relationships to ensure interchange of information and consistency of standards	3.b
2.5 Ambulance Health Interface	
▪ Clearly set out future directions and clinical relationships and networks within the Health system	3.a
▪ Develop an appropriate package of non-emergency transport services for hospitals	3.d

2007 Follow up Audit Grouping of Recommendations	2001 Report Reference
2.6 Operational Structure	
▪ Review relationships and accountabilities between Area and Operations Centres in the new Metropolitan/Rural structure	1.c
▪ Review the Service's revenue sources and charging structures	3.c
▪ Review the contribution the Service makes to the State's rescue capabilities.	3.f
▪ Review arrangements and strategies for Retained and Honorary Officers, Patient Transport Officers and communications staff.	7.c
▪ Review strategies for the deployment of Paramedics	3.e
▪ Review and update previous risk assessments and control reviews, including approval of overtime.	8.b
▪ Consider additional change management techniques to address more effectively barriers and impediments to the effective implementation of new technologies and structures.	1.d
2.7 Staff Training	
Recommendations from the 2001 audit report	
▪ Implement enhanced management training and development programs	7.a
▪ Maximise opportunities for workplace-based distance learning and training	7.b
▪ Increase ethics training and awareness activities	8.a
2.8 Workforce flexibility	
Recommendations from the 2001 audit report	
▪ Fully implement rostering automation software for all roster preparation	4.b
▪ Develop and implement resource modelling tools to determine optimal staffing levels and deployment strategies	4.c,
▪ Develop capabilities to analyse workload, utilisation and responsiveness at station and shift level.	4.d
▪ Review interpretation and application of current Award conditions	5.a
▪ Improve flexibility of Award conditions	5.b
▪ Review management and work practices contributing to inflexibility	5.c

Performance Audits by the Audit Office of New South Wales

Performance Auditing

What are performance audits?

Performance audits determine whether an agency is carrying out its activities effectively, and doing so economically and efficiently and in compliance with all relevant laws.

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.

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

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.

Performance audits seek to improve the efficiency and effectiveness of government agencies so that the community receives value for money from government services.

Performance audits also assist the accountability process by holding managers to account for agency performance.

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 we will meet with agency management to discuss all significant matters arising out of the audit. Following this, we will prepare a draft performance audit report.

We meet with agency management to check that facts presented in the report are accurate and that recommendations are practical and appropriate. Following this, a formal draft report is provided to the CEO for comment. The relevant Minister is also provided with a copy of the final 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, performance audits can take several months to complete.

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

How do we measure an agency's performance?

During the planning phase, the team develops the audit criteria. These are standards of performance against which the agency or program is assessed. Criteria may be based on best practice, government targets, benchmarks, or published guidelines.

Do we check to see if recommendations have been implemented?

Every few years we conduct a follow-up audit. These follow-up audits look at the extent to which action has been taken to address issues or recommendations agreed to in an earlier performance audit.

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

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 a review 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.

Further information

Further information can be obtained from our website www.audit.nsw.gov.au or by contacting us on 9275 7277.

Performance Audit Reports

No	Agency or Issues Examined	Title of Performance Audit Report or Publication	Date Tabled in Parliament or Published
85*	Internal Financial Reporting	*Internal Financial Reporting including a Better Practice Guide*	27 June 2001
86	Follow-up of Performance Audits	*The School Accountability and Improvement Model (May 1999) The Management of Court Waiting Times (September 1999)*	14 September 2001
87	E-government	*Use of the Internet and Related Technologies to Improve Public Sector Performance*	19 September 2001
88*	E-government	*e-ready, e-steady, e-government: e-government readiness assessment guide*	19 September 2001
89	Intellectual Property	*Management of Intellectual Property*	17 October 2001
90*	Intellectual Property	*Better Practice Guide Management of Intellectual Property*	17 October 2001
91	University of New South Wales	*Educational Testing Centre*	21 November 2001
92	Department of Urban Affairs and Planning	*Environmental Impact Assessment of Major Projects*	28 November 2001
93	Department of Information Technology and Management	*Government Property Register*	31 January 2002
94	State Debt Recovery Office	*Collecting Outstanding Fines and Penalties*	17 April 2002
95	Roads and Traffic Authority	*Managing Environmental Issues*	29 April 2002
96	NSW Agriculture	*Managing Animal Disease Emergencies*	8 May 2002
97	State Transit Authority Department of Transport	*Bus Maintenance and Bus Contracts*	29 May 2002
98	Risk Management	*Managing Risk in the NSW Public Sector*	19 June 2002
99	E-Government	*User-friendliness of Websites*	26 June 2002
100	NSW Police Department of Corrective Services	*Managing Sick Leave*	23 July 2002
101	Department of Land and Water Conservation	*Regulating the Clearing of Native Vegetation*	20 August 2002
102	E-government	*Electronic Procurement of Hospital Supplies*	25 September 2002
103	NSW Public Sector	*Outsourcing Information Technology*	23 October 2002
104	Ministry for the Arts Department of Community Services Department of Sport and Recreation	*Managing Grants*	4 December 2002

No	Agency or Issues Examined	Title of Performance Audit Report or Publication	Date Tabled in Parliament or Published
105	Department of Health Including Area Health Services and Hospitals	*Managing Hospital Waste*	10 December 2002
106	State Rail Authority	*CityRail Passenger Security*	12 February 2003
107	NSW Agriculture	*Implementing the Ovine Johne's Disease Program*	26 February 2003
108	Department of Sustainable Natural Resources Environment Protection Authority	*Protecting Our Rivers*	7 May 2003
109	Department of Education and Training	*Managing Teacher Performance*	14 May 2003
110	NSW Police	*The Police Assistance Line*	5 June 2003
111	E-Government	*Roads and Traffic Authority Delivering Services Online*	11 June 2003
112	State Rail Authority	*The Millennium Train Project*	17 June 2003
113	Sydney Water Corporation	*Northside Storage Tunnel Project*	24 July 2003
114	Ministry of Transport Premier's Department Department of Education and Training	*Freedom of Information*	28 August 2003
115	NSW Police NSW Roads and Traffic Authority	*Dealing with Unlicensed and Unregistered Driving*	4 September 2003
116	NSW Department of Health	*Waiting Times for Elective Surgery in Public Hospitals*	18 September 2003
117	Follow-up of Performance Audits	*Complaints and Review Processes (September 1999) Provision of Industry Assistance (December 1998)*	24 September 2003
118	Judging Performance from Annual Reports	*Review of Eight Agencies' Annual Reports*	1 October 2003
119	Asset Disposal	*Disposal of Sydney Harbour Foreshore Land*	26 November 2003
120	Follow-up of Performance Audits NSW Police	*Enforcement of Street Parking (1999) Staff Rostering, Tasking and Allocation (2000)*	10 December 2003
121	Department of Health NSW Ambulance Service	*Code Red: Hospital Emergency Departments*	15 December 2003
122	Follow-up of Performance Audit	*Controlling and Reducing Pollution from Industry (April 2001)*	12 May 2004
123	National Parks and Wildlife Service	*Managing Natural and Cultural Heritage in Parks and Reserves*	16 June 2004
124	Fleet Management	*Meeting Business Needs*	30 June 2004
125	Department of Health NSW Ambulance Service	*Transporting and Treating Emergency Patients*	28 July 2004

No	Agency or Issues Examined	Title of Performance Audit Report or Publication	Date Tabled in Parliament or Published
126	Department of Education and Training	*School Annual Reports*	15 September 2004
127	Department of Ageing, Disability and Home Care	*Home Care Service*	13 October 2004
128*	Department of Commerce	*Shared Corporate Services: Realising the Benefit* *including guidance on better practice*	3 November 2004
129	Follow-up of Performance Audit	*Environmental Impact Assessment of Major Projects (2001)*	1 February 2005
130*	Fraud Control	*Current Progress and Future Directions* *including guidance on better practice*	9 February 2005
131	Follow-up of Performance Audit Department of Housing	*Maintenance of Public Housing (2001)*	2 March 2005
132	Follow-up of Performance Audit State Debt Recovery Office	*Collecting Outstanding Fines and Penalties (2002)*	17 March 2005
133	Follow-up of Performance Audit Premier's Department	*Management of Intellectual Property (2001)*	30 March 2005
134	Department of Environment and Conservation	*Managing Air Quality*	6 April 2005
135	Department of Infrastructure, Planning and Natural Resources Sydney Water Corporation Sydney Catchment Authority	*Planning for Sydney's Water Needs*	4 May 2005
136	Department of Health	*Emergency Mental Health Services*	26 May 2005
137	Department of Community Services	*Helpline*	1 June 2005
138	Follow-up of Performance Audit State Transit Authority Ministry of Transport	*Bus Maintenance and Bus Contracts (2002)*	14 June 2005
139	RailCorp NSW	*Coping with Disruptions to CityRail Passenger Services*	22 June 2005
140	State Rescue Board of New South Wales	*Coordination of Rescue Services*	20 July 2005
141	State Budget	*In-year Monitoring of the State Budget*	28 July 2005
142	Department of Juvenile Justice	*Managing and Measuring Success*	14 September 2005
143	Asset Management	*Implementing Asset Management Reforms*	12 October 2005
144	NSW Treasury	*Oversight of State Owned Electricity Corporations*	19 October 2005
145	Follow-up of 2002 Performance Audit	*Purchasing Hospital Supplies*	23 November 2005
146	Bus Transitways	*Liverpool to Parramatta Bus Transitway*	5 December 2005

No	Agency or Issues Examined	Title of Performance Audit Report or Publication	Date Tabled in Parliament or Published
147	Premier's Department	*Relocating Agencies to Regional Areas*	14 December 2005
148	Department of Education and Training	*The New Schools Privately Financed Project*	8 March 2006
149	Agency Collaboration	*Agencies Working Together to Improve Services*	22 March 2006
150	Follow-up of 2000 Performance Audit	*Fare Evasion on Public Transport*	26 April 2006
151	Department of Corrective Services	*Prisoner Rehabilitation*	24 May 2006
152	Roads and Traffic Authority	*The Cross City Tunnel Project*	31 May 2006
153	Performance Information	*Agency Use of Performance Information to Manage Services*	21 June 2006
154	Follow-up of 2002 Performance Audit	*Managing Sick Leave in NSW Police and the Department of Corrective Services*	29 June 2006
155	Follow-up of 2002 Performance Audit	*Regulating the Clearing of Native Vegetation*	19 July 2006
156*	Fraud Control	*Fraud Control Improvement Kit: Meeting Your Fraud Control Obligations*	20 July 2006
157	Roads and Traffic Authority	*Condition of State Roads*	16 August 2006
158	Department of Education and Training	*Educating Primary School Students with Disabilities*	6 September 2006
159	NSW Health	*Major Infectious Disease Outbreaks: Readiness to Respond*	22 November 2006
160	NSW Health	*Helping Older People Access a Residential Aged Care Facility*	5 December 2006
161	Follow-up of 2003 Performance Audit	*The Police Assistance Line*	6 December 2006
162	NSW Health	*Attracting, Retaining and Managing Nurses in Hospitals*	12 December 2006
163	Legal Aid Commission of NSW	*Distributing Legal Aid in New South Wales*	13 December 2006
164	Department of Juvenile Justice NSW Police Force	*Addressing the Needs of Young Offenders*	28 March 2007
165	Homelessness	*Responding to Homelessness*	2 May 2007
166	Follow-up of Performance Audit Department of Education and Training	*Using Computers in Schools for Teaching and Learning*	9 May 2007
167	Follow-up of 2001 Performance Audit: Ambulance Service of New South Wales	*Readiness to Respond*	June 2007

* Better Practice Guides

A list of performance audits tabled or published since March 1997, as well as those currently in progress, can be found on our website www.audit.nsw.gov.au.