Performance Audit Report

Hospital Emergency Departments

Planning Statewide Services

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Executive Summary

Executive Summary

The Audit

This audit reviews the NSW Department of Health's (the Department's) approach to planning for the provision of emergency department services, the coordination of services and the impact of initiatives to address system wide problems.

Future performance audits will examine the management of emergency department services, the efficiency and effectiveness of service delivery and relationships between emergency departments and other health service providers.

Specifically, the focus of the audit was on determining whether:

- the Department's plan for the provision of emergency department services is effective and able to respond to changes in demand
- in planning for the provision of emergency department services, the Department would consider:
  - ⇒ strategic plans prepared by the NSW Ambulance Service
  - ⇒ the impact of private emergency departments
- the Department produces guidelines to assist Area Health Services to determine the appropriate level of emergency department services to match community needs
- initiatives introduced by the Department to improve the performance of emergency departments are effective.

Audit Opinion

The Audit Office is of the view that:

- **there is no system wide plan for the location of emergency departments. This function is undertaken by each Area Health Service**
- **coordination between the Department and the NSW Ambulance Service could be improved in aspects such as the collocation of facilities and direct communications between ambulances and emergency departments**
- **there is no policy framework that recognises the increasing role and impact of private providers**
- **the Department's guidelines do not take into account demographic factors, the number of patients treated or the acuity of presentations as criteria for determining the size of an emergency department or the level and scope of emergency services that should be available at that location**

- **the Department has introduced a range of initiatives over a period of time to improve the performance of emergency departments such as the establishment of the Integrated Bed Management Committee. Some have been quite effective, whilst others have had mixed success. There has been an overall improvement in emergency department waiting times for urgent cases. However, there has been little improvement in waiting times for less urgent cases and a decline in performance for access block (the time taken to be admitted to a hospital ward from the emergency department after a decision has been made that this is required).**

As a consequence of the lack of system wide planning, there is wide variation in the size of emergency departments and the level of services available across Area Health Services. The Department has recognised the need for a more strategic approach to emergency department planning and a need to refine guidelines for service models.

The Department's current approach to using a systemic or whole of hospital solution to gain further improvements in emergency department performance appears promising. These approaches recognise that some of the problems experienced in emergency departments are system wide problems traceable to the manner in which demand and resources are managed by each hospital.

Findings are discussed in more detail below.

Planning for the Provision of Services

The need for effective planning underlies the fact that not all hospitals provide emergency department services and not all emergency departments provide the same level of services.

At the Area Health Service level, the relationship between community need and emergency department services is not always clear cut. There are more emergency departments in rural areas than in metropolitan areas which may be explained by the dispersal of rural populations, however, there is variation within the groups (more emergency departments in some rural areas than others) which is more difficult to explain.

Responses to changes in demographic factors or emergency department utilisation and admission rates, developments in clinical care or the entrance of private sector providers (private hospital emergency departments) are often determined locally, not system wide. Under these arrangements, there is potential for responses to vary across Area Health Services and benefits to be confined locally.

Any proposal by an Area Health Service to reconfigure hospital services which involve closing an emergency department arouse considerable public debate. Area Health Services, in determining the best service mix, need to find the balance between safety, effectiveness and available resources, and access in light of community expectations.

Service Models

Every emergency department is not the same. Different levels of service provision may be determined, based on a six level scale. This affects the staffing, equipment and type of emergency services which are provided at that location.

Area Health Services in consultation with hospital administrators, decide the configuration of the emergency department. To achieve consistency, Area Health Services need a framework to guide decisions regarding the level of services appropriate for the local community. However, the current guidelines from the Department of Health that define levels of emergency department services do not use demographic factors, the number of patients treated in the emergency department or the acuity of presentations as criteria for modelling services to match needs.

Across the State, there is wide variation in the configuration of emergency department services available at hospitals that are members of the same peer group rather than consistency within the groups. There is a risk that the level of emergency department services provided by a hospital may not be consistent with the needs of the community and the volume and complexity of community demand.

Coordination of Emergency Ambulance Services

The need for cooperation and coordination between both services is recognised by the Department and the NSW Ambulance Service. There have been a number of joint initiatives such as procedures for the early notification of rural trauma and the metropolitan trauma bypass system (that redirects seriously injured patients to major hospitals) to improve patient outcomes.

However, there have been problems with achieving a consistent response to some system wide issues such as field to emergency department communication (some emergency departments have this facility while others do not) and planning for the collocation of ambulance and emergency services.

Waiting Times and Access Block

Recently, attention has focussed on initiatives to improve waiting times (the time taken for a patient to see a doctor) and access block (the time taken for a patient to be sent to the hospital ward after a decision has been made to admit the patient). In late 1994, the Department introduced the Investment and Incentive Scheme to provide financial rewards to hospitals that met benchmarks for waiting times and access block.

There have been overall improvements in waiting times, although the major metropolitan hospitals are regularly unable to meet the benchmarks for waiting times set by the Department.

Access block remains a major issue particularly for metropolitan hospitals during winter months with the majority unable to meet this benchmark as well.

It is generally accepted that access block is a hospital wide problem that is neither caused by emergency departments or able to be resolved in isolation.

This somewhat explains why financial incentives directed at emergency departments to reduce access block had little impact on performance. The Department's current approach to solving problems with access to inpatient beds requires Area Health Services to balance the demands of booked surgery and emergency admissions through hospital bed management plans that project demand and contain initiatives to prevent bed shortages.

Information Systems

Since December 1994, the Department of Health has had the ability to monitor emergency department performance through the Emergency Department Information System (EDIS). Each month, the 51 large hospitals that have EDIS installed report data on waiting times and access block against agreed benchmarks.

There are substantial problems with data consistency, accuracy and completeness. These deficiencies need to be addressed before the benefits of the system can be fully realised.

Capacity of the Emergency Department

Available capacity is still a problem for many emergency departments. Some hospitals respond to a lack of capacity by using ambulance diversion as a means of diverting ambulance cases from one emergency department to another. Although, overall the use of diversion has declined since 1995, ambulance diversion is still used by some metropolitan hospitals as a means of controlling the volume of patients.

The problem with ambulance diversion is that it prolongs the time taken to deliver the patient to appropriate care and prolongs the case time for the ambulance (preventing the ambulance from responding to another call). The effectiveness of diversion in reducing the number of ambulance presentations is questionable as cases considered life threatening are taken to the nearest hospital whether its emergency department is closed to ambulances or not. Ambulance diversion is also an inappropriate indicator of emergency department capacity.

Another more recent problem is the practice of keeping emergency department patients on ambulance trolleys until a bed becomes available. When the emergency department is full, delays in patient hand over can have the same impact on response times as ambulance diversion.

Primary Care in Emergency Departments

Emergency departments and General Practitioners (GPs) provide primary care with overlap between services occurring when patients attend the local emergency department for treatment that could be provided by GPs in their rooms. Such patients add to emergency department workloads and transfer costs to the State that would otherwise be borne by the Commonwealth.

The overall impact of this issue on emergency department services in NSW is not known. Data on the number of patients with these conditions presenting to emergency departments is difficult to isolate and analyse. Without this information, it is not possible to judge whether strategies used in the emergency department to redirect GP type patients to the community have been successful or whether these patients should be redirected at all.

Recommendations

It is recommended that:

1. Statewide Plans

The Department, in consultation with Area Health Services, develop a statewide plan for the future location and structure of emergency departments.

In developing the plan, the Department should:

- complete the review of the impact of demographic factors and clinical developments on emergency department utilisation and admission rates
- consider the need for structural changes to services to improve patient access to quality care
- consult with the NSW Ambulance Service on proposed changes to existing emergency department services or the development of new services.

2. Service Models

The Department develop an emergency department service model incorporating:

- demographic factors
- the number of patients treated
- the acuity of presentations
- optimal distances between services.

Area Health Services should review the distribution and level of hospital emergency department services in accord with these new service models.

3. Changes in Supply

The Department consider a review of the impact of changes in the supply of emergency department services on the community and analyse the costs and benefits arising from such changes.

4. Private Providers

The Department monitor the number and type of presentations in private hospital emergency departments to determine the impact, if any, on the provision of public emergency department services and on future service planning and delivery.

5. Coordination with the NSW Ambulance Service

The Department improve coordination with the NSW Ambulance Service by adopting:

- a shared position on service structures (collocations) that would guide future planning decisions
- a standard approach to establishing communication links between field (ambulances) and emergency departments.

6. Management Information

The Department:

- address issues raised in the information system audit of the Emergency Department Information System (completed May 1998) in particular, recommendations to improve system operation and data consistency, accuracy and completeness
- consider the installation of data collection systems in all emergency departments level 2 and above to allow monitoring and reporting of activities.

7. Performance Benchmarks

The Department consider setting emergency department performance benchmarks for waiting times as a decreasing scale in line with presentation acuity.

8. Performance Indicators

The Department use data on performance for access block to judge the performance of a hospital, rather than the performance of an emergency department.

9. Emergency Department Capacity

The Department and Area Health Services consider developing an appropriate indicator of emergency department capacity.

10. Integrated Bed Management

The Department:

- continue to assess Area Health Service bed management plans against the criteria outlined in the Department's *Emergency Department Strategic Directions* document
- establish a mechanism to monitor the implementation of these plans to determine their success or otherwise.

11. Ambulance Diversion and Delay

The Department and Area Health Services, in conjunction with the NSW Ambulance Service:

- continue to monitor the use of ambulance diversion and develop strategies to reduce its use by hospitals
- monitor patient handover times in public hospital emergency departments and investigate the causes of delays.

12. Primary Care

The Department and Area Health Services consider conducting a study to determine what impact (if any) patients with GP type conditions presenting to emergency departments have on the delivery of emergency department services.

Response by the NSW Department of Health

Thank you for the opportunity to respond to the Performance Audit Report "Hospital Emergency Departments - Planning Statewide Services" prepared by The Audit Office. It is acknowledged that this report forms part of a more comprehensive audit and the benefits will not be fully realised until completion of all phases of the audit.

The report rightly highlights the difficulties in planning emergency department services for the diverse population needs. The reality is that emergency departments do not function in isolation from Area and hospital services as a whole and therefore, a number of complex and interrelated factors need to be considered in the planning and provision of these services.

Emergency department services have been, and continue to be, a priority area for the NSW health system. A number of actions and recommendations outlined in the report are either underway or have been planned by the Department.

The Department has promoted the management of emergency department demand and provided appropriate incentives to improve performance. There have been significant initiatives put in place over the past five years. These include:

- *the release of the Emergency Department Policy Statement in 1994;*
- *introduction of the $2 million recurrent Senior Staffing Scheme in 1994;*
- *$8.5 million on an annual basis to the Investment and Incentive Scheme, including the installation of the Emergency Department Information System in 45 departments;*
- *introduction of statewide performance targets and benchmarks;*
- *establishment of the Emergency Department Strategy Implementation Group to provide advice on policy and planning issues required to maintain an effective network of services;*
- *release of Emergency Department Strategic Directions in 1997;*

- *release of the Demand and Supply in Emergency Departments document in 1997;*
- *$13.8 million allocated to build and redevelop 6 emergency departments across NSW;*
- *development of Best Practice Guidelines and strategies for bed management plans;*
- *implementation of the Priority Access Strategy in 1997 which provides over $8 million on an annual basis to enable initiatives promoting an integrated approach to the management of emergency department services.*

The Department recognises the important role that information technology plays in the management of emergency departments and the health system. Following a review of the Emergency Department Information System, a working party with broad representation from the Department and emergency department community has been convened to implement the recommendations arising from that report.

In conclusion, The Audit Office's Report is of great value as it recognises progress made and confirms the appropriateness of the need for the current 'whole of hospital' approach to managing emergency department activity. NSW Health is committed to improving the overall management of health services, including improved links between hospital departments, general practitioners and the broader community. The completion of the remaining phases of the audit process will, I am sure, greatly assist this task.

(signed)
Andrew Wilson
Acting Director-General

Date: 7 October 1998

1. Introduction

1.1 Introduction

This report examines approaches to planning for the provision of emergency department services in NSW hospitals, the coordination of services and the impact of initiatives to address system wide problems.

Some of the problems affecting emergency departments include:

- increasing demand for emergency department services and hospital services generally
- use of emergency department services for primary care (GP type) consultations
- access to inpatient beds for emergency department admissions
- timeliness of treatment
- access to management information.

Since 1988, NSW governments have declared a strong commitment to enhancing the quality of hospital emergency services, principally by increasing the number, seniority and training of staff and upgrading facilities.[1]

More recently, attention has focussed on achieving improvements in emergency department waiting times (the time taken for a patient to see a doctor) and access block (the time taken for a patient to be sent to the ward after a decision has been made to admit the patient).

Data on Performance

All data used in this report has been provided by the NSW Department of Health either from the Emergency Department Information System (EDIS) or the Department of Health Reporting System (DOHRS). Although there are problems with the accuracy and completeness of EDIS data, it is the primary source of data on emergency department activity in NSW. For this reason, it has been necessary in this report to use EDIS data to compare emergency department activity and performance.

Further details of problems with EDIS are discussed in Chapter 4 of this report.

Future Audits

This performance audit is the first of a series of audits of emergency department services in NSW hospitals.

[1] Report on the Emergency Services Taskforce December 1993 p10

Future audits will examine operational aspects of emergency department services that impact on the efficiency and effectiveness of service delivery. This includes the management of resources (budgets, staff, rosters, organisational relationships), the recruitment and retention of staff, the management of demand and the use of management information in the emergency department. The Audit Office will also examine the interface between emergency departments and other health service providers.

1.2 Acknowledgment

The Audit Office gratefully acknowledges the cooperation, and assistance provided by representatives of the NSW Department of Health, Central Sydney Area Health Service, Illawarra Area Health Service and Mid Western Area Health Service and the staff of the emergency departments visited by the audit team. Also the NSW Ambulance Service and members of the Emergency Department Strategy Implementation Group who provided comments on audit findings.

A list of the hospitals visited as part of the audit are attached at Appendix 5.

1.3 Cost of the Audit

Direct salaries cost	$146,230
Overheads charged on staff time	43,868
Value of unpaid overtime (at standard rates only)	24,528
Printing (estimate)	5,000
Travel and incidentals	168
Total Cost	**$219,794**

The cost of this audit includes costs associated with general research of the NSW health system and emergency department services in particular. This will correspond to savings in the start up costs of future emergency department performance audits.

1.4 Audit Team

Stephen Horne, Director Performance Audit Branch
Jane Tebbatt, Project Leader
Tiffany Blackett

2. Emergency Departments in NSW

2.1 Emergency Departments in NSW

NSW public hospitals provide emergency treatment to eligible persons free of charge.[2]

There are 209 public hospitals in NSW.[3] Of these, 143 provide an emergency department service that can range from a small assessment and treatment area to a large specialised service in a major metropolitan teaching hospital.[4] NSW public hospitals that provide emergency department services are shown at appendix 2.

Not all hospitals provide emergency department services and not all emergency departments provide the same level of services. For these reasons, the supply of emergency services is supported by a system of interhospital transfers, medical retrieval services and trauma networks to ensure patients access the most appropriate services.

In 1996-97 total funding for emergency services (including emergency departments and ambulance services) was approximately $436m.

Roles and Responsibilities

Roles and responsibilities within the health system are separated between the Department of Health and Area Health Services.

The Department is responsible for developing system wide policy frameworks for emergency department services and has been involved in the introduction of major initiatives to improve the efficiency and effectiveness of service delivery. Statewide Services Development Branch is responsible for formulating the Department's response to issues affecting emergency departments.

Responsibility for the management, location, expansion or contraction of emergency department services or the development of new services rests with Area Health Services.

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[2] Under Section 10, Agreement between the Commonwealth of Australia and the State of New South Wales in relation to the provision of Public Hospital Services and Other Health Services, July 93 - June 1998 (Medicare Agreement) NSW public hospitals are required to provide emergency treatment free of charge. Eligible person means Australian resident or eligible overseas representative (refer Section 3(1) *Health Insurance Act 1973*).

[3] Figure excludes nursing homes and psychiatric hospitals.

[4] In this context, emergency department refers to services that are classified as level 2 or above using the Department of Health Guide to Role Delineation of Health Services, 1991. Private hospital emergency departments are not included in this figure.

There are 9 metropolitan Area Health Services covering Sydney, Hunter and Illawarra regions, 8 rural Area Health Services, and the Royal Alexandra Hospital for Children.

Role of Emergency Departments

The primary role of the emergency department is to provide timely, accessible and appropriate emergency health services to patients with acute illness or injury.[5] However, emergency departments also provide a variety of additional services to meet community and hospital needs.

> *Their prime role of managing accidents, injuries and trauma, has often been supplemented with the role of being the front door of the hospital, a primary care centre for those who decide not to use their GP, and finally one of the few 24 hour services with an open door policy.*[6]

In 1996-97, over 1.7 million people sought treatment in an emergency department in NSW.[7] Since 1995, NSW has seen a steady increase in demand for emergency department services with the number of patients attending emergency departments rising by 4.9% or an extra 83,300 people pa.[8] This trend towards increasing numbers of patients attending emergency departments has continued through 1997-98.

Although the Department is not able to determine specific reasons for this increase in demand, suggestions to The Audit Office include that it may reflect an increasing number of people using emergency departments (consumer choice, free services, one stop shopping) or an increase in the severity of conditions (ageing population) or a combination of both.

However, the trend supports the premise of increasing pressure on both emergency department and hospital resources.

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[5] Emergency Department Policy Statement NSW Department of Health 1994 p2
[6] Emergency Care Handbook National Health Service UK 1995 p37
[7] 1996-97 Annual Report NSW Department of Health p14
[8] ibid p14

2.2 Arrival at the Emergency Department

Stages in Attendance

The main stages of an emergency department attendance are:

- arrival by ambulance, air ambulance, private car or public transport
- the assessment of clinical priority in accordance with the National Triage Scale (triage category 1 to 5) by a trained member of (nursing) staff[9]
- treatment in order of clinical priority
- discharge to home, admission to hospital or interhospital transfer.

Setting the Scene	
1.10am	A 53 year old woman, Ellen, nods off while driving home from work and hits a telegraph pole.
1.15am	An ambulance arrives. Ambulance officers pull Ellen from the car and transfer her to the ambulance.
2.00am	Ellen arrives at the emergency department of a major metropolitan hospital after the ambulance has bypassed the local hospital in accordance with the trauma plan. She is immediately seen by the triage nurse and assigned as a category 2 patient (emergency condition that requires the patient to be seen by a doctor within 10 minutes).
2.05am	Ellen is seen by a emergency clinician. She appears to have head injuries and internal bleeding and her condition is deteriorating. Doctors arrange blood transfusions and an immediate CT scan of her head.
3.00am	Ellen is transferred from the emergency department to theatre where surgeons stop her internal bleeding. She recovers fully and leaves hospital 12 days later.

Source: Getting it Right, NSW Department of Health 1994.
Note: This is a generalised account and no reference to individuals is intended.

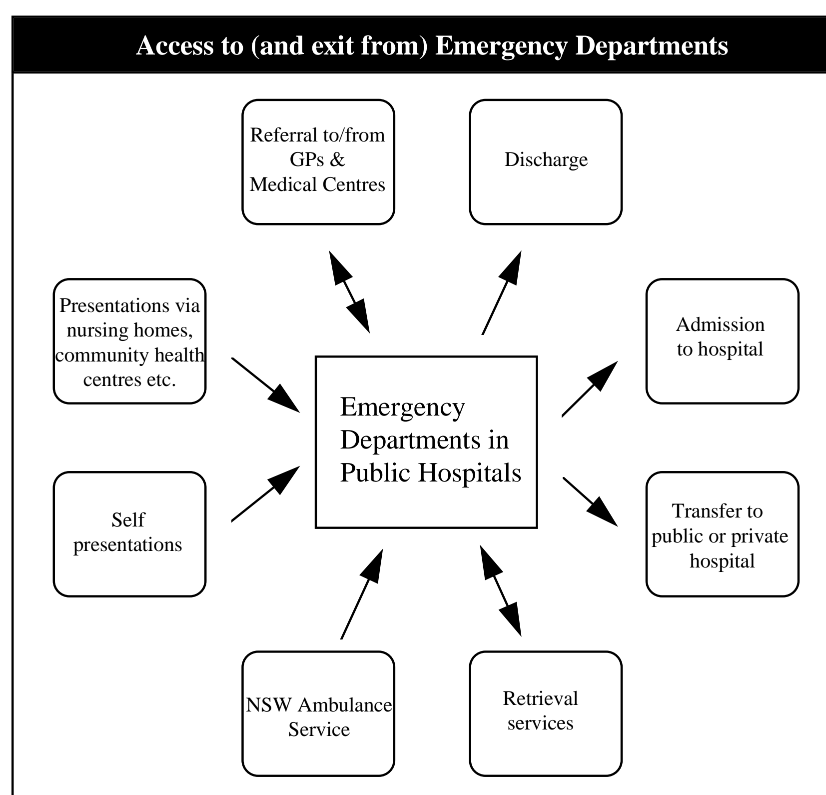
Patient Flow

Only about 20% of patients arrive at the emergency department by ambulance or an associated service such as medical retrieval. The majority of patients make their own way to an emergency department for treatment.

Over 23% of patients seen by a doctor in the emergency department end up being admitted to a hospital ward. The proportion of patients admitted decreases as the level of acuity (of accident, injury, trauma or illness) decreases.

[9] Refer appendix 3 for details on triage categories

Around 61% of patients depart after treatment and 2% are transferred to another hospital. Only a small proportion of patients are either dead on arrival (0.2%) or admitted and die in the emergency department (0.1%). The remainder are either admitted and discharged within the emergency department or leave without waiting for treatment.[10]



2.3 Attendance Patterns

Around 75% of all emergency department patients are seen in metropolitan, public hospital emergency departments. The remainder are seen by emergency departments in rural hospitals.

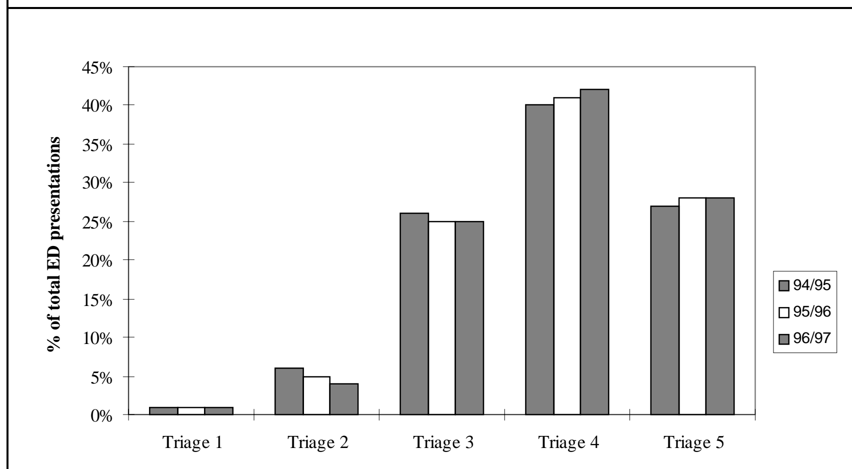
There are more attendances in emergency departments during winter months and patients attending in winter have generally more complex problems. Daily and weekly trends in attendance show predictable patterns of demand with identifiable troughs and peaks.

[10] Demand and Supply in Emergency Departments, NSW Department of Health, 1997 p46

Trends in Acuity

Around 70% of patients attending the emergency department are categorised as semi urgent triage 4 (to be seen by a doctor within an hour of arrival) or non urgent Triage 5 (to be seen by a doctor within 2 hours of arrival). Since data was first collected in December 1994, there has been a slight increase in triage 4 and 5 presentations with some reduction in emergency triage 2 (to be seen by a doctor within 10 minutes) and urgent triage 3 patients (to be seen by a doctor within 30 minutes).

Figure 1: Emergency Department Presentations by Triage Category 1994-95 to 1996-97

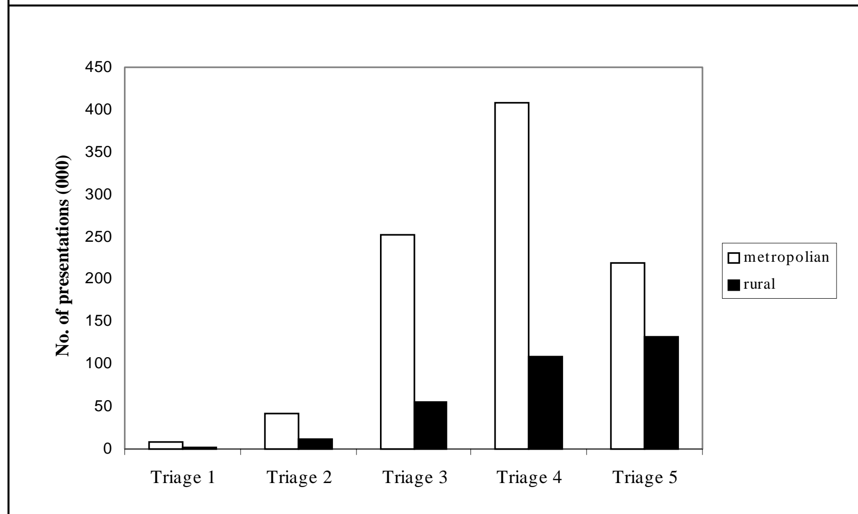


Source: EDIS
Note: 1994-95 data covers the period December 1994 to June 1995 only.

Differences between Metropolitan and Rural Services

There are numerous differences between the number and profile of patients attending metropolitan services compared to rural services. In the larger metropolitan emergency departments semi urgent triage 4 patients represent the majority of presentations. Non urgent triage 5 patients form the largest group seen by rural emergency departments.

Figure 2: Emergency Department Presentations by Triage Category 1996-97 Metropolitan and Rural



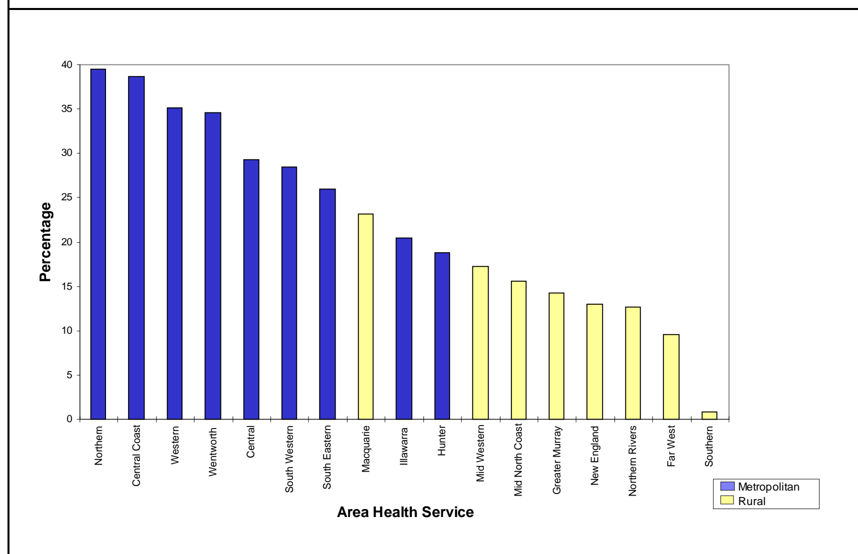
Source: EDIS

The Audit Office did not examine the causes or reasons for these patterns of presentations.

Hospital Admission Rates

The rate of admission to a hospital ward from an emergency department varies across Area Health Services with higher admission rates in metropolitan areas compared to rural areas (reflecting the trend of patients with complex illnesses and traumas attending metropolitan hospitals).

Figure 3: Percentage of Emergency Department Presentations Admitted to Hospital 1996-97



Source: DOHRS

Note: The admission rate for Southern Area Health Service hospitals may be an anomaly arising from data inaccuracies.

Emergency department admissions to metropolitan hospitals are more difficult to accommodate because of the generally higher bed occupancy rates in metropolitan hospitals compared to rural hospitals.

Indicators used to measure the effect of this additional stress on the system are the time taken for a patient to be sent to a hospital ward after being seen by a doctor in the emergency department (access block) and the use of ambulance diversion as a means of diverting cases from one hospital emergency department to another.

Both these issues are discussed in detail in Chapter 4.

2.4 Emergency Department Performance

Setting Benchmarks

Since December 1994, the Department has monitored emergency department performance on waiting times in each of the triage categories and access block against benchmarks. Benchmarks have been set by the Department and adjusted upward each year (refer appendix 3).

Benchmarks set by the Department for waiting times and access block in 1996-97 are lower for triage 2 (seen by a doctor within 10 minutes), triage 3 (seen by a doctor within 30 minutes) and triage 4 (seen by a doctor within 1 hour) than the benchmarks set by the Australasian College for Emergency Medicine (ACEM). The Department's aim is for all facilities to achieve, or better, the ACEM benchmarks by 2000.[11]

Also, unlike the ACEM benchmarks which decrease with the level of acuity, the Department's benchmarks for 1996-97 do not. Triage 4 and 5 at 70% and 85% respectively are higher than the benchmark for triage 3 at 65%. Also Triage 2 is set lower at 70% than Triage 5.

This is confusing, and could be seen to suggest that it is more acceptable to treat a greater proportion of non urgent patients (85%) within the required timeframe of 2 hours than patients requiring urgent treatment (65%) within the timeframe of 30 minutes.

[11] Emergency Department Strategic Directions, NSW Department of Health, 1997 p14

The Department in setting these benchmarks considers what emergency departments will be able to achieve and for this reason, set the 1996-97 levels for triage 2 and 3 lower than triage 5. The same approach has been used in setting 1997-98 benchmarks. Prior to 1996 however, benchmarks decreased with acuity.

Recommendation

The Department consider setting emergency department performance benchmarks for waiting times as a decreasing scale in line with presentation acuity.

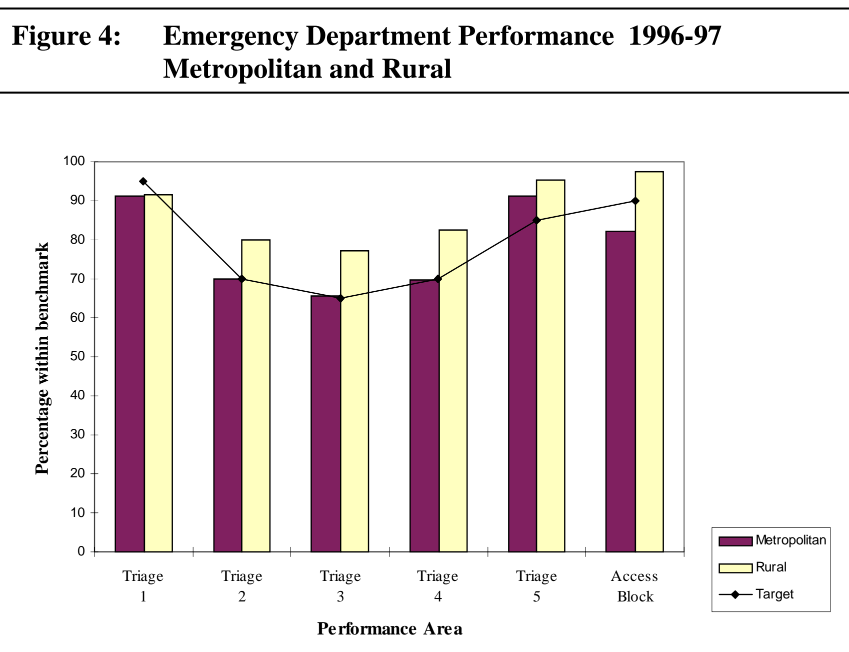
Performance during 1996-97

Group results for metropolitan and rural hospitals for 1996-97 indicates that benchmark performance levels for waiting times were met except for triage 1 resuscitation (seen by doctor in 2 minutes). Clinicians caution that this arises from data inaccuracies and that all resuscitation patients are seen immediately.

Metropolitan hospitals as a group did not meet the benchmark for access block (90% of patients admitted to a hospital ward within eight hours) throughout 1996-97.

Rural hospitals, as a group performed better than hospitals in metropolitan areas.

Figure 4: Emergency Department Performance 1996-97 Metropolitan and Rural



Source: EDIS

Performance of Principal Referral Hospitals

The emergency departments of Principal Referral Hospitals treat around 40% of the total number of patients seen in metropolitan hospitals and have some of the busiest emergency departments in NSW.

Although as a group, metropolitan hospitals are meeting performance benchmarks, data on the ten Principal Referral Hospitals shows a different result.[12] For these hospitals, performance against benchmarks for each triage category indicates that more often than not they are unable to meet the benchmarks for waiting times and access block. For example, only one of these hospitals met the benchmark for access block in 1996-97.

Recent data indicates that this trend is continuing. Performance on waiting times in these hospitals has improved since data was first collected in 1994, yet they are often unable to meet the benchmarks for waiting times and suffer continual problems with access to inpatient beds. This has been further compounded by the fact that benchmarks have continued to increase each year.

Efforts should be directed to gaining a better understanding of the reasons why the some of the larger hospital emergency departments find it so difficult to meet performance benchmarks that are met by other hospitals.

[12] Excludes Principal Referral Hospitals that provide paediatric emergency services.

3. Planning Emergency Department Services

3.1 Planning Emergency Department Services

Statewide Planning

Decisions regarding the distribution of emergency department services across NSW are not limited by agreements between the Commonwealth and the State. The Medicare principles require the provision of public hospital services equitably to all eligible persons regardless of their geographical location. However, this does not require a local hospital to be equipped to provide every hospital service (including an emergency department) a person may need.[13] In these instances, the State accepts responsibility for referring or transferring the eligible person to a hospital where these services are available.

These arrangements underlie the need for the effective planning of emergency department services. In NSW, not all public hospitals provide emergency department services and not all emergency departments provide the same level of services.

However, there is no statewide plan for the location of emergency departments or a strategic (long term) plan for the structure and coordination of services. In most instances, 17 Area Health Services make individual service delivery decisions concerning the location and size of emergency departments and the development of new services.

As a result, responses to changes in demographic factors or emergency department utilisation and admission rates, developments in clinical care or the entrance of private sector providers (emergency departments associated with private hospitals) are often determined locally, not system wide. Under these circumstances, there is potential for responses to vary across Area Health Services and benefits to be confined locally.

The establishment of trauma networks and ambulance bypass are examples of service planning and coordination across the State rather than within the boundaries of an Area Health Service. Similarly, there are opportunities to integrate system wide planning for emergency departments with strategic planning for ambulance services.

[13] Refer Section 3.1 (Principle 3, Explanatory Note 1), Medicare Agreement, July 93 - June 1998

The Department has recognised the need for a more strategic approach to emergency department planning, and in 1997 proposed to examine the relationship between demographic factors and developments in clinical care to emergency department utilisation and admission rates and recommend structural changes to improve patient access to quality care.[14]

This review has not yet been completed.

Recommendation

The Department, in consultation with Area Health Services, develop a statewide plan for the future location and structure of emergency departments.

In developing the plan, the Department should:

- **complete the review of the impact of demographic factors and clinical developments on emergency department utilisation and admission rates**
- **consider the need for structural changes to services to improve patient access to quality care**
- **consult with the NSW Ambulance Service on proposed changes to existing emergency department services or the development of new services.**

3.2 Planning by Area Health Services

Area Health Services, in consultation with hospital administrators, decide the type of services to be provided by an emergency department. To achieve consistency, Area Health Services need a framework to guide decisions regarding the type of services appropriate for the local community.

Current Guidelines

One classification system used by the Department to define the level of services in the emergency department classifies emergency departments in terms of medical and nursing posts and access to the hospital's inpatient clinical and diagnostic support services.

This classification system forms part of the Department's Guide to Role Delineation in Health Services.[15] Role levels for emergency departments range from 0, indicating there is no service available, up to 6 for a major metropolitan teaching hospital such as the Royal Prince Alfred Hospital. A description of the classification system is at appendix 4.

[14] Emergency Departments Strategic Directions NSW Department of Health 1997 p17
[15] Guide to Role Delineation in Health Services NSW Department of Health 1991

The classification system provides limited assistance to Area Health Services in deciding the most appropriate service configurations. Classifications do not take into account demographic factors, the number of patients treated in the emergency department or the acuity of presentations as criteria for determining the size of the facility or the services that should be available.

In addition, there is no minimum threshold of presentations that may trigger a decision by an Area Health Service to reconfigure services to achieve economies of scale.

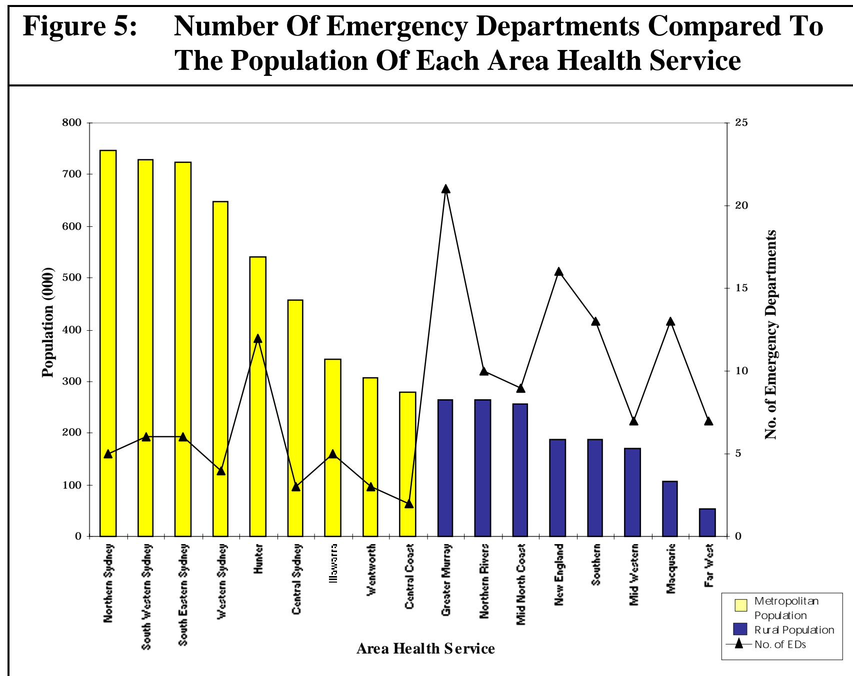
Variation in the Supply of Services

Without an adequate emergency department service model, there is wide variation in the supply of emergency department services across the State. Similarly, emergency departments classified at the same level can have different resources (beds and staff).

At the Area Health Service level, the relationship between the location and number of emergency departments and community need is not always clear cut. There are more emergency departments in rural areas than in metropolitan areas which may be explained by the dispersal of rural populations. However, there is variation within the groups (more emergency departments in some rural areas than others) which is more difficult to explain.

The following graph shows the population of each Area Health Service and the number of emergency departments in the Area. The graph does not establish a relationship between the number of emergency departments in an Area and the population they serve.

Figure 5: Number Of Emergency Departments Compared To The Population Of Each Area Health Service



Source: NSW Department of Health

Note: Only emergency departments level 2 to 6 are shown in graph. The graph does not take into account the role delineation of the emergency department or the number of private providers in the Area Health Service.

The Department recognises the limitations with this classification system, and in 1997 proposed to refine the system to relate emergency department throughput and acuity of presentations to role levels.[16] Data on emergency department throughput has been available since December 1994, however this review has not yet been completed.

Variation in the Level of Services

Public hospitals are classified into peer groups for the purposes of comparing and benchmarking performance. Basically, peer groups are identified through a mix of the types of hospital services provided, the number of patients treated and the complexity of treatments.[17]

It is expected that the health needs of the local community would be a factor in determining the level of hospital services provided (as indicated by its membership to a specific peer group). It also would be expected that the level of emergency department services available at the hospital would match these same needs and that the level of services would be consistent within each peer group eg. All Principal Referral Hospitals would provide a level 6 emergency department service.

[16] Emergency Department Strategic Directions NSW Department of Health 1997, p16
[17] NSW Public Hospitals Comparison Data Book 1995-96 NSW Department of Health

However, a comparison of peer groups providing emergency department services indicates a wide variety of service configurations rather than consistency within each peer group.

Again, without an appropriate service model, there is risk that the level of emergency department services provided by a hospital is not consistent with the needs of the community and the volume and complexity of demand as reflected in the hospital's peer group.

Table 1: Hospital Peer Groups and Level Of Emergency Department Services

Hospital Peer Group	Level of Emergency Department Services					
	6	5	4	3	2	1	No Service
Principal Referral	✓	✓					
Major Metropolitan Referral		✓	✓				
Major Non Metropolitan Referral		✓	✓				
District Metropolitan		✓	✓	✓			
District Non Metropolitan			✓	✓			
Community Acute				✓	✓	✓	✓
Community Non Acute					✓	✓	✓
Multi Purpose Service					✓	✓	

Source: NSW Public Hospital Comparison Data Book 1995-96 NSW Department of Health

Community Expectations

Community expectations are that where there is a public hospital there will be an emergency department.

Any proposal by an Area Health Service to reconfigure hospital services which involve closing an emergency department arouse considerable public debate. Area Health Services, in determining the best service mix, need to find the balance between safety, effectiveness and available resources, and access to services in light of community expectations.

The following case study illustrates the dilemma for Area Health Services in finding a correct balance.

Closing an Emergency Department
An Area Health Service undertook a strategic planning exercise in 1997 aimed at identifying services that could be rationalised. A decision was made by the Area to reduce the services that were provided at the hospital at Site A. It was planned to move some medical and surgical services to the larger hospital at Site B and at the same time close the emergency department at Site A Hospital. Site A Hospital was to be redeveloped as a specialist centre for rehabilitation, aged care and psychiatric services and would also provide a range of on-site community health services. A private General Practitioner clinic would also be established at Site A Hospital when the emergency department closed. Area management considered that as Site B Hospital was located near Site A and offered a full range of emergency department services (level 5), it would more appropriately meet the needs of Site A residents. However, there was strong community and industrial resistance to the closure of the emergency department at Site A Hospital. Public demonstrations were held and the planned closure gained a lot of media attention. Eventually, prolonged community action prevented the closure of the emergency department at Site A. As a compromise, Area management decided to maintain the emergency department services at Site A. The hospital offers minimal emergency department services (level 2). Any patient presenting with a serious illness is transferred to Site B Hospital.

Source: Based on evidence collected during audit field visits.

Although changes in the supply of emergency department services are rare, there has not been a review by the Department of the effects of such changes on the community nor the benefits and costs arising from such changes.

Recommendation

The Department develop an emergency department service model incorporating:

- **demographic factors**
- **the number of patients treated**
- **the acuity of presentations**
- **optimal distances between services.**

Area Health Services should review the distribution and level of hospital emergency department services in accord with these new service models.

The Department should also consider a review of the impact of changes in the supply of emergency department services on the community and analyse the costs and benefits arising from such changes.

3.3 The Impact of Private Hospitals

Private Hospital Emergency Departments

In NSW, private hospitals require a licence to provide emergency department facilities. Specific standards for emergency departments are prescribed in the *Private Hospitals Regulation 1996.*

There are currently 3 private hospitals in NSW providing emergency department services; Sydney Adventist Hospital, The Hills Private Hospital and NSW Private Hospital, with two additional license applications under consideration by the Department.

Private emergency departments are a relatively new phenomena in the NSW health system. At present, the number of patients treated in these emergency departments ranges from 8,000 up to 18,000 pa per hospital.[18]

The Department does not monitor the volume of presentations nor patterns in presentations to private emergency departments for potential impact on public hospital services (private hospitals may be seeing patients that may have presented to a public hospital).

[18] Data provided to audit by private emergency departments.

As yet, the Department has not developed a policy framework that recognises the role of private emergency departments in NSW and their impact on planning future services.

Transport by Ambulance

The Audit Office also examined the procedures established by the NSW Ambulance Service for the transport of patients to licensed private facilities. During this audit, the Service drafted a generic policy on the transport of patients to private emergency departments which is due for release in October 1998. This will replace individual agreements with private emergency departments.

This policy indicates that a patient may be transported to a licensed private emergency department in the following circumstances:

- if the request for transfer is made by a medical practitioner
- if the patient requests to be taken to the private facility, as long as the private hospital is the nearest hospital in travelling time, or
- if the patient is dying and the private facility is clearly the closest hospital.

Private hospitals have agreed that in the last case, where a patient may be dying, initial treatment for public patients will be carried out at the hospital's expense until the patient can be transferred to a public facility.

Recommendation

The Department monitor the number and type of presentations in private hospital emergency departments to determine the impact, if any, on the provision of public emergency department services and on future service planning and delivery.

3.4 Coordination of Emergency Ambulance Services

Ambulance officers provide initial patient management, triage and transportation to the closest appropriate hospital. Generally, around 20% of patients arrive at the emergency department by ambulance.

The need for cooperation and coordination between both services is recognised by the Department of Health and the NSW Ambulance Service. There have been a number of joint initiatives such as procedures for the early notification of rural trauma and the metropolitan trauma bypass system (that redirects seriously injured patients to major hospitals) to improve patient outcomes.

However, there have been problems with achieving a consistent response both within and across Area Health Services to some system wide issues such as field to emergency department communication and planning for the collocation of ambulance and emergency services.

Collocation

Although the Ambulance Service has indicated a commitment to collocate its facilities with other health services, such as public hospitals, and has been involved in locating ambulance bases as part of multi-purpose services, neither party has a stated policy on collocation or developed integrated plans for the location of these services.[19]

Contact with the Ambulance

In regard to direct communication links, the Taskforce on Emergency Services in Acute Hospitals in NSW recommended in 1993 that communication links be upgraded to allow direct contact between ambulance officers in the field and emergency departments.

The results of this have been varied. Although some emergency departments have direct contact with ambulance officers in the field, others do not. The Ambulance Service recently secured a range of radio frequencies within the Government Radio Network specifically for the use of hospitals which will assist them to establish this direct link.

Recommendation

The Department improve coordination with the NSW Ambulance Service by adopting:

- **a shared position on service structures (collocations) that would guide future planning decisions**
- **a standard approach to establishing communication links between field (ambulances) and emergency departments.**

[19] The Ambulance Service, Multi Purpose Services and Co-location with Health Facilities, Draft Policy Statement, NSW Ambulance Service, March 1997

4. System Wide Issues

4.1 Introduction

Recent Initiatives

The Department is responsible for developing system wide policy frameworks for services and has been involved in major initiatives to improve the efficiency and effectiveness of emergency department services.

Since 1988, NSW governments have declared a strong commitment to enhancing the quality of hospital emergency services, principally by increasing the number, seniority and training of staff and upgrading facilities.[20]

More recently, the Department has introduced a number of initiatives in an effort to bring about further improvements in emergency department services.

These initiatives are summarised in Table 2.

This chapter examines major reforms to address system wide issues and their effect on emergency department performance including:

- management information systems
- emergency department performance in relation to waiting times and access block
- integrated bed management planning
- initiatives to reduce overcrowding in the emergency department.

[20] Report on the Emergency Services Taskforce December 1993 p10

Table 2: Major Initiatives in Emergency Department Services	
1992	Establishment of a taskforce to review emergency services in public hospitals and to report on possible activities that might bring about improvements in emergency department services.
1994	Release of the *Emergency Departments Policy Statement* establishing principles for emergency department operations.
	Introduction of the Senior Staffing Scheme in July directing $2m recurrent funding to recruit senior emergency department physicians.
	Introduction of the emergency department *Investment and Incentive Scheme* which involved: • the installation of the Emergency Department Information System (EDIS) in 45 emergency departments (September 1994) • the distribution of $8.5m pa to participating hospitals that met performance benchmarks (commenced March 1995).
1995	Introduction of statewide benchmarks for emergency department performance and regular (published) reports on activity, access and waiting time results.
	Establishment of the Emergency Department Strategy Implementation Group with representatives from the Department of Health, hospitals, clinicians and the NSW Ambulance Service.
1997	Release of *Emergency Departments Strategic Directions* in May to promote an integrated approach between emergency departments and the rest of the hospital to improve emergency department services.
	Release of *Demand and Supply in Emergency Departments* in June presenting data on patients flows and models for bed management.
	Release of best practice guidelines for the development of bed management plans and strategies to deal with seasonal peaks (winter).
	Release of the *Priority Access Strategy* for managing emergency department and booked patient waiting times.
1998	Priority Access Best Practice Seminar held in March.

4.2 The Emergency Department Information System

Management information is needed by emergency departments, the hospitals in which they are located, Area Health Services and the Department, to monitor activity levels and performance.

Introduction of EDIS

Since December 1994, the Department has been collecting and publishing data on emergency department activity from the Emergency Department Information System (EDIS).

EDIS is used by the Department to:

- monitor performance of the emergency department against benchmarks for waiting times and access block
- compare the performance of emergency departments
- predict demand for emergency department services.

Not all hospitals have EDIS installed; hospitals with EDIS tend to be the larger hospitals with level 3 to 6 emergency departments. Originally 45, now 51 hospitals provide monthly reports to the Department.

EDIS hospitals treat about 73% of total emergency department presentations in NSW.[21] The remaining 92 emergency departments, representing nearly 460,000 presentations, are not involved in EDIS benchmarking exercises.

Operational Problems

Staff from emergency departments have raised a number of operational problems with EDIS:

- there is limited real time data entry (therefore EDIS is not often used for monitoring waiting time and overcrowding)
- it is time consuming to load data
- there are problems with data definitions (both coding and triage)
- there are different levels of system support available to emergency departments.

Data Integrity

Once installed, the Department indicated that EDIS data would be subject to clinical and clerical audit and random site tests.[22] Although, information on invalid data or incomplete records is reported on a monthly basis, the quality and integrity of data remained largely untested until 1998.

[21] Based on 1,240,460 presentations recorded in EDIS 1996-97 and annual presentations of 1.7m reported in the NSW Department of Health Annual Report 1996-97.

[22] Investment and Incentive Scheme for Emergency Departments, NSW Department of Health 1994 p7

Testing of data was undertaken as part of the Department's recent information system audit of EDIS. The audit found many problems in data quality and concluded that:

> *...the operation of EDIS is both inefficient and ineffective at the emergency department level, resulting in a material risk of data inaccuracy that is not countered by adequate data quality controls. Inaccurate data may cause processed information to be of questionable use for decision making and has implications for the quality of decisions.*[23]

The usefulness of EDIS reports to monitor performance and predict demand is limited by the existence of risk of inaccurate or incomplete data. Even so, EDIS data is used as a basis for comparing the performance of hospitals and to judge the performance of Area Health Services in providing efficient and effective emergency department services.

Benefits of EDIS

Despite problems with data integrity, emergency department staff report that EDIS data is used to benchmark performance against other emergency departments, monitor local demand and support resource proposals. EDIS is considered beneficial because it enables the collection of (previously unavailable) data on emergency department activity on a statewide basis.[24]

Clinicians agree that EDIS has also helped to raise the profile of the emergency department within the public health system, and that the benefits of EDIS as a management information system far outweigh the problems associated with its operation.

Recommendation

The Department:

- **address issues raised in the information system audit of the Emergency Department Information System (completed May 1998) in particular, recommendations to improve system operation and data consistency, accuracy and completeness**
- **consider the installation of data collection systems in all emergency departments level 2 and above to allow monitoring and reporting of activities.**

[23] IM&T Audit of EDIS Executive Report NSW Department of Health, May 1998, Section 3: Audit Opinion

[24] ibid

4.3 Waiting Times and Access Block

Investment and Incentive Scheme

In late 1994 the Department introduced the Investment and Incentive Scheme which provided financial rewards to hospitals that met benchmarks for:

- the time taken for a patient to be sent to a ward after the decision to admit has been made (access block)
- waiting times for each triage category in emergency departments.[25]

The Investment and Incentive Scheme ran for two years. From March 1995 a pool of $5m was available to Area Health Services; $2.138m for implementation of the scheme and providing data on a monthly basis to the Department, and $2.862m as incentive payments.

In 1995-96 $8.5m was available; $1.35m for providing data and $7.15m as incentive payments.

The incentive component of the Scheme was discontinued in July 1996. From then on, the additional funding ($8.5m) was distributed to Area Health Services (based on the volume and acuity of patients seen in the emergency department). The Department also introduced the *Priority Access Strategy* (1997) to further improve bed management practices.

Performance Benchmarks

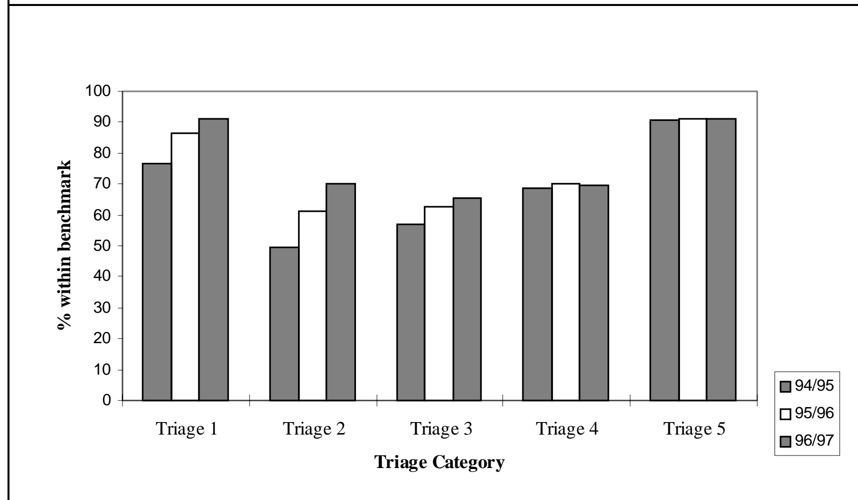
The Department set its own performance benchmarks based on the national triage scale. Only hospitals with EDIS were eligible to participate in the Scheme and, as each Area Health Service had at least one hospital with EDIS, all Services participated.

Waiting Times

An examination of data for metropolitan and rural hospitals indicates that average waiting times for triage categories 1 to 3 have improved since 1994-95. This is evident in both metropolitan and rural hospitals.

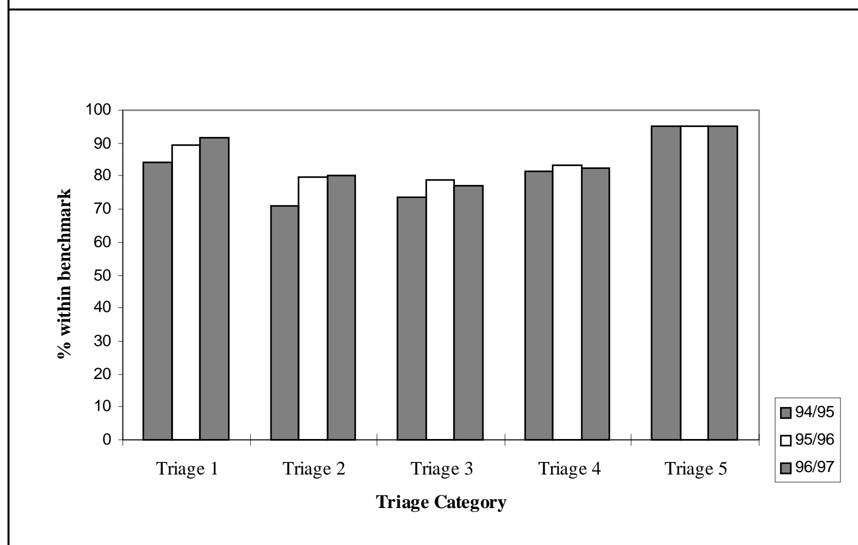
[25] Emergency Department Incentive Scheme, NSW Department of Health 1994 p2

Figure 6: Waiting Times in Metropolitan Emergency Departments 1994-95 to 1996-97



Source: EDIS
Note: 1994-95 data covers the period December 1994 to June 1995 only.

Figure 7: Waiting Times in Rural Emergency Departments 1994-95 to 1996-97



Source: EDIS
Note: 1994-95 data covers the period December 1994 to June 1995 only.

Results for 1994-95 and 1995-96 performance against benchmarks indicates that rural hospitals met the benchmarks for all triage categories. Similarly, metropolitan hospitals met the benchmarks in all categories except emergency triage 2 in 1994-95 (seen by a doctor within 2 minutes).

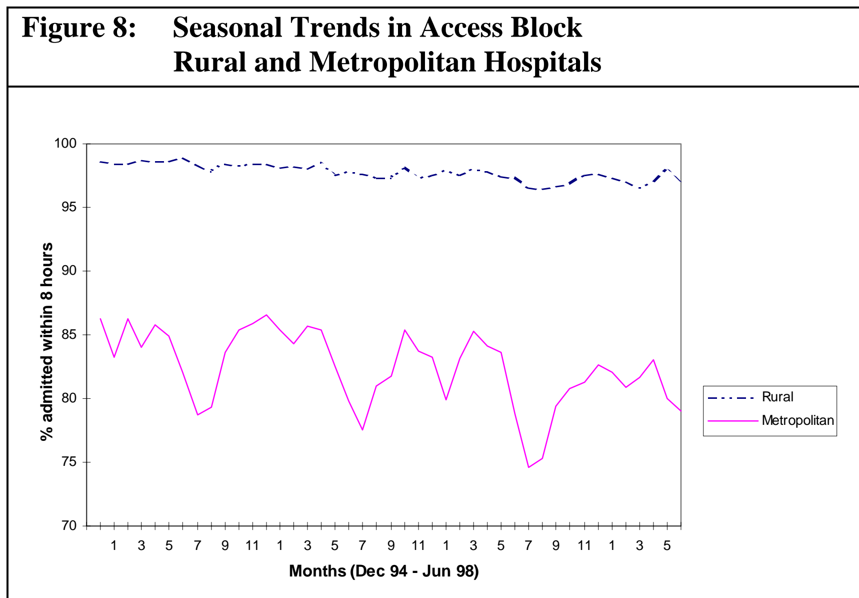
Results for 1996-97 shows that metropolitan and rural hospitals met the performance benchmarks in all triage categories except resuscitation triage 1 (seen by doctor in 2 minutes).

Access Block

In contrast to performance on waiting times, the average proportion of patients admitted to a ward within the benchmark (eight hours from being seen by a doctor) showed no improvement in metropolitan hospitals. On the other hand, rural hospitals consistently met or exceeded the benchmark set by the Department.

Access block in rural areas does not appear to be affected by seasonal trends and remains relatively stable. However, metropolitan hospitals experience more problems admitting patients in the winter months (July 95, 96, 97) and summer holiday periods (January 96, 97).

Figure 8: Seasonal Trends in Access Block
Rural and Metropolitan Hospitals



Source: EDIS

The overall trend suggests a decline in performance, with the seasonal troughs and peaks lowering each year. This means fewer patients are being admitted to hospital within the required timeframe.

Results for 1994-95 and 1995-96 performance against benchmarks indicates that rural and metropolitan hospitals were successful in meeting the performance benchmark for access block.

In 1996-97, rural hospitals continued to meet the benchmark. Metropolitan hospitals however, failed to meet the benchmark for this period (refer Figure 4).

Overall Performance

Overall, initiatives to improve emergency department performance have been successful in reducing average waiting times for triage categories 1-3, in both metropolitan and rural areas. However there has been little improvement in waiting times for triage categories 4 and 5, and a decline in performance for access block.

Recognition of the causes of access block (such as high bed occupancy rates in the rest of the hospital, management of surgical theatre rosters and admission and discharge planning) highlights the fact that emergency departments have limited ability to reduce the time taken to admit a patient to a ward.

Access block is not just a problem for emergency departments but for the whole of the hospital. The Investment and Incentive Scheme targeted emergency department performance in isolation, which may explain its lack of success in reducing access block.

Recommendation

The Department use data on performance for access block to judge the performance of a hospital, rather than the performance of an emergency department.

Waiting List Reduction Program

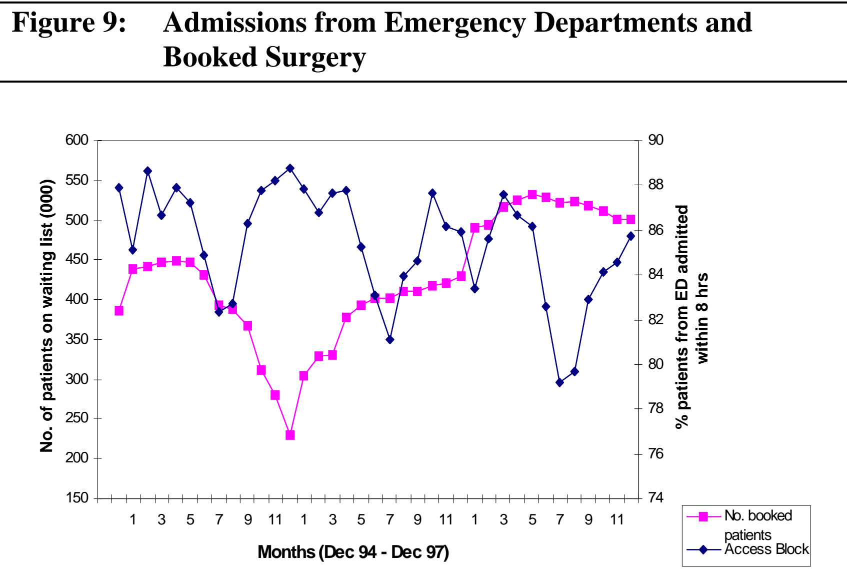
The Government's Waiting List Reduction Program, introduced in May 1995, aimed to reduce the number of people waiting for booked surgery by offering financial incentives to Area Health Services worth $75 million.

Both the Department and emergency department clinicians consider tension existed between the Waiting List Reduction Program and the emergency department Investment and Incentive Scheme. An increase in booked surgery results in fewer beds available for emergency department admissions. This can cause excessive delays in transferring patients from the emergency department to a hospital ward.

In order to address these competing demands, the Department in 1997 released the *Priority Access Strategy* to improve the integration of emergency department and booked patient management programs through better admission and discharge practices. The Department has also conducted a Priority Access Strategy Seminar to highlight best practice models used by hospitals.

However, a comparison of the data on the effect of both initiatives indicates that when the number of booked surgery patients was at its lowest, emergency departments were experiencing an increase in performance with regard to access block, admitting 88.8% of patients within eight hours. This represents the best performance for the period December 1994 to December 1997.

Figure 9: Admissions from Emergency Departments and Booked Surgery



Source: DOH Waiting List Activity Database & EDIS

The data suggests that performance on access block was best following the introduction of the Waiting List Reduction Program, possibly as a consequence of improved bed management practices and the additional hospital resources (beds and staff) provided by the Program.

This further supports the Department's current approach that the solution to access block does not rest with the emergency department alone but in integrated bed management practices for the whole of the hospital that achieves a balance between booked and emergency department admissions.

4.4 Integrated Bed Management

Bed Management Plans

Integrated Bed Management is a management strategy that aims to address problems of access block through better utilisation of hospital resources.

The Department's *Emergency Department Strategic Directions* document, released in May 1997, requested Area Health Services to develop three year Area or hospital bed management plans by the end of 1997.[26] The development of these plans was in part supported by an allocation of $8.5 million (previously earmarked for the Investment and Incentive Scheme) distributed to Area Health Services to improve emergency department performance.

Criteria for Plans

The *Strategic Directions* document stipulates that bed management plans include:

- a projection of emergency and booked patient numbers to give an estimate of demand (demand analysis)
- initiatives to enhance resources during winter
- initiatives to reduce access block
- initiatives to improve the operation of emergency departments eg. benchmarking with peers, better rostering of staff, networking with other Area facilities
- activities to improve the relationship between the emergency department and general practitioners
- alternatives to hospital care
- workforce issues (staff numbers and skills).

In February 1998 the Integrated Bed Management Committee (IBMC) provided feedback on the adequacy of Area Health Service plans.[27] Only fifty percent of the plans were considered adequate.

The Department has since invited those Area Health Services with plans judged to be inadequate to resubmit new plans. Best practice examples have also been provided to Area Health Services.

[26] Emergency Department Strategic Directions, NSW Department of Health, 1997 pii
[27] The IBMC examines issues affecting bed management within the health system. Membership includes representatives from the NSW Department of Health, NSW Ambulance Service, Australasian College for Emergency Medicine and emergency department clinicians.

Quality of Plans

The Audit Office reviewed plans from three Area Health Services covering fifteen emergency departments and found the quality and content of the plans varied greatly.[28] For example, one plan outlined procedures for the movement of patients through the system to relieve demand, rather than strategies that addressed the criteria in *Strategic Directions*. Another plan highlighted issues affecting bed management (such as an increase in primary care patients and a reduction in the number of inpatient beds) but did not include strategies to address these issues.

Metropolitan Area Health Services were also requested to submit winter strategies as a separate component of the plan. The implementation of these strategies will be monitored closely by the IBMC to determine their effectiveness in dealing with winter demand.

Monitoring Implementation

Although some Area Health Services report that performance is already improving, it is too early to assess the impact of integrated bed management plans on addressing access block.

While the development of plans is monitored through Area Health Service performance agreements and winter strategies are monitored by the IBMC, the Department has not defined its strategy for monitoring the implementation of plans to determine their success, or otherwise, in achieving improvements in emergency department performance. This is a concern given that the development and implementation of these plans is considered a key factor in the solution to access block.

Recommendation

The Department:

- **continue to assess Area bed management plans against the criteria outlined in the Department's *Emergency Department Strategic Directions* document**
- **establish a mechanism to monitor the implementation of the plans to determine their success or otherwise.**

[28] Central Sydney, Illawarra and Mid Western Health Services have a combined total of 15 designated (level 2 and above) hospital emergency departments.

4.5 Emergency Department Capacity

Ambulance Diversion

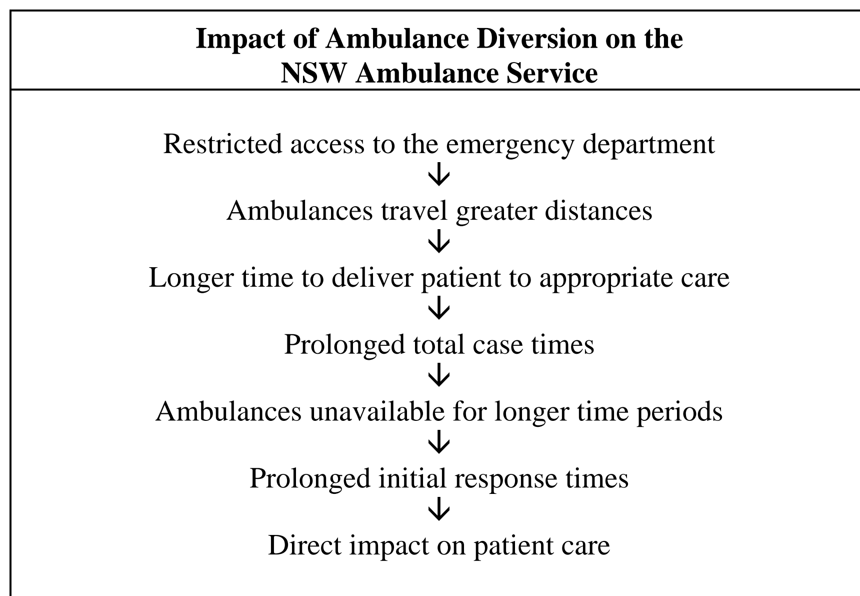
Available capacity is still a problem in many emergency departments. Some hospitals respond to a lack of capacity by using ambulance diversion as a means to reduce pressures on the emergency department.

Ambulance diversion is used by public and private metropolitan hospitals where ambulances can be diverted to another nearby emergency department. During periods of ambulance diversion, hospitals close their emergency departments to ambulances except those carrying patients with life threatening conditions.

Ambulance diversion is not an option for rural hospitals because of the greater distances between emergency departments. When these emergency departments reach or exceed peak occupancy, they expand the capacity of the emergency department or transfer patients to other facilities following initial treatment.

Impact on Ambulance Services

One of the major impacts of ambulance diversion is on the delivery of ambulance services in metropolitan areas.



Source: Report on the Impact of Restricted Access to Hospital Emergency Departments on the NSW Ambulance Service, NSW Ambulance Service, 1996 p8.

Ambulance officers are also given an extra burden in the pre-hospital triage process to decide which cases are life threatening or not.

Department Policy

In 1994 the Department issued a policy to Area Health Services restricting the use of ambulance diversion to exceptional circumstances only. Even so, the use of ambulance diversion by metropolitan hospitals increased very significantly in 1995-96, although decreased slightly in 1996-97.[29]

The Effectiveness of Diversion

The effectiveness of ambulance diversion as a demand control strategy is limited because it does not prevent ambulances from presenting to emergency departments. For example, in a one week period in July 1996, a major metropolitan hospital diverted ambulances for a total of 68 hours. During this time, only 6 cases (of a possible 57) were diverted from the emergency department.[30]

This is further supported by the findings of a study by the NSW Ambulance Service that:

- when more than one emergency department in an area is closed, patients are transported to the closest hospital regardless, and
- the longer hospitals are on ambulance diversion, the more likely ambulance officers will transport patients there.

The use of Diversion

The following graph shows changes in the use of ambulance diversion by Sydney metropolitan hospitals since 1994.

The use of ambulance diversion has reduced significantly in South Eastern Sydney Area Health Service whose total hours of ambulance diversion reduced by 43% from 1995-96 to 1996-97.[31] However in other Area Health Services the use of ambulance diversion has increased. Within the same period, Northern Sydney Area Health Service total hours increased by 128%, and in Western Sydney Area Health Service by 120%.[32]

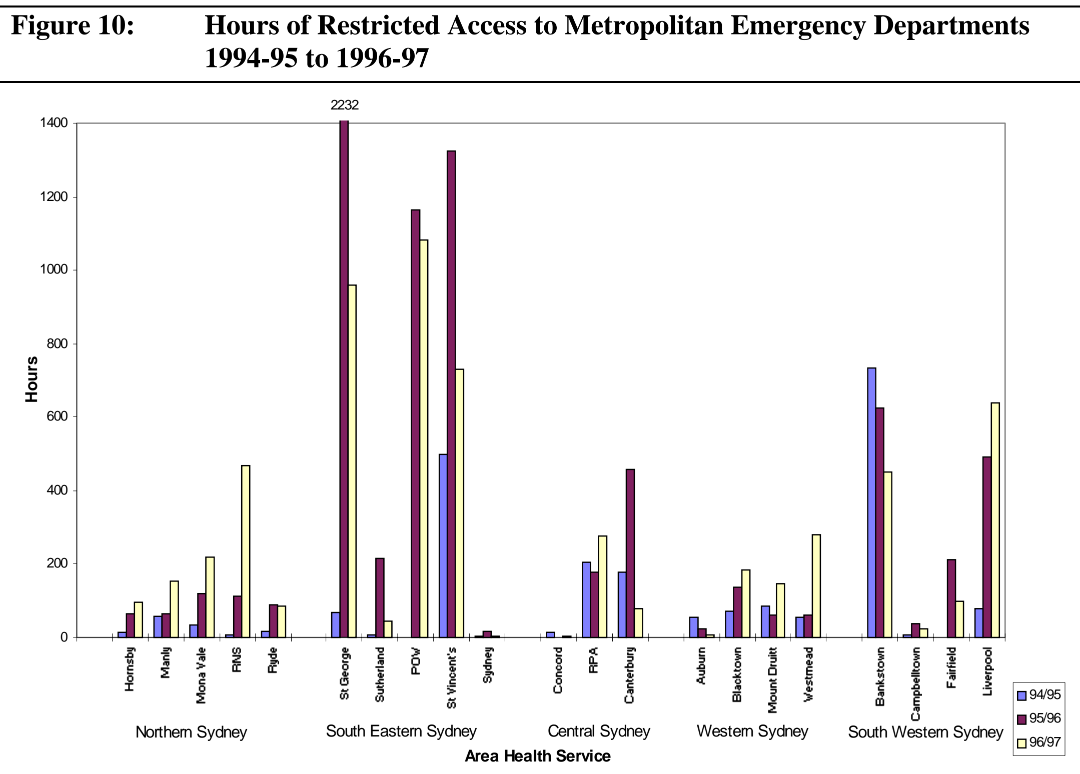
[29] From 1994 to 1995-96 the use of ambulance diversion by metropolitan hospitals increased by 238%. In 1996-97 diversion decreased by 19.2%.

[30] Report on the Impact of Restricted Access to Hospital Emergency Departments on the Ambulance Service of NSW, NSW Ambulance Service, December 1996, p4

[31] Hospitals in South Eastern Sydney Area Health Service include St George, Sutherland, Prince of Wales, Sydney Children's, St Vincent's and Sydney.

[32] Hospitals in Northern Sydney include Hornsby, Manly, Mona Vale, Royal North Shore and Ryde. Hospital in Western Sydney include Auburn, Blacktown, Mt Druitt and Westmead.

Figure 10: Hours of Restricted Access to Metropolitan Emergency Departments 1994-95 to 1996-97



Source: NSW Ambulance Service

Note: Graph excludes Wentworth Area Health Service whose hospital emergency departments had less than 200 hours pa ambulance diversion in total. St George Hospital's total hours ambulance diversion for 1995-96 was 2232.

Overall Performance

Although total hours of ambulance diversion has declined since 1995, ambulance diversion is still used by some metropolitan hospitals. There have been further increases in 1997-98 in the use of ambulance diversion by hospitals in Northern Sydney and Western Sydney Area Health Services.[33]

The Ambulance Accord

The NSW Ambulance Service in June 1997 entered into an Accord with 6 metropolitan Area Health Services to help minimise and better coordinate (if not cease) the use of ambulance diversion.[34] The Accord acknowledged that in exceptional circumstances it may be necessary for an emergency department to restrict access to an ambulance. Strategies to limit the use of ambulance diversion included:

- establishing a network of hospitals within which only one hospital can divert ambulances from its emergency department at any time
- introducing a time limit on ambulance diversion of 2 hours.

[33] Finance and Performance Management Committee Report, NSW Health, May 1998, Section 3 B11
[34] Accord includes Central Sydney, Northern Sydney, South Eastern Sydney, South Western Sydney, Wentworth and Western Sydney Area Health Services.

Emergency Department Capacity

The use of ambulance diversion by hospitals is monitored by Area Health Services and the Department on a monthly basis through the Accord.

Although it is relevant to monitor the use of ambulance diversion, it is an inappropriate and unreliable indicator of emergency department capacity and overcrowding. This is because there are no criteria that define when ambulance diversion should be used by hospitals, nor is it applied consistently across Area Health Services. For example, emergency departments of hospitals that frequently use ambulance diversion may not necessarily be as crowded as other emergency departments that resist using this strategy.

Ambulance Delay

An emerging issue in demand control is the practice of keeping patients on ambulance trolleys while waiting for a bed in the emergency department. When the emergency department is overcrowded, delays in patient hand over can have the same impact on response times as ambulance diversion.

The development of a system to monitor the time taken to unload patients would assist in determining the extent of this problem.

Recommendation

The Department and Area Health Services, in conjunction with the NSW Ambulance Service:

- **continue to monitor the use of ambulance diversion and develop strategies to reduce its use by hospitals**
- **monitor patient handover times in public hospital emergency departments and investigate the causes of delays.**

The Department and Area Health Services consider developing an appropriate indicator of emergency department capacity.

Primary Care

Emergency departments and General Practitioners (GPs) provide primary care with overlap between services occurring when patients attend the local emergency department for treatment that could be provided by GPs in their rooms. Such patients add to emergency department workloads and transfer costs to the State that would otherwise be borne by the Commonwealth.

The majority of patients presenting to an emergency department do not require urgent treatment (approximately 70% of presentations are semi urgent triage 4 or non urgent triage 5). However, these patients are not necessarily GP type patients and may require treatment in a hospital setting. This is supported by a recent national study which indicated that the rate for admission to hospital for patients assessed as triage 4 was around 20% and triage 5 was 10%.[35]

There is reportedly a long history of conflict between hospital professionals regarding the use of emergency departments for more general primary care. Some consider this type of use as "inappropriate" whereas others suggest that GP type patients amount to only a minor part of the workload (and who are treated during down time).

In NSW, the practice is perceived as worse in rural areas because of limited access to alternate services. For example, in some rural areas there is limited access to GP services after hours or on weekends. People seeking medical care during these times may have no alternative but to visit the hospital emergency department, which provides 24 hour care, rather than their local GP.

The Department encourages Area Health Services to improve the management of primary care patients through the inclusion of strategies in bed management plans.[36] Many emergency departments display information on local GP services prominently in the emergency department or provide details of local GP services following treatment.

The overall impact of primary care patients on emergency department services is unknown. Data on the number of patients with these conditions presenting to emergency departments in NSW is difficult to isolate and analyse. Without this information it is not possible to determine if approaches used by Area Health Services to redirect GP type patients to the community have been successful or whether they should be redirected at all.

Recommendation

The Department and Area Health Services consider conducting a study to determine what impact (if any) patients with GP type conditions presenting to emergency departments have on the delivery of emergency department services.

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[35] Emergency Medicine March 1998 Vol 10 No 1; 71

[36] Emergency Department Strategic Directions, NSW Department of Health 1997 p 13, 14

Appendices

Appendix 1 Glossary

Access Block	The period of time the patient stays in the emergency department after the emergency department staff have completed their assessment and treatment and prior to moving the patient to an appropriate bed in a hospital ward.
Ambulance Delay	The practice of keeping patients on ambulance trolleys while waiting for a bed in the emergency department.
Ambulance Diversion	The practice of diverting an ambulance to another nearby hospital emergency department during periods of overcrowding.
Booked Surgery	Surgery which, although deemed necessary by the treating clinician, can be delayed, in the clinicians opinion, for at least 24 hours.
DOHRS	The Department of Health Reporting System (DOHRS) is a computerised hospital information system for the collection of hospital budget and activity data.
EDIS	The Emergency Department Information System (EDIS) is a computerised information system that records data on emergency department activity including volume of presentations, waiting times for each triage category and access block.
Emergency Department Admission	Patients presenting to the emergency department who are admitted through the emergency department to an inpatient bed in a hospital.
Inpatient	A patient admitted to hospital for day only procedures or acute care involving overnight and multiple day stay.
Interhospital Transfer	The transfer of patients by ambulance between acute hospitals.
Peer Group	A hospital classification system based on the volume and type of services provided.
Presentation	A single visit by a patient to the emergency department of a hospital.
Primary Care	A patient that could have been competently managed by a General Practitioner in well equipped rooms had the patient presented to that setting.

Retrieval Services (Medical Retrieval)	The transfer of patients by ambulance to hospitals that provide critical care services that may not be available at a local level.
Role Delineation	The level of services provided by emergency departments in relation to medical and nursing staff arrangements and access to hospital inpatient services.
Trauma	Physical injury to the body. Includes injuries from road traffic accidents, falls, assaults and burns. Excludes poisoning, drowning and foreign body ingestion.
Trauma Network	A network of hospitals within a region that provide different levels of trauma services. An ambulance carrying a critically-ill patient may bypass a local hospital and transport the patient to a hospital that provides a higher level of service.
Triage	The process of sorting patients according to the urgency of assessment and treatment.
Waiting Time	The time taken for a patient triaged in an emergency department to be seen by a doctor.

Appendix 2 Emergency Departments in NSW (Level 2-6)

Area Health Service	Hospital	Level
Metropolitan		
Central Sydney	RPAH	6
	Concord	6
	Canterbury	5
Northern Sydney	Royal North Shore	6
	Hornsby-Kuring-gai	4
	Manly	4
	Mona Vale	4
	Ryde	4
Western Sydney	Westmead	6
	Auburn	5
	Blacktown	4
	Mt Druitt	4
Wentworth	Nepean	5
	Blue Mountains	4
	Hawkesbury	4
South Western Sydney	Liverpool	5
	Bankstown/Lidcombe	4
	Fairfield	4
	Campbelltown	4
	Camden	3
	Bowral	3
Central Coast	Gosford	5
	Wyong	3
Hunter	John Hunter	6
	Newcastle Mater	5
	Cessnock	3
	Kurri Kurri	3
	Maitland	3
	Muswellbrook	3
	Belmont	3
	Dungog	2
	Merriwa	2
	Denham	2
	Scott Memorial	2
	Nelson Bay	2
Illawarra	IRH	5
	Shoalhaven	4
	Bulli	3
	Shellharbour	3
	Milton-Ulladulla	2
South Eastern Sydney	St Vincent's	6
	POW	6
	Sydney Children's	6
	St George	6
	Sutherland	5
	Sydney/Sydney Eye	4
Royal Alexandra Hospital for Children		6
Rural		
Northern Rivers	Lismore	5
	Tweed Heads	4
	Byron/Brunswick	3
	Casino	3
	Grafton	3
	Kyogle	3
	Murwillumbah	3
	Ballina	2
	Campbell (Coraki)	2
	Maclean	2
Mid North Coast	Coffs Harbour	4
	Hastings	4
	Macleay Valley	4
	Manning/Great Lakes	4
	Macksville	3
	Bellingen	2
	Wauchope	2
	Gloucester	2
	Bulahdelah/Myall Lake	2
New England	Armidale	4
	Tamworth	4
	Gunnedah	3
	Moree	3
	Narrabri	3
	Quirindi	3
	Barraba	2
	Boggabri	2
	Glen-Innes	2
	Guyra	2
	Inverell	2
	Manilla	2
	Tenterfield	2
	Walcha	2
	Warialda	2
	Wee Waa	2

Area Health Service	Hospital	Level
Rural cont.		
Macquarie	Coonabarabran	3
	Dubbo	3
	Mudgee	3
	Wellington	3
	Cobar	2
	Coolah	2
	Coonamble	2
	Gulargambone	2
	Dunedoo	2
	Gilgandra	2
	Gulgong	2
	Narromine	2
	Nyngan	2
Mid Western	Bathurst	4
	Orange	4
	Lithgow	3
	Condobolin	2
	Cowra	2
	Forbes	2
	Parkes	2
Far West	Bourke	3
	Broken Hill	3
	Brewarrina	2
	Collarenebri	2
	Goodooga	2
	Walgett	2
	Balranald	2
Greater Murray	Wagga	5
	Albury	4
	Griffith	4
	Deniliquin	3
	Leeton	3
	Temora	3
	Tumut	3
	West Wyalong	2
	Barham	2
	Berrigan	2
	Corowa	2
	Finley	2
	Henty	2
	Holbrook	2
	Jerrilderee	2
	Tocumwal	2
	Batlow	2
	Hay	2
	Hillston	2
	Narrandera	2
	Cootamundra	2
Southern	Bega	3
	Cooma	3
	Goulburn	3
	Queanbeyan	3
	Young	3
	Batemans Bay	2
	Bombala	2
	Boorowa	2
	Crookwell	2
	Moruya	2
	Murrumburra/Harden	2
	Pambula	2
	Yass	2

Source: NSW Department of Health, emergency department database

Appendix 3 Benchmarks for Waiting Times and Access Block

Triage Scale	Seen by Doctor	Department of Health Benchmarks				ACEM Benchmarks
		1994-95 %	1995-96 %	1996-97 %	1997-98 %	%
1 Resuscitation	2 mins	60	60	95	98	98
2 Emergency	10 mins	55	55	70	83	95
3 Urgent	30 mins	55	55	65	72	90
4 Semi urgent	1 hour	50	50	70	75	90
5 Non urgent	2 hours	50	50	85	85	85
Admission Access block	8 hours	75	75	90	92	N/A

Source: Amended from the Australasian College for Emergency Medicine (ACEM) Policy Document on Triage and NSW Department of Health documents.

Appendix 4 Guide to the Role Delineation of Health Services

Emergency Departments in Public Hospitals
Department of Health 1991

Level	Description of Role
0	No service
1	No planned emergency service.
2	Emergency service in small hospital. Designated assessment and treatment area. Visiting medical officer on call.
3	As Level 2 plus designated nursing staff available 24 hr. Has 24 hr access to medical officer(s) on site or available within 10 minutes. Specialists in general surgery, anaesthetics, paediatrics and medicine available for consultation. Full resuscitation facilities in separate area.
4	As Level 3 plus can manage most emergencies. Purpose designed area. Fulltime director. Experienced medical officer(s) and nursing staff on site 24 hours. Specialists in general surgery, paediatrics, orthopaedics, anaesthetics and medicine on call 24 hours.
5	As Level 4 plus can manage all emergencies and provide definitive care for most. Has undergraduate teaching and undertake research. Has designated registrar. May have neurosurgery service.
6	As Level 5 plus has neurosurgery and cardiothoracic surgery on site. Subspecialists available on rosters. Has registrar on site 24 hours.

Appendix 5 Hospitals visited during Fieldwork

Area Health Service	Hospital Emergency Department
Central Sydney	Royal Prince Alfred Canterbury Concord Repatriation
Illawarra	Illawarra Regional Shoalhaven District Memorial
Mid Western	Bathurst Base Orange Base Lithgow District

Additional public hospitals visits:

St George Hospital

Westmead Hospital

Liverpool Hospital

Private hospitals visited:

Sydney Adventist Hospital

The Hills Private Hospital

Performance Audit Reports

Agency or Issue Examined	Title of Performance Audit Report or Publication	Date Tabled in Parliament or Published
Department of Housing	*Public Housing Construction: Selected Management Matters*	5 December 1991
Police Service, Department of Corrective Services, Ambulance Service, Fire Brigades and Others	*Training and Development for the State's Disciplined Services: Stream 1 - Training Facilities*	24 September 1992
Public Servant Housing	*Rental and Management Aspects of Public Servant Housing*	28 September 1992
Police Service	*Air Travel Arrangements*	8 December 1992
Fraud Control	*Fraud Control Strategies*	15 June 1993
HomeFund Program	*The Special Audit of the HomeFund Program*	17 September 1993
State Rail Authority	*Countrylink: A Review of Costs, Fare Levels, Concession Fares and CSO Arrangements*	10 December 1993
Ambulance Service, Fire Brigades	*Training and Development for the State's Disciplined Services: Stream 2 - Skills Maintenance Training*	13 December 1993
Fraud Control	*Fraud Control: Developing an Effective Strategy (Better Practice Guide jointly published with the Office of Public Management, Premier's Department)*	30 March 1994
Aboriginal Land Council	*Statutory Investments and Business Enterprises*	31 August 1994
Aboriginal Land Claims	*Aboriginal Land Claims*	31 August 1994
Children's Services	*Preschool and Long Day Care*	10 October 1994
Roads and Traffic Authority	*Private Participation in the Provision of Public Infrastructure (Accounting Treatments; Sydney Harbour Tunnel; M4 Tollway; M5 Tollway)*	17 October 1994
Sydney Olympics 2000	*Review of Estimates*	18 November 1994
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Department of School Education	*Effective Utilisation of School Facilities*	29 September 1995
Luna Park	*Luna Park*	12 October 1995
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Performance Auditing In NSW	*Implementation of Recommendations; and Improving Follow-Up Mechanisms*	6 December 1995
Ethnic Affairs Commission	*Administration of Grants* *(including a Guide To Better Practice)*	7 December 1995
Department of Health	*Same Day Admissions*	12 December 1995
Environment Protection Authority	*Management and Regulation of Contaminated Sites:* *A Preliminary Report*	18 December 1995
State Rail Authority of NSW	*Internal Control*	14 May 1996
Building Services Corporation	*Inquiry into Outstanding Grievances*	9 August 1996
Newcastle Port Corporation	*Protected Disclosure*	19 September 1996
Ambulance Service of New South Wales	*Charging and Revenue Collection* *(including a Guide to Better Practice in Debtors Administration)*	26 September 1996
Department of Public Works and Services	*Sale of the State Office Block*	17 October 1996
State Rail Authority	*Tangara Contract Finalisation*	19 November 1996
NSW Fire Brigades	*Fire Prevention*	5 December 1996
State Rail	*Accountability and Internal Review Arrangements at State Rail*	19 December 1996
Corporate Credit Cards	*The Corporate Credit Card* *(including Guidelines for the Internal Control of the Corporate Credit Card)*	23 January 1997
NSW Health Department	*Medical Specialists: Rights of Private Practice Arrangements*	12 March 1997
NSW Agriculture	*Review of NSW Agriculture*	27 March 1997
Redundancy Arrangements	*Redundancy Arrangements*	17 April 1997

Agency or Issue Examined	Title of Performance Audit Report or Publication	Date Tabled in Parliament or Published
NSW Health Department	*Immunisation in New South Wales*	12 June 1997
Corporate Governance	*Corporate Governance* *Volume 1 : In Principle* *Volume 2 : In Practice*	17 June 1997
Department of Community Services and Ageing and Disability Department	*Large Residential Centres for People with a Disability in New South Wales*	26 June 1997
The Law Society Council of NSW, the Bar Council, the Legal Services Commissioner	*A Review of Activities Funded by the Statutory Interest Account*	30 June 1997
Roads and Traffic Authority	*Review of Eastern Distributor*	31 July 1997
Department of Public Works and Services	*1999-2000 Millennium Date Rollover: Preparedness of the NSW Public Sector*	8 December 1997
Sydney Showground, Moore Park Trust	*Lease to Fox Studios Australia*	8 December 1997
Department of Public Works and Services	*Government Office Accommodation*	11 December 1997
Department of Housing	*Redevelopment Proposal for East Fairfield (Villawood) Estate*	29 January 1998
NSW Police Service	*Police Response to Calls for Assistance*	10 March 1998
Fraud Control	*Status Report on the Implementation of Fraud Control Strategies*	25 March 1998
Corporate Governance	*On Board: guide to better practice for public sector governing and advisory boards (jointly published with Premier's Department)*	7 April 1998
Casino Surveillance	*Casino Surveillance as undertaken by the Director of Casino Surveillance and the Casino Control Authority*	10 June 1998
Office of State Revenue	*The Levying and Collection of Land Tax*	5 August 1998
NSW Public Sector	*Management of Sickness Absence NSW Public Sector* *Volume 1: Executive Briefing* *Volume 2: The Survey - Detailed Findings*	27 August 1998
NSW Police Service	*Police Response to Fraud*	14 October 1998
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