



A REGIONAL TRAUMA SYSTEM IN SYDNEY: THE FIRST THREE MONTHS

On March 29, 1992 a component of the State's new Trauma Services Plan was activated in Sydney Health Areas. This report reviews the first three months of operation and shows the plan is performing well.

In Sydney trauma services have been reorganised to ensure seriously injured patients are transported with the minimum of delay to hospitals that provide the necessary definitive treatment. Experience overseas shows that the early delivery of seriously injured patients to a specialist hospital improves the chances of survival¹.

Thus within each Health Area a regional network of acute care hospital facilities has been established to deal with all types of trauma. Area Trauma Hospitals (ATHs) form the central hub of these networks, taking on a coordinating role as well as providing specialist care for seriously injured patients. New practices have been put in place at ATHs so trauma patients receive high-quality management. For example, a hospital-based trauma team is called to resuscitate and assess all potentially seriously injured patients on their arrival at the Emergency Room, and to organise early definitive treatment.

To ensure the right patient is taken to the right hospital and in particular that seriously injured trauma cases are taken directly to an ATH, ambulance officers use a set of assessment guidelines (trauma triage guidelines), to sort trauma patients according to the presence or risk of serious injury. Patients with minor injuries and those who are dying are transported to the hospital which is nearest in road time, whereas all patients with definite signs of serious injury are taken to the nearest ATH, even if this means bypassing a closer hospital. Ambulance officers use their judgment to determine the destination of remaining patients who are at high risk of serious injury, with the assistance of criteria specified by the guidelines.

This paper reports on the performance of the plan during its first three months and reviews:

- the number of patients bypassing local hospitals;
- transport times for trauma patients selected to bypass local hospitals; and
- the effect of the new transport arrangements on the Ambulance Service.

The NSW Ambulance Service supplied data for the review. Information on patients triaged as serious (i.e. those with definite signs of serious injury, or who were at high risk of serious injury) or dying were taken from a special database set up to monitor closely the early stages of implementation. Details of overall ambulance numbers and transport times have been extracted from the NSW Ambulance Dataset.

FINDINGS

Bypass transports

In Sydney 317 trauma patients bypassed local hospitals during the first three months. The weekly average of 23.6 patients is comparable to predictions from the pilot study² of around 25 cases a week.

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Most of the trauma bypass patients (80 per cent) were aged 13 years and older. Western Sydney, Northern Sydney and South West Sydney had the largest number of bypass cases, each with an average of 4-5 cases a week (Table 1).

Trauma bypass cases accounted for 3.2 per cent of the total primary trauma transports (9,793 cases) handled by the Ambulance Service and represent a decrease of 1 in 20 primary trauma transports to local hospitals (Table 2).

TABLE 1

NUMBER OF CASES BYPASSING LOCAL HOSPITALS IN THE METROPOLITAN HEALTH AREAS, APRIL-JUNE 1992

Health Area	Month			Total Number	%
	April*	May	June		
Central Sydney	10	8	23	41	12.9
Eastern Sydney	2	4	3	9	2.8
Northern Sydney	25	20	20	65	20.5
Southern Sydney	11	9	11	31	9.8
South Western Sydney	25	16	18	59	18.6
Wentworth	11	18	16	45	14.2
Western Sydney	26	18	23	67	21.1
TOTAL	110	93	114	317	100.0

* Trauma bypasses covering the period March 29-April 30, 1992.

TABLE 2

NUMBER OF EMERGENCY AMBULANCE TRANSPORTS FOR TRAUMA IN SYDNEY, APRIL-JUNE 1992

Transport Destination	Month			Total Number	%
	April*	May	June		
To local hospital	1,655	1,971	1,861	5,487	56.1
To Area Trauma Hospital (ATH)	1,459	1,221	1,121	3,801	38.8
Serious case Bypass to ATH	110	93	114	317	3.2
Serious case ATH nearest hospital	50	77	61	188	1.9
TOTAL	3,274	3,362	3,157	9,793	100.0

* Trauma transports covering the period 29 March-30 April 1992.

Transport times for bypass transports

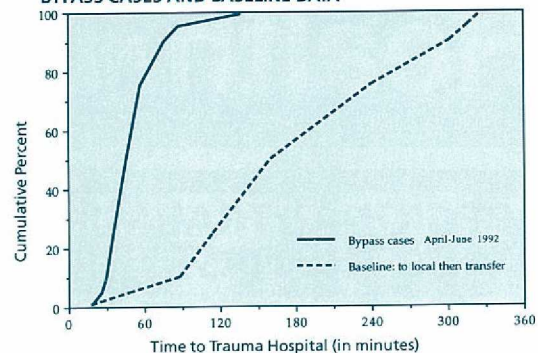
Four-fifths (81.6 per cent) of the trauma bypass patients arrived at an ATH within 60 minutes of an ambulance being called to assist. We compared the transport times for these cases with transport times for major trauma patients who, under the previous system, were taken to a local hospital then transferred on to an ATH (Figure 1). The latter times were derived from a review of ambulance trauma work in western Sydney conducted during 1988 and show that only 6 per cent of these cases made it to an ATH within the hour³. This comparison illustrates that the plan has brought about a sizeable reduction in time taken to deliver potentially seriously injured patients to the right hospital.

Impact on the ambulance service

Ambulance response and transport times did not deteriorate following introduction of the new transport arrangements. Nearly three-quarters (71.6 per cent) of ambulances dispatched to an accident site took less than 10 minutes to reach the patient (1991 figure, 74.4 per cent), and almost all (95.9 per cent) of these patients were delivered to hospital within one hour of the call for assistance (1991 figure, 96.3 per cent).

FIGURE 1

TIME TO TRAUMA HOSPITAL — BYPASS CASES AND BASELINE DATA



DISCUSSION

The metropolitan component of State Trauma Plan is performing well and no major untoward effects have occurred within the Ambulance Service.

The number of trauma patients selected to bypass local hospitals is an important indicator of the effects and operation of the plan in the Sydney area, as the patients represent a change in workload for the Ambulance Service and ATHs. The number of bypass cases going to ATHs is a small proportion (3.2 per cent) of all trauma cases and thus the redistribution of trauma cases between local hospitals and ATHs has been small. In addition, the fact that most bypass cases (81 per cent) were delivered to an ATH within one hour of injury should offer these patients the best chance of survival⁴.

Evaluation of the plan continues, including a review of trauma bypass cases and interhospital transfers, and a review of injury-related deaths in Sydney for 1991-1992.

The review of bypass cases will be used to determine whether the triage guidelines result in the right patients going to the right hospital. Many patients with major trauma take time to develop definite signs of serious injury, so not all trauma bypass cases will, on review, have major trauma and some major trauma cases will be missed. While the guidelines should minimise these effects, some changes may be required to improve their accuracy.

The injury-related death review is a joint project of the Injury Research Unit at Westmead Hospital and the Epidemiology and Health Services Evaluation Branch and aims to determine whether the plan resulted in better outcomes (survival) for seriously injured patients. These two investigations will report in mid-1993.

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