
Chapter 1 Overview of Admissions to SWSAHS

This section contains

Explanation of Categories and Inclusions	16
South Western Sydney Area Health Service	
Number of Trauma Admissions	17
Age Distribution for All Injury Admissions to SWSAHS	18
Mechanism of Injury Each Year for Trauma Admissions to SWSAHS	19
Weekday and Time of Arrival - Liverpool	20
Weekday and Time of Arrival - Bankstown	21
Weekday and Time Arrival - Campbelltown	22
Weekday and Time of Arrival - Fairfield	23
Weekday and time of Arrival - Bowral	24
Weekday and Time of Arrival - Camden	25
Disposal of Patients from Emergency Department – Major Category Injuries	26
Disposal of Patients from Emergency Department – Minor Category Injuries	27
Length of Stay in Hospital: Major Category Injuries	28

EXECUTIVE SUMMARY AND RECOMMENDATIONS

Trauma is a major source of hospital admissions in South Western Sydney with 23,637 admissions in a 5 year period:

- The number of admissions has increased slightly from 1995 to 1997 and has been static since.
- Trauma admissions occur in all hospitals, not just the major trauma service, the 4 urban hospitals and also the rural hospital.
- Trauma has a bimodal distribution, affecting in particular young males and elderly females.
- The mechanism of injury is predominantly related to falls and road trauma. Trends indicate a reduction in the number of falls and a marked increase in recreational associated injury.
- The time of presentation for patients in the major injury category is different for different hospitals, with a predominant presentation between 4.00pm and 12.00 midnight at Liverpool compared to an 8.00 am to 4.00 pm presentation at Bankstown.
- The disposition of patients from the Emergency Department is obviously different in different hospitals, with 24% of major traumas being transferred directly to the operating theatre at Liverpool Hospital.
- There has been a trend to a longer length of stay in all hospitals for trauma patients in 1999 compared to the preceeding year.

Explanation of Categories and Inclusions

The registry includes all patients admitted into each hospital via the Emergency Departments with injuries from some physical trauma. The registry does not include patients who are discharged from Emergency Departments following treatment. The registry consists of two distinct categories, "Minor " and "Major" Injury Categories. Where possible the total number of patients (in whichever category they have been recorded) is presented. However the more detailed information such as pre-hospital care, time of admissions, investigations and management, performance indicators and complications is only available for patients in Major injury category.

Minor Injury Category Inclusions

Patients placed in the Minor injury category include those patients with an isolated injury to one body region. Specifically:

- upper limb at or below level of neck of humerus,
- lower limb at or below the level of the ankle,
- isolated fracture of fibula, patella,
- neck of femur,
- soft tissue injury,
- minor burns (< 20% body surface area (BSA) in adults, or < 10% BSA in children).
- mandibular fractures.

Information collected on patients with Minor Category Injury consists of name, age, sex, mechanism of injury, place of injury, whether or not the trauma team was utilised, diagnosis, disposal from Emergency Department, specialty, and admission and discharge dates.

Major Injury Category Inclusions

Patients placed in the Major Injury Category have injuries to more than one body region or may have single region injuries not included in the Minor Injury categories. Injury Severity Score does not determine inclusion in this category as the distinction is more descriptive of the breadth of information captured on these patients.

Data on Major category injuries are much more comprehensive with the collection of 156 data items compared to 16 data items. Pre-hospital data include date and postcode of injury, ambulance times, transport decision, level of officer attending, baseline vital signs and airway, fluid and cardio-pulmonary interventions. Referring hospital data include date and time of arrival, baseline vital signs, administration of fluid, management of airway and cardio-pulmonary intervention. Emergency department data include date and time of arrival, mode of transport, vital signs, interventions, investigations and disposal. The dates and times of subsequent operation and number of days in intensive care unit are recorded. Obtaining the discharge date and outcome from the second hospital follows up those patients with Major injuries who are transferred to another hospital.

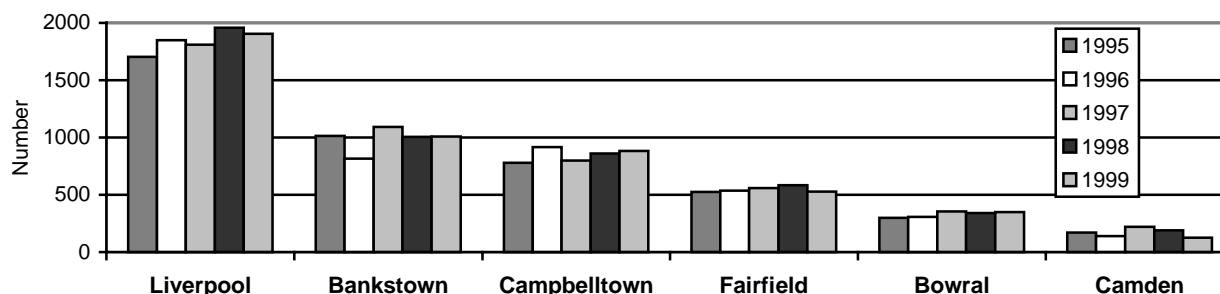
Number of Trauma Admissions

During the five-year period from January 1995 to December 1999 there were a total of 23,637 admissions to the six hospitals that comprise South Western Sydney Area Health Service (SWSAHS). The table and graph below show the number of patients admitted to each hospital each year. Liverpool Hospital as the Major Trauma Service (MTS) for SWSAHS, receives the largest number of admissions.

Number of Trauma Admissions Per Year to Each Hospital

Hospital	1995	1996	1997	1998	1999	Total
Liverpool	1703	1848	1809	1959	1906	9225
Bankstown	1015	817	1093	1005	1009	4939
Campbelltown	779	916	798	860	884	4237
Fairfield	526	537	558	584	528	2733
Bowral	300	306	356	342	352	1656
Camden	170	139	220	191	127	847
Total	4493	4563	4834	4941	4806	23637

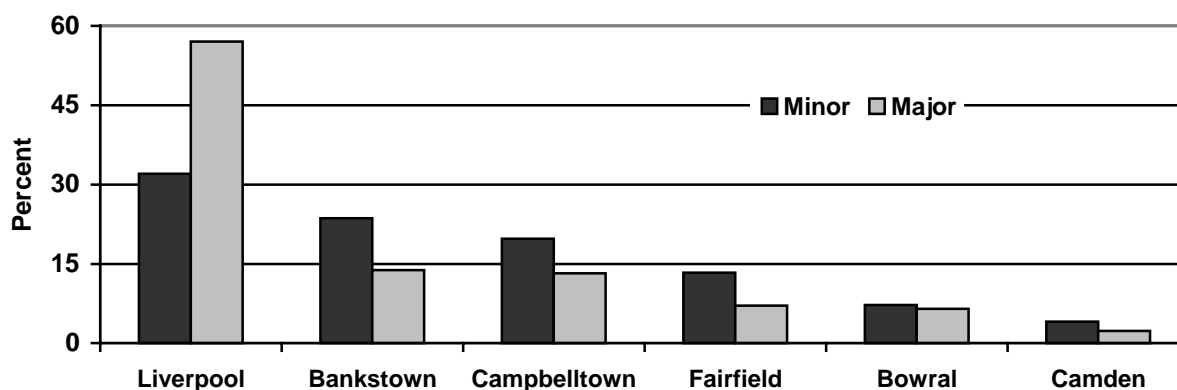
Number of Trauma Admissions Per Year to Each Hospital



Number of Trauma Admissions by Injury Category to Each Hospital

Hospital	Major	Minor	Total	%
Liverpool	3794	5431	9225	39.0
Bankstown	920	4019	4939	20.9
Campbelltown	879	3358	4237	17.9
Fairfield	472	2261	2733	11.6
Bowral	434	1222	1656	7.0
Camden	155	692	847	3.6
Total	6654	16983	23637	100

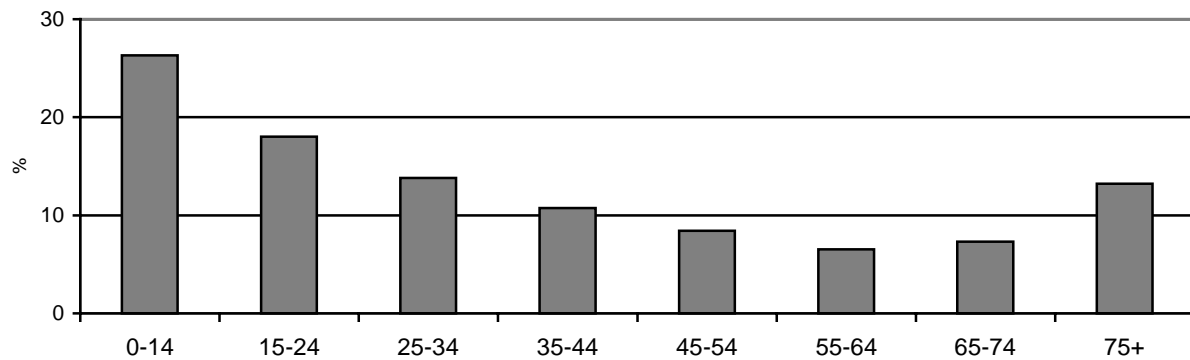
Major and Minor Category Admissions to Each Hospital



Age Distribution for All Injury Admissions to SWSAHS

Age	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
0 to 14	1190	26.5	1192	26.1	1231	25.5	1172	24	1172	24.4	5957	26.3
15 to 24	857	19.1	825	18.1	807	16.7	854	17	739	15.4	4082	18
25 to 34	606	13.5	605	13.3	662	13.7	648	13	609	12.7	3130	13.8
35 to 44	414	9.21	506	11.1	487	10.1	538	11	484	10.1	2429	10.7
45 to 54	329	7.32	344	7.54	395	8.17	399	8.1	435	9.05	1902	8.4
55 to 64	248	5.52	279	6.11	320	6.62	318	6.4	316	6.58	1481	6.54
65 to 74	304	6.77	302	6.62	328	6.79	355	7.2	363	7.55	1652	7.3
75+	544	12.1	510	11.2	604	12.5	657	13	684	14.2	2999	13.2
Total	4493		4563		4834		4941		4806		22637	

Age Distribution of All Injury Admissions



Mechanism of Injury Each Year for Trauma Admissions to SWSAHS

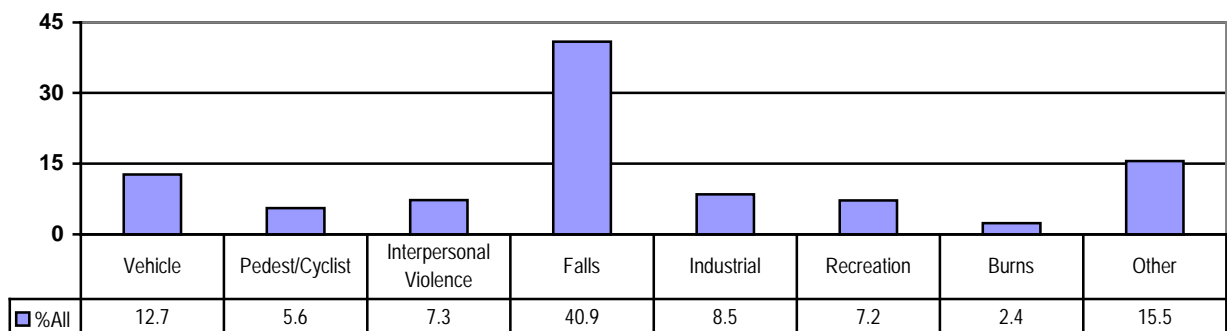
SWSAHS	1995	1996	1997	1998	1999	Total	% total
MVA driver	260	256	327	290	295	1428	6.1
MVA front passenger	101	110	91	126	95	523	2.2
MVA back passenger	68	54	38	47	63	270	1.1
MBA rider	142	119	150	157	172	741	3.1
MBA pillion	5	9	11	7	1	33	0.1
Pedestrian	156	132	127	131	133	679	2.8
Pedal cyclist	60	121	151	150	153	635	2.7
Personal assault	223	275	254	245	235	1232	5.2
Stabbing	52	62	92	99	81	386	1.6
Gunshot	16	19	21	20	20	96	0.4
Industrial	474	438	411	385	309	2017	8.5
Fall < 5 metres	1930	1785	2000	1953	1815	9483	40.2
Fall >= 5 metres	31	33	41	36	39	180	0.7
Recreation	234	156	238	493	567	1688	7.2
Burns	94	116	116	126	107	559	2.4
Other	523	805	687	585	608	3208	13.6
Not documented	90	28	43	52	46	259	1.1
Dog bite	33	45	36	39	34	187	0.8
Total	4493	4563	4834	4941	4806	23637	100

The mechanism of injury for all admissions to each of the hospitals is represented here. Some patients may be represented twice if they were transferred from one hospital to another within SWSAHS.

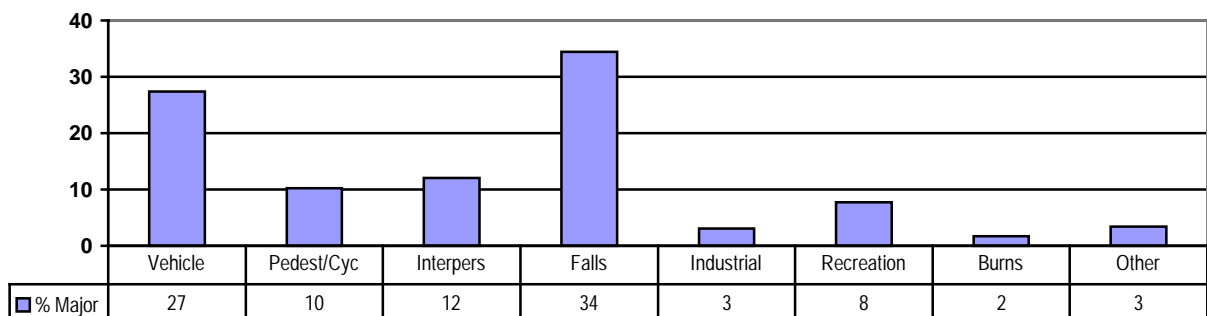
Mechanism of Injury (Grouped) Annually for Trauma Admissions to SWSAHS

SWSAHS	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Road vehicle	576	12.8	548	12	617	12.7	627	12.7	626	13.1	2995	12.7
Pedestrian/Cyclists	216	4.8	253	5.5	278	5.7	281	5.7	286	5.9	1314	5.6
Interpersonal Violence	291	6.5	356	7.8	367	7.6	364	7.4	336	7	1714	7.3
Falls	1961	43.7	1818	39.8	2041	42.2	1989	40.3	1854	38.8	9663	40.9
Industrial	474	10.6	438	9.6	411	8.5	385	7.8	309	6.5	2017	8.5
Recreation	234	5.2	156	3.4	238	4.9	493	10	567	11.9	1688	7.2
Burns	94	2.1	116	2.5	116	2.4	126	2.6	107	2.2	559	2.4
Other	646	14.4	878	19.2	766	15.8	676	13.7	688	14.4	3654	15.5
Total	4493		4563		4834		4941		4806		23637	

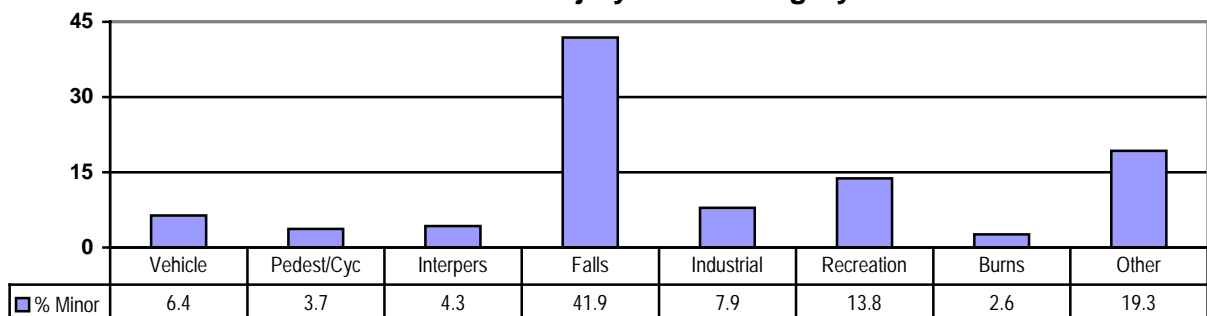
Mechanism of Injury for All Injury Admissions to SWSAHS



Mechanism of Injury Major Category



Mechanism of Injury Minor Category

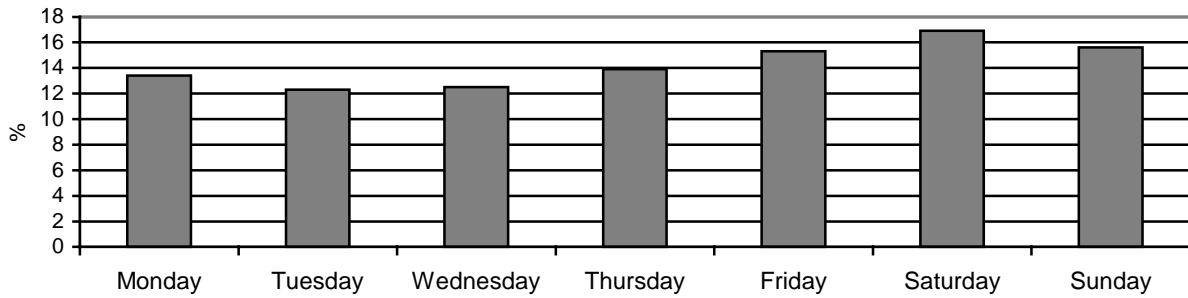


Weekday and Time of Arrival Liverpool Hospital

Distribution of Trauma Admissions by Weekday

Of the 9,225 trauma admissions arriving at Liverpool Hospital over the 5-year period the proportion of admissions increases during the weekend.

Liverpool Hospital Day of Week

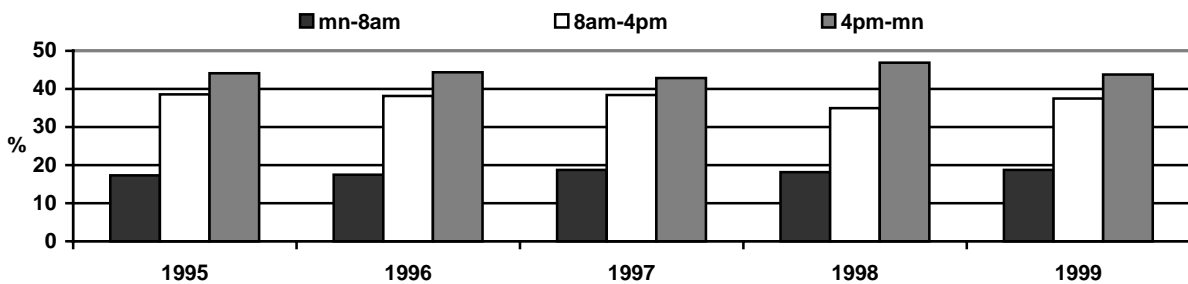


Time of Presentation for All Major Category Admissions to Liverpool Hospital

Time of Day	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
mn-8am	115	17.3	129	17.5	138	18.7	149	18.1	156	18.7	687	18.1
8am-4pm	256	38.6	282	38.2	283	38.4	287	35	312	37.5	1420	37.4
4pm-mn	293	44.1	328	44.4	316	42.9	385	46.9	365	43.8	1687	44.5
Total	664	100	739	100	737	100	821	100	833	100	3794	100

The time of admission is captured in the trauma registry for major category injuries.

Time of Presentation Major Category Admissions



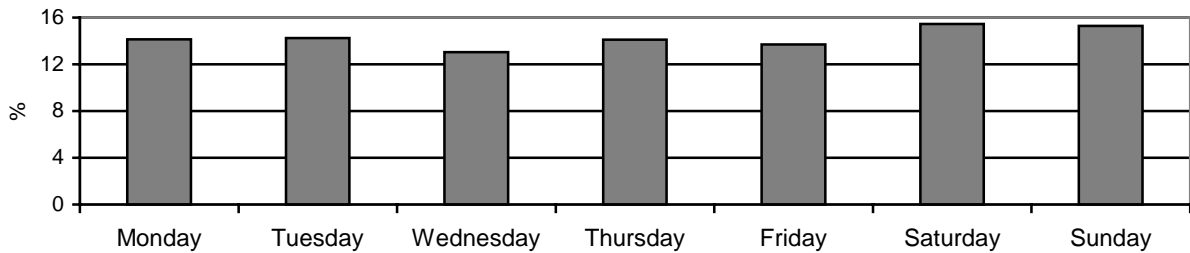
Bankstown Hospital

Weekday and Time of Arrival

Distribution of Trauma Admissions by Weekday

Presentation of the 4,939 trauma admissions (both Major and Minor category injuries) arriving at Bankstown Hospital over the 5-year period are fairly evenly distributed throughout the week.

Bankstown Hospital Day of Week

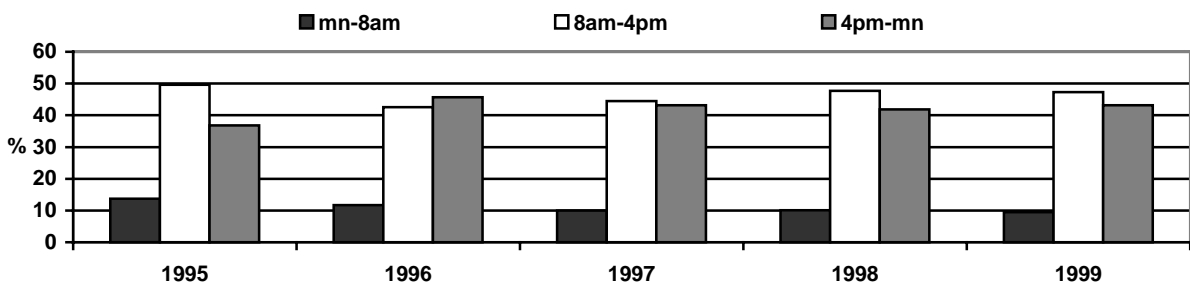


Time of Presentation for All Major Category Admissions to Bankstown Hospital

Time of Day	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
mn-8am	16	13.7	11	11.7	23	10	24	10.1	23	9.5	97	10.5
8am-4pm	58	49.6	40	42.6	102	44.5	113	47.7	115	47.3	428	46.5
4pm-mn	43	36.8	43	45.7	99	43.2	99	41.8	105	43.2	389	42.3
Total	117	100	94	100	229	100	237	100	243	100	920	100

The time of admission is captured in the trauma registry for major category injuries.

Time of Presentation Bankstown Hospital



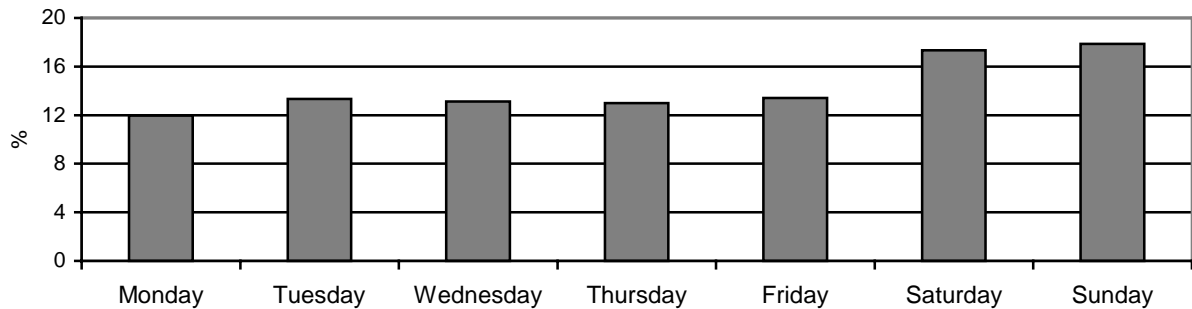
Campbelltown Hospital

Weekday and Time of Arrival

Distribution of Trauma Admissions by Weekday

Presentation of the 4,237 trauma admissions (both Major and Minor category injuries) arriving at Bankstown Hospital over the 5-year period are fairly evenly distributed throughout the week.

Campbelltown Hospital Day of Week

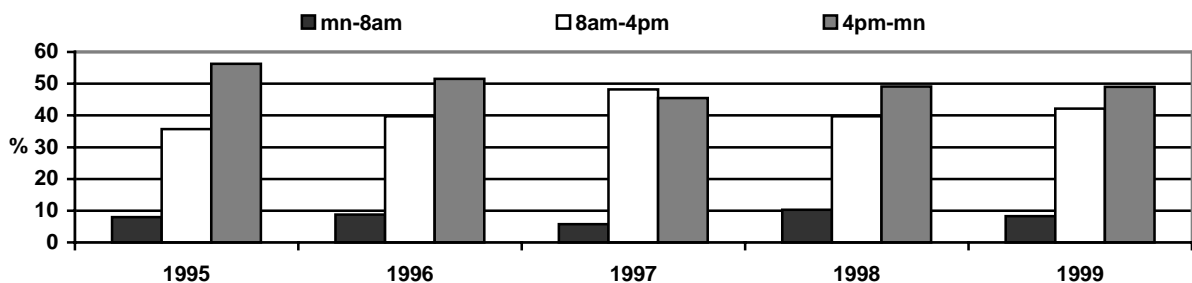


Time of Presentation for All Major Category Admissions to Campbelltown Hospital

Time of Day	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
mn-8am	9	8	12	8.8	11	2.8	22	10.3	19	8.4	73	8.5
8am-4pm	40	35.7	54	39.7	92	48.2	85	39.7	100	44.2	372	42.5
4pm-mn	96	56.3	70	56.3	88	45.5	105	49.1	106	46.9	432	49
Total	112	100	136	100	191	100	212	100	225	100	879	100

The time of admission is captured in the trauma registry for major category injuries.

Time of Presentation Campbelltown Hospital



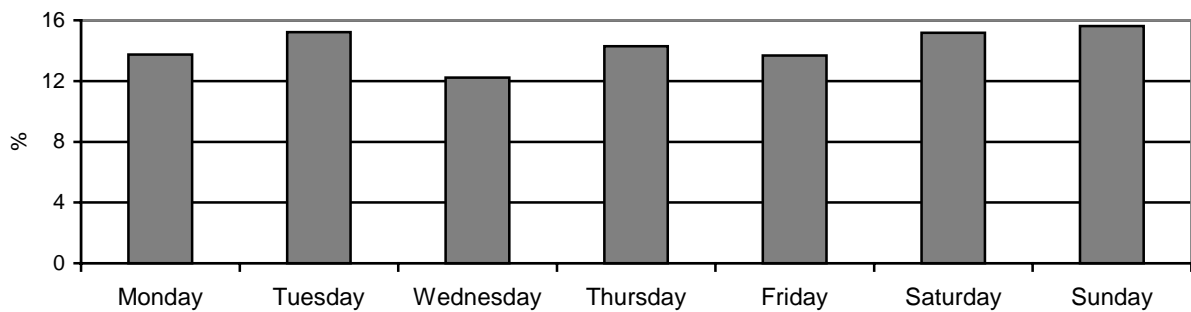
Fairfield Hospital

Weekday and Time of Arrival

Distribution of Trauma Admissions by Weekday

The highest proportion of presentations of the 2733 trauma admissions (both Major and Minor category injuries) arriving at Fairfield Hospital over the 5-year period occurs on Tuesdays and Sundays.

Fairfield Hospital Day of Week

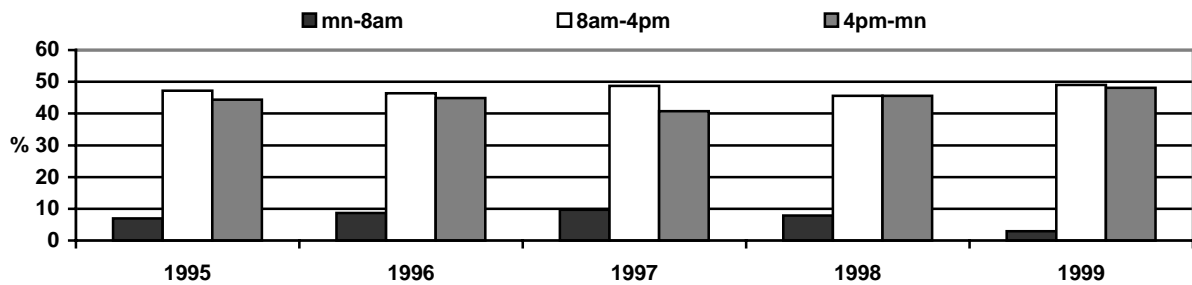


Time of Presentation for All Major Category Admissions to Fairfield Hospital

Time of Day	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
mn-8am	5	3.9	6	8.7	11	9.7	9	7.9	3	2.9	34	7.2
8am-4pm	34	47.2	32	46.4	55	48.7	52	45.6	51	49	224	47.5
4pm-mn	33	44.4	31	44.9	47	40.7	53	45.6	50	48.1	214	44.7
Total	72	100	69	100	113	100	114	100	104	100	472	100

The time of admission is captured in the trauma registry for major category injuries.

Time of Presentation Fairfield Hospital



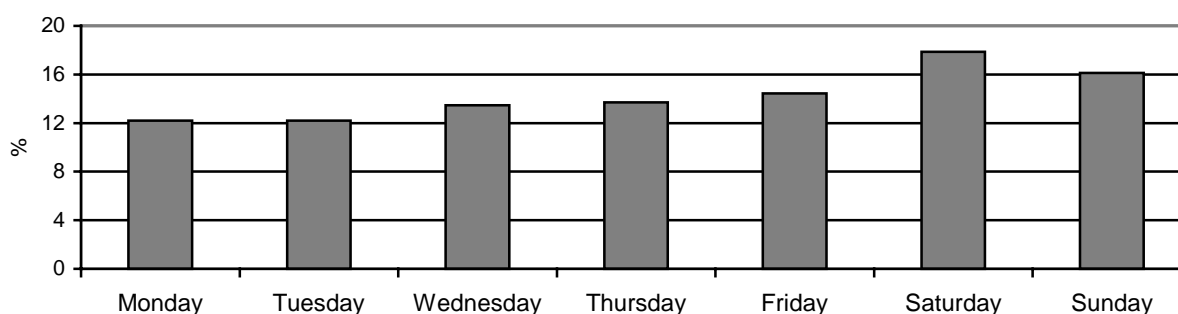
Bowral Hospital

Weekday and Time of Arrival

Distribution of Trauma Admissions by Weekday

Saturday is the commonest day of presentation for the 1,656 trauma admissions (both Major and Minor category injuries) arriving at Bowral Hospital over the 5-year period.

Bowral Hospital Day of Week

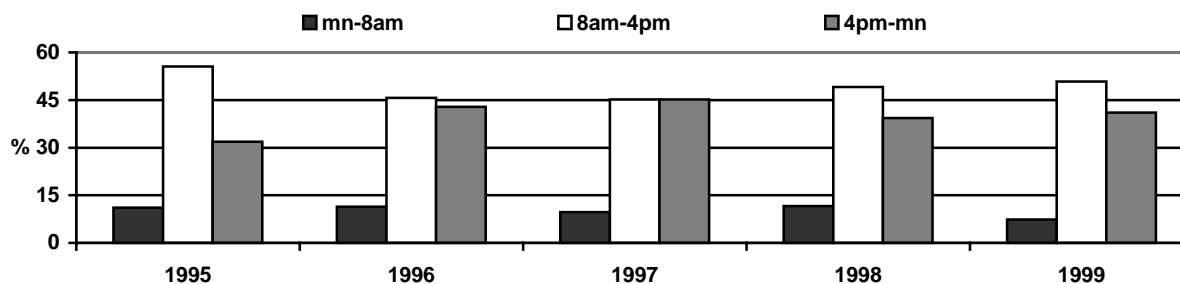


Time of Presentation for All Major Category Admissions to Bowral Hospital

Time of Day	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
mn-8am	8	11.1	4	11.4	9	9.7	13	11.6	9	7.4	43	9.9
8am-4pm	40	55.6	16	45.7	42	45.2	55	49.1	62	50.8	215	49.5
4pm-mn	24	31.9	15	42.9	42	45.2	44	39.3	51	41	176	40.1
Total	72	100	35	100	93	100	112	100	122	100	434	100

The time of admission is captured in the trauma registry for major category injuries.

Time of Presentation Bowral Hospital



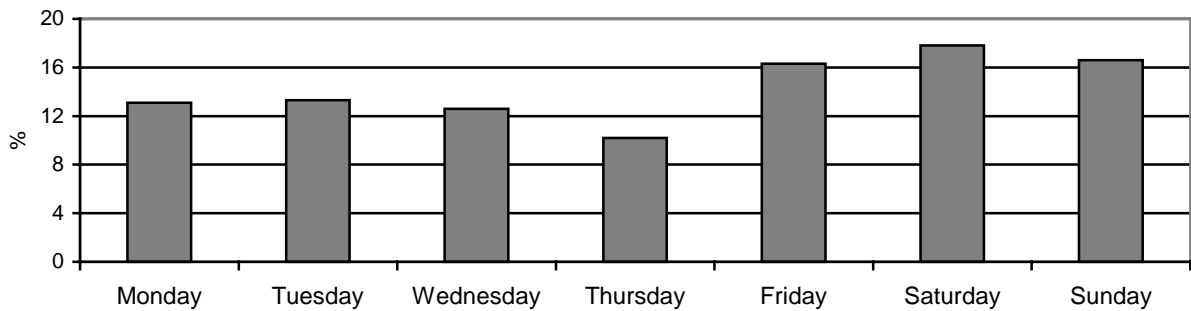
Camden Hospital

Weekday and Time of Arrival

Distribution of Trauma Admissions by Weekday

Presentation for the 847 trauma admissions (both Major and Minor category injuries) to Camden Hospital over the 5-year period occur predominantly on Friday and the weekend.

Camden Hospital Day of Week

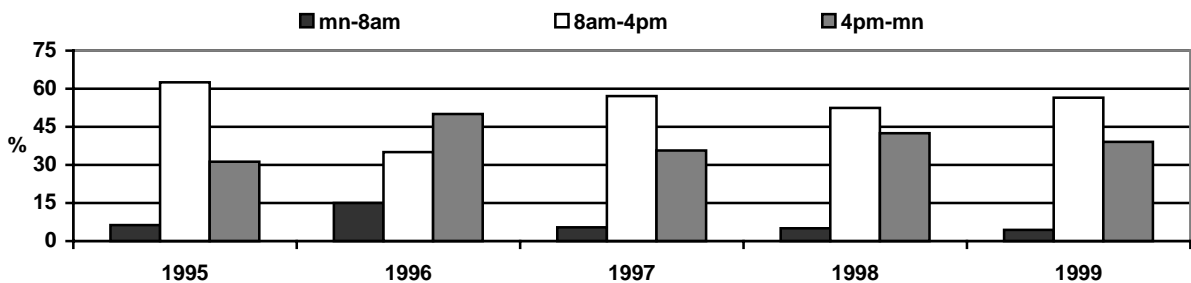


Time of Presentation for All Major Category Admissions to Camden Hospital

Time of Day	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
mn-8am	1	6.3	3	15	3	5.4	2	5	1	4.4	10	6.5
8am-4pm	10	62.5	7	35	32	57.1	21	52.5	13	56.5	83	53.5
4pm-mn	5	31.3	10	50	21	35.7	17	42.5	9	39.1	62	39.4
Total	16	100	20	100	56	100	40	100	23	100	155	100

The time of admission is captured in the trauma registry for major category injuries.

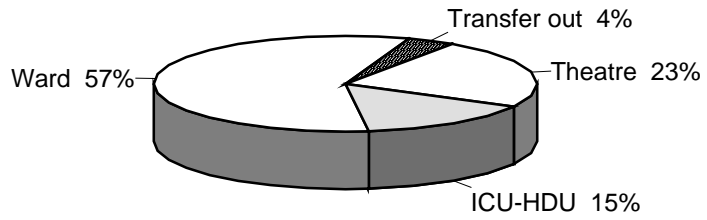
Time of Presentation Camden Hospital



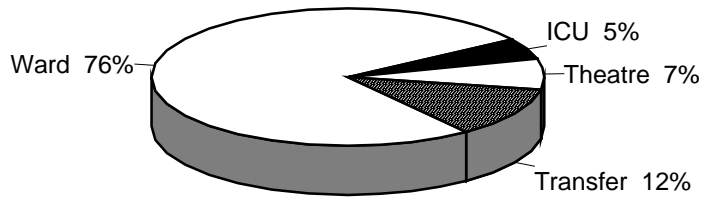
Disposal of Patients from Emergency Department of Each Hospital

Major Injury Category 1995 –1999

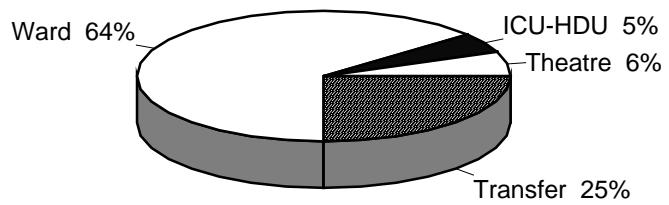
Liverpool Hospital
n=3794



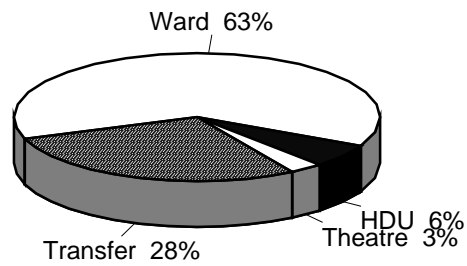
Bankstown Hospital
n= 920



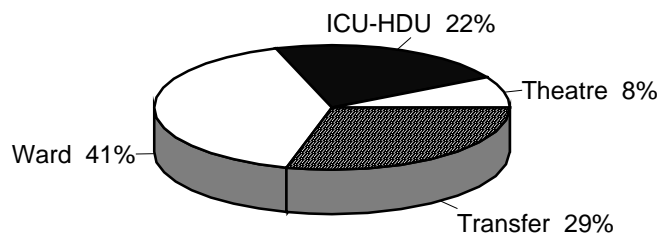
Campbelltown Hospital
n= 879



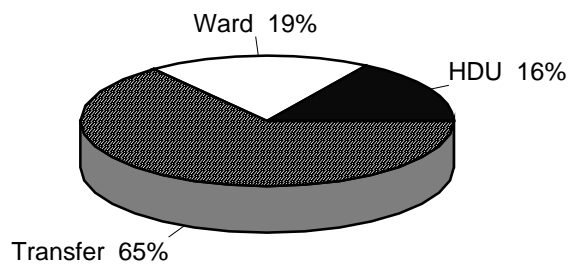
Fairfield Hospital
n= 472



Bowral Hospital
n= 434



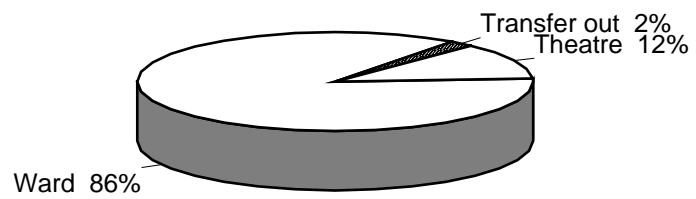
Camden Hospital
n= 156



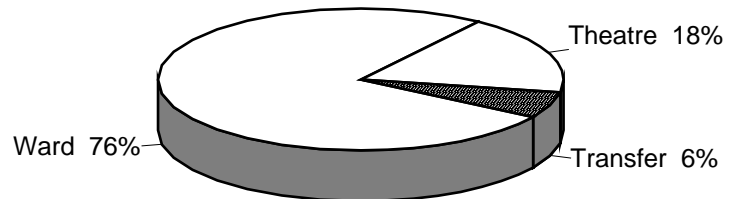
Disposal of Patients from Emergency Department of Each Hospital

Minor Injury Category 1995 –1999

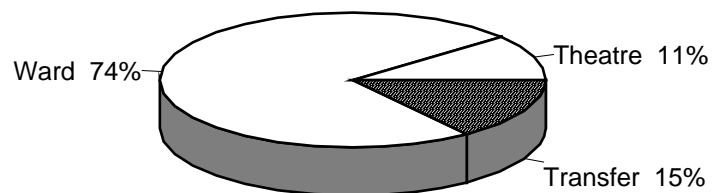
Liverpool Hospital
n=3358



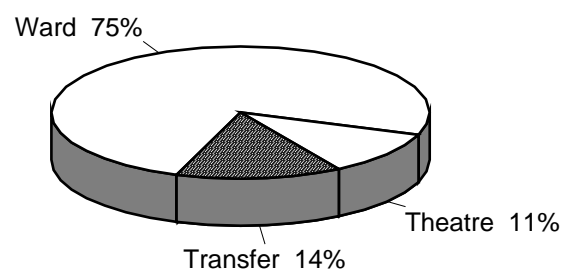
Bankstown Hospital
n= 4019



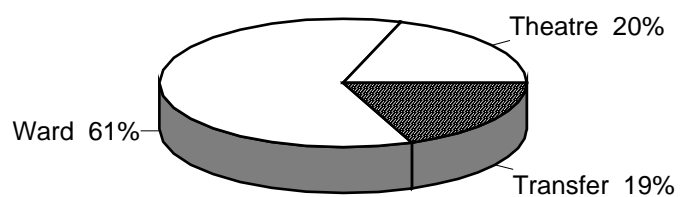
Campbelltown Hospital
n= 3358



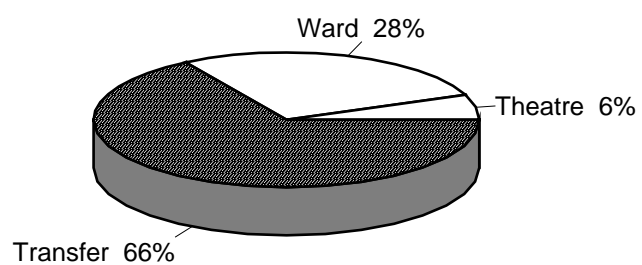
Fairfield Hospital
n= 2261



Bowral Hospital
n=1222



Camden Hospital
n= 692



Length of Stay in Hospital Major Category Injuries

Average Length of Stay (LOS) in Each Hospital

Hospital	1995		1996		1997		1998		1999	
	Patients	LOS	Patients	LOS	Patients	LOS	Patients	LOS	Patients	LOS
Liverpool	664	20.2	739	18.8	737	18.9	821	16.3	833	19.0
Bankstown	117	15.8	94	22.2	229	24.6	237	20.5	243	20.3
Campbelltown	112	15.5	136	14.5	191	8.1	214	8.8	226	12.7
Fairfield	72	12.7	69	8.1	113	12.3	114	13.5	104	29.7
Bowral	72	6	35	10.2	93	8.8	112	10.6	121	12.3
Camden	15	3.6	20	3.3	56	3.4	40	2.4	22	2.0
Total	1052	12.3	1093	12.9	1419	12.7	1538	12	1549	16

In 1999 the average length of stay for patients with Major category injuries ranged from 2 days at Camden Hospital to 29.7 days at Fairfield Hospital. Patients admitted to Liverpool Hospital stayed an average of 19 days.

Average Number of Days in Intensive Care Unit or High Dependency Unit

Hospital	1995		1996		1997		1998		1999	
	Patients	Days	Patients	Days	Patients	Days	Patients	Days	Patients	Days
Liverpool	207	5.1	234	4.8	209	4.2	236	4.7	218	5.3
Bankstown	14	5.1	11	3.7	9	5.6	12	2.6	16	5.3
Campbelltown	18	2.8	7	2.1	11	1.7	19	2.3	13	2.5
Fairfield*	12	3.0	9	2.7	8	2.5	7	3.6	6	3.8
Bowral*	7	3.0	11	3.1	15	2.3	27	2.7	33	3.3
Camden*	2	4.5	3	3.0	11	2.3	10	2.2	0	0
Total	260	3.9	275	3.2	263	3.1	311	3.0	286	3.4

Days in Intensive Care Unit or High Dependency Unit are counted as days in ICU. *There is no Intensive Care Unit at Fairfield, Bowral and Camden hospitals (but rather a High Dependency Unit).

During 1999, 286 patients admitted with injuries were admitted to Intensive Care Unit. The average length of stay for patients admitted to Intensive care ranged from 0 days at Camden Hospital to 5.3 days at Liverpool and Bankstown Hospitals. At Liverpool for patients admitted to ICU, the number of days in ICU ranged from 1 to 32 and these patients had an ISS mean 19.9 (1 - 66).