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## Chapter 6 Performance Indicators

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This section contains

### Chapter - 6 Performance Indicators

Executive comment	99
Introducing the Concept of Performance Indicators	100
Description of meaning of Performance Indicators in Each Phase of Care	101
Overview Results: Performance Indicators - Liverpool Hospital 1995 - 1999	104
Annual Trends:	
Pre-hospital Phase: Bypass of Serious Injuries - Intubation for Unconscious Patient - Time in Scene - IV Cannula and Volume Administered	105
Resuscitative Phase: Retrieval Team Turnaround Time - Transfer Within 3 hours Unconscious Patient Intubation - Blood Administered - Explore Penetrating Wound - Time in CT Scanner - Head CT for GCS <13	106
Definitive Management Phase: Representation - Appropriate Thrombo-embolic Prophylaxis - Hypothermia - Time to Long Bone Fracture Fixation - Time to Fixation of Open Fractures - Non-therapeutic Laparotomy - Craniotomy: Time from Injury - Craniotomy: Time from Presentation - Kept in Major Trauma Service - Joint Dislocation: Time to Reduction - Unstable Patient: Time to Laparotomy - Ischaemic limb: Time to Re-vascularization - Unplanned Return to Theatre - Unplanned Return to Intensive Care Unit - Documentation of Temperature in OT - Haemoglobin >85mg/dL	107

### EXECUTIVE SUMMARY

- There are an increasing number of failures of prehospital triage rising to 5.8% in 1999.
- Of the 355 patients with a GCS of 8 or less, only 16% were intubated prehospital. Of these 250 were transported by paramedics (paramedics are not allowed to administer muscle relaxant).
- Medical retrieval turnaround time at urban and rural hospitals has decreased over the 5 years.
- The time to transfer remains greater than 3 hours in 49% of patients transferred to Liverpool Hospital.
- 83% of patients gets their fractures fixated or reduced within 24 hours and 64% of compound injuries are reduced within 4 hours.

## Introduction to Concept of Performance Indicators

As trauma systems have evolved and improved with reduction in preventable death rate the focus of quality improvement programs has shifted towards analysis of complications and the efficiency of care through trauma audit, trauma filters and performance indicator analysis.

We undertook the development and analysis of performance indicators to allow our process of trauma care to be evaluated. We wanted to identify the functionality of our evolving trauma system using performance indicators in three key phases of hospital care.

We initially developed trauma performance indicators in April 1994 based on some clinical indicators from The Australian Council on HealthCare Standards (ACHS) and American College of Surgeons. We have modified our performance indicators twice since then using our current ones since September 1994 and a number of additions after our National Performance Indicator Forum in July 1995.

The indicators chosen were felt at the outset to be a valid group reflecting important processes and outcome in each key area of trauma care. It has become apparent that not all indicators we chose were useful. For example, IV Cannula < 500ml, which recorded when an intravenous cannula has been inserted by the attending ambulance personal and categorises the quantity of fluid administered pre-hospital. It did not take into account other variables such as the administration of analgesia or drugs, distance from the hospital or the circulatory status of the patient.

The indicators use in this study are not in this audit filters per se, but certainly can identify subgroups of patients that may be at risk for subsequent adverse process of care or outcomes. Due to resource limitations it is possible to collect performance indicators only on patients included in our major injury category on the regional trauma registry.

### List of Performance Indicators

Pre Hospital Phase	Resuscitative Care Phase	Definitive Care Phase
Triage Decision	Retrieval Team Turn-round <30mins	No Re-presentation <72 hours
Intubation GCS < 9	Referral hospital Time < 3hours	Thrombo-embolic prophylaxis
Scene time < 20mins	GCS < 9 Intubation	No hypothermia
IV cannula and >500ml	Blood prior to exceed 2000 mL	Fracture fixation < 24 hours
	Penetrating: Explore wound < 1 hour	Open Fractures: fixed < 6 hours
	CT scan duration < 1 hour	Laparotomy: therapeutic
	GCS < 13: CT in < 4 hours	Craniotomy within 4 hours of injury
		Craniotomy within 1 hour arrival
		Remained in MTS (Liverpool)
		Joint dislocation reduced < 1 hour
		Laparotomy in <45 mins: unstable pt
		Ischaemic limb: Re-vascularise < 4hrs
		Unplanned operations
		Unplanned ICU admissions
		Hb > 85 g/L
		Temperature in OT

## PRE HOSPITAL CARE PHASE

Performance Indicators in the pre hospital phase of care reflect the interventions and decisions by ambulance officers prior to delivery to the hospitals' Emergency Department.

### TRIAGE DECISION BYPASS CORRECT:

This indicator is used to monitor whether patients were delivered to the appropriate trauma service according to ambulance pre-hospital triage decision (protocol 4). Further explanation of this ambulance protocol is on page 32 of this report and in the appendix.

Yes = Appropriately bypassed urban hospital - Delivered to MTS  
No = Failure (Should have bypassed urban hospital but did not)

### GCS < 9 ETT:

Unconscious patients are at increased risk of hypoxia because they are not able to protect their airway. Intubation may not be possible because the level of training of the ambulance officers may not have included intubation skills, or the patient may have trismus. This indicator refers to intubation of the patient with GCS 8 or less performed within 10 minutes.

Yes = Comatose patient intubated pre-hospital  
No = Comatose patient was NOT intubated

### KEPT IN SWSAHS

Used to monitor the outflow of trauma patients from an Urban Trauma Hospital to another hospital out of the area health service rather than remaining within it.

Yes = Kept in SWSAHS  
No = Transfer to other AHS from urban hospital

### SCENE TIMES ≤ 20 MINUTES:

The length of time that ambulance officers spend at the scene of the accident. During 1996 we began to record if patients were entrapped at scene which could affect the length of time taken for officers to depart scene.

Yes = Ambulance at scene ≤ 20 minutes  
No = At scene > 20 minutes

### IV CANNULA < 500ml:

The number of patients receiving IV cannula and the volume of fluid administered pre hospital in these patients.

YES = Cannula inserted ≤ 500 mL administered  
NO = Cannula inserted >500 mL administered

## RESUSCITATIVE MANAGEMENT PHASE:

### RETRIEVAL TEAM ≤ 30 mins

When the Medical Retrieval Team is used to transfer a patient from the referring hospital we are interested in how long (turnaround time) the retrieval team spends at the referring hospital.

Yes = ≤ 30 minutes  
No = > 30 minutes turnaround time

### <3 HOURS AT REFERRING HOSPITAL

Used for a patient who presents to an urban hospital and requires inter-hospital transfer to a Major Trauma Service. This indicates the length of time patients spend in the referring hospital.

Yes = ≤ 3 hours  
No = > 3 hours

### BLOOD PRIOR EXCEED 2000mls:

Blood products are preferred over a high volume crystalloid and colloid because haemo-dilution will reduce the oxygen carrying capacity of the patients own blood volume. It refers only to the administration of resuscitative volume in the emergency department.

Yes = Blood given before exceed 2000 mL  
No = Exceed 2000mL no blood given

### EXPLORE PENETRATING TRAUMA:

Formal exploration of a penetrating injury in the Operating Theatre or the Emergency Department. This requires a sterile procedure under local anaesthetic and formal exploration of the wound.

Yes = Explored within 1 hour of arrival  
No = Explored later than 1 hour

**PATIENT in CT >1 HOUR:**

It is inappropriate for patients to spend excessive time periods in the CT scanning department. Ideally patients will be scanned and returned to the Emergency Department in less than 1 hour.

Yes = in CT scanning department  $\leq$  1 hour      No = Patient in scanner > 1 hour

**GCS < 13 NO CT SCAN:**

Glasgow Coma Scores of 12 or less may indicate significant head injury. Indicates number of patients undergo CT scanning within four hours.

Yes = GCS <13 Head CT scan within 4 hours      No = GCS <13 failure to scan within 4 hours

**GCS <9 INTUBATION (Emergency Department only):**

Refers to intubation in the Emergency Department of the patient with Glasgow Coma Scale  $\leq$  8 performed within 10 minutes. Does not include patients who were intubated prior to arrival.

Yes = intubated within 10 minutes      No = failure to intubated within 10 minutes

**DEFINITIVE MANAGEMENT PHASE:****NOT REPRESENT TO ED <72 HOURS**

Monitors patients that are discharged following treatment, who re-presents to the Emergency Department within 72 hours of discharge for the same injury (not planned reviews or dressings).

Yes = No representation      No = represented within 72 hours for same injury

**THROMBO-EMBOLIC PROPHYLAXIS (TEP):**

Appropriate embolic prophylaxis is indicated for a patient who is going to be immobilized in bed for more than 24 hours.

Yes = any one of three regimes commenced      No = Failure to commence TEP

**MISSED FRACTURES:**

If a patient has a fracture that is not diagnosed during the first 24 hours but is a later finding, then this constitutes a missed fracture.

Yes = Fracture diagnosed after 24 hours      No = All fractures diagnosed within 24 hours

**HYPOTHERMIA:**

Hypothermia is associated with a poor outcome for patients with injury. Hypothermia can occur as a result of several factors including prolonged scene time, loss of blood, prolonged patient exposure, rapid infusion of cold intravenous fluid.

Yes = Temperature more than 35° C at all times      No = Temperature  $\leq$  35° C at any time

**FRACTURE FIXATION WITHIN 24 HOURS:**

Ideally all long bone fractures requiring reduction or fixation will be treated within 24 hours of arrival in Emergency Department. Refers only to long bone fractures.

Yes = Fixed or reduced < 24 hours of arrival      No = Fracture fixed or reduced  $\geq$  24hrs

**COMPOUND FRACTURES < 6 HOURS:**

Early fixation of open fractures is associated with a lower incidence of orthopaedic complications.

Yes = Fixation of open fracture within six hours      No = Open fracture fixed > 6 hours

**THERAPEUTIC LAPAROTOMY:**

Patients undergoing a laparotomy that is deemed to be "non-therapeutic". Includes laparotomy with positive findings e.g. a liver laceration that has stopped bleeding.

Yes = Therapeutic laparotomy      No = non-therapeutic laparotomy

**CRANIOTOMY  $\leq$  4 HOURS INJURY**

Time from injury to commencement of craniotomy for drainage of an acute operable space-occupying lesion e.g. extradural or subdural. Does not include ICP monitor insertion or elevation of depressed skull fracture.

Yes = Craniotomy performed  $\leq$  4 hours of injury      No = Injury to Craniotomy > 4 hours

**ARRIVAL MTS TO CRANIOTOMY TIME** (for evacuation of haematoma)

Time from arrival in Emergency Department at Liverpool Hospital to commencement of craniotomy for drainage of either EDH or SDH.

Yes = Craniotomy  $\leq$  1 hour of arrival in ED

No = Craniotomy  $>$  1 hour after arrival in ED

**PATIENT KEPT IN MTS: (Liverpool Hospital is Major Trauma Service)**

This facilitates the follow-up of transferred trauma patients, and can be used to monitor deficits in service provision e.g. shortages in intensive care beds, or specialty units such as burns or spinal units.

Yes = Kept at Liverpool

No = Transferred out of Liverpool

**JOINT DISLOCATION  $<$  1 HOUR:**

Joint dislocations need prompt reduction in order to minimize the risk of avascular necrosis. Applies for patients with dislocated shoulder, pelvis, elbow, knee or ankle this indicator.

Yes = Successful reduction within 1 hour

No = Failure to reduce joint dislocation  $<$  1 hour

**LAPAROTOMY within  $<$  45 MINUTES for HYPOTENSIVE PATIENT**

Urgent laparotomy for a patient who has intra-abdominal bleeding causing hypotension is commenced within 45 minutes.

Yes = Laparotomy within 45 minutes

No = Laparotomy after  $>$  45 minutes

**ISCHAEMIC LIMB  $<$  4 HOURS**

Re-vascularization of an ischaemic limb within 4 hours of time of injury

Yes = Ischaemic limb re-vascularized  $<$  4 hours

No = Not re-vascularized within 4 hours

**NO UNPLANNED RETURN TO THE OPERATING THEATRE**

Unplanned operations include return to operating theatre for post-operative haemorrhage, unexpected surgery for missed injuries, or unexpected deterioration of patient's condition.

Yes = All operations anticipated and planned

No = Unplanned return to Theatre

**NO UNPLANNED RETURN TO ICU**

Patients transferred to the ward whose condition deteriorated requiring prompt admission to Intensive Care Unit.

Yes = All occasions in ICU planned

No = unplanned return to ICU

**Hb $>$ 85 DURING HOSPITAL ADMISSION**

Anaemia is associated with poor outcomes for injured patients. Patients whose haemoglobin is measured at 85 or less at any time during their admission are flagged on this performance indicator.

Yes = Hb  $>$  85 at all times

No = Hb  $\leq$  85 during admission

**DOCUMENTATION OF TEMPERATURE IN OPERATING THEATRE**

Documentation of patient's temperature should be recorded on the anaesthetic chart. When there are multiple operations, the first operation's anaesthetic chart is used to code this performance indicator.

Yes = Temperature documented for initial operation

No = Temperature not documented for initial operation

**ALL INJURIES DIAGNOSED**

Ideally all injuries will be diagnosed during initial assessment in Emergency Department.

Yes = All injuries diagnosed

No = Unsuspected Injury found

## Overview: Performance Indicators - Liverpool Hospital

### Pre-hospital Care Phase

1995-1999	n= 3,162	Applies	Yes	%	No	%
Triage Decision correct		1103	1060	96.1	43	3.9
Intubation GCS <9		355	56	15.8	299	84.2
Scene time <20mins (all patients)		3065	1856	60.6	1209	39.4
Scene time <20mins (without entrapment)		1667	1089	65.3	578	34.7
IV cannula and ≥ 500mL		1581	856	54.1	725	45.9

### Resuscitative Care Phase

1995-1999	n= 3,794	Applies	Yes	%	No	%
Retrieval Team < 30min		110	29	26.4	81	73.6
Transfer < 3hrs at first hospital		453	240	53.0	213	47.0
GCS < 9 Intubation in ED		291	256	88.0	35	12.0
Blood prior exceed 2000mL		453	288	63.6	165	36.4
Penetrating: explore wound <1hour		209	123	58.9	86	41.1
CT scan duration < 1hour		1183	1096	92.6	87	7.4
GCS <13: CT within 4 hours		480	456	95.0	24	0.5

### Definitive Care Phase

1995-1999	n= 3,794	Applies	Yes	%	No	%
No representation within 72 hours		3794	3726	98.2	68	1.9
Institute Thrombo-embolic prophylaxis		2179	1664	76.4	515	23.6
No Hypothermia		3728	3430	92.0	298	8.0
Fracture fixed/reduced within 24 hours		829	687	82.9	142	17.1
Compound Fracture fixed within 6 hours		213	136	63.8	77	36.2
Laparotomy Therapeutic		303	253	83.5	50	16.5
Craniotomy < 4 hours from Injury		91	57	62.6	34	37.4
Craniotomy within 1 hour of Arrival in ED		107	29	27.1	78	72.9
Patient kept (not transferred out)		3794	3584	94.5	210	5.5
Joint dislocation reduced <1hour		77	22	28.6	55	71.4
Laparotomy < 45 minutes (unstable patient)		58	39	68.4	18	31.6
Ischaemic limb re-vascularized (<4 hours)		31	24	77.4	7	22.6
No unplanned operations		1432	1367	95.5	65	4.5
No unplanned admissions to Intensive Care		870	798	91.7	72	8.3
Temperature documented in Theatre		1282	344	26.8	938	73.2
Hb > 85 mg/dL at all times		3031	2781	91.8	250	8.2

## Performance Indicators in Pre-hospital Phase of Care

### Bypass of Serious Injuries to Major Trauma Service

Triage Decision	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Correct Bypass	196	97	190	97.9	212	96.8	236	95.2	226	94.2	1060	96.1
Failure of Bypass	6	3.0	4	2.1	7	3.2	12	4.8	14	5.8	43	3.9
Total Bypass applicable	202	100	194	100	219	100	248	100	240	100	1103	100

The Triage Decision indicator reflects the number of patients transported to Liverpool Hospital by ambulance that met criteria for bypass of a nearer urban hospital and the proportion of those where bypass did or did not occur. During the 5 years 43 patients were transferred to Liverpool Hospital from an Urban Trauma Service in SWSAHS following a failure of bypass system.

### Intubation for Unconscious Patients

Intubation GCS <9	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Intubated within 10 mins	11	15.5	10	13.9	17	22.7	7	10.0	11	17.9	56	15.8
Failure to Intubate	60	84.5	62	86.1	58	77.3	63	90.0	54	82.1	299	84.2
Total Patients GCS<9	71	100	72	100	75	100	70	100	67	100	355	100

\*Of the 355 patients with GCS 8 or less at scene 250 were transported by paramedic ambulance officers. Of these 46 (18.1%) were intubated at scene and 204 (81.6%) were not.

### Ambulance Officers Time in Scene (All Patients to Liverpool)

Scene time ≤ 20 mins	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
At scene ≤ 20 mins	315	58.1	413	66.5	377	61.8	378	56.2	373	60.3	1856	60.6
At scene > 20 mins	227	41.9	208	33.5	233	38.2	295	43.8	246	39.7	1209	39.4
Total Patients *BIBA	542	100	621	100	610	100	673	100	619	100	3065	100

\*BIBA refers to patients transported to Liverpool Hospital who received pre-hospital care, (whether direct or transferred) and for whom scene times are documented.

### Ambulance Officers Time in Scene (without Entrapment)

Scene time ≤ 20 mins	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
At scene ≤ 20 mins	**		**		362	67.4	368	62.6	359	66.2	1089	65.3
At scene > 20 mins	**		**		175	32.6	220	37.4	183	33.8	578	34.7
Total Patients *BIBA	**		**		537	100	588	100	542	100	1667	100

Includes all transported to Liverpool Hospital who received pre-hospital care, (whether direct or transferred) for whom scene times are documented and where known that there was no entrapment at scene. \*\*Data is not available for whether patients were entrapped at scene for 1995 and 1996.

### Pre-hospital IV Cannula and Volume Administered

IV Cannula inserted	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
< 500 mL administered	121	40.7	123	43.3	132	45.4	177	47.8	172	50.7	725	45.9
≥ 500 mL administered	176	59.3	161	56.7	159	54.6	193	52.2	167	49.3	856	54.1
Patients with cannula	297	100	284	100	291	100	370	100	339	100	1581	100

## Performance Indicators in Resuscitation Phase

### Retrieval Team Turnaround Within 30 minutes

MRT Turnaround	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
≤ 30 minutes	0	0	6	27.3	4	16.7	8	27.6	12	42.9	30	26.8
> 30 minutes	9	100	16	72.7	20	83.3	21	72.4	16	57.1	82	73.2
Patients Retrieved	9	100	21	100	24	100	29	100	28	100	110	100

### Transfer Within 3 hours from Arrival at Referring hospital

Depart Referring Hospital	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
≤ 3 hours	39	57.4	42	49.4	39	51.3	52	55.9	68	51.5	240	52.9
> 3 hours	29	42.6	43	50.6	37	48.7	41	44.1	64	48.5	214	47.1
Patients Transferred	68	100	85	100	76	100	93	100	132	100	454	100

### Unconscious Patient Intubated Within 10 minutes

Intubated in ED	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Within 10 minutes	48	92.3	60	89.6	50	87.7	46	79.3	52	91.2	256	88.0
Exceed 10 minutes	4	7.7	7	10.4	7	12.3	12	20.7	5	8.8	35	12.0
Requiring intubation	52	100	67	100	57	100	58	100	57	100	291	100

### Blood Administered Prior to Exceed 2 litres Resuscitation Fluids

Blood Prior Exceed 2L	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Blood given	63	60.0	64	58.7	65	73	53	63.0	43	65.2	288	63.6
Exceed 2 litres	42	40.0	45	41.3	24	27.0	31	37.0	23	34.8	165	36.4
Total	105	100	109	100	89	100	84	100	66	100	453	100

### Explore Penetrating Wound within 1 Hour of Arrival in Emergency

Explore Penetrating	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Within 1 hour	24	53.3	33	61.1	21	53.8	27	58.7	18	72.0	123	58.9
Exceed 1 hour	21	46.7	21	38.9	18	46.2	19	41.3	7	28.0	86	41.1
Requiring Exploration	45	100	54	100	39	100	46	100	25	100	209	100

### Time in CT scanner

Time in CT scanner	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Less than 1 hour	155	92.8	189	93.1	180	89.1	244	95.3	632	92.4	1096	92.6
Exceed 1 hour	12	7.2	14	6.9	22	10.9	12	4.7	27	7.6	87	7.4
Patients to CT scanner	167	100	203	100	202	100	256	100	355	100	1183	100

### Head CT for Head Injury (GCS <13) within 4 hours

Head CT for GCS <13	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Within 4 hours	76	93.8	109	94.0	83	93.3	90	96.8	98	97.0	456	95.0
Exceed 4 hours	5	6.2	7	6.0	6	6.7	3	3.2	3	3.0	24	5.0
Requiring Exploration	81	100	116	100	89	100	93	100	101	100	480	100

## Performance Indicators During Definitive Care Phase

### Representation to Emergency within 72 hours of Discharge

Representation	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Did not represent	654	98.5	719	97.3	730	99.1	801	97.6	822	98.7	3726	98.2
Within 72 hours	10	1.5	20	2.7	7	0.9	20	2.4	11	1.3	68	1.8
Total	664	100	739	100	737	100	821	100	833	100	3794	100

### Appropriate Thrombo-embolic Prophylaxis (TEP) for Immobilised Patients

Commence TEP	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Within 24 hours	246	78.8	260	66.7	321	71.3	379	77.7	458	85.0	1664	76.4
Nil or later than 24 hrs	66	21.2	130	33.3	129	28.7	109	22.3	81	15.0	515	23.6
Total	312	100	390	100	450	100	488	100	539	100	2179	100

### Nil Hypothermia for Patients

Temperature	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
No Hypothermia	604	92.2	657	90.6	669	92.3	744	92.5	756	92.3	3430	92.0
Hypothermia	51	7.8	68	9.4	56	7.7	60	7.5	63	7.7	298	8.0
Total	655	100	725	100	725	100	804	100	719	100	3728	100

### Time from Presentation to Fixation Long Bone Fracture

Fixation or Reduction	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Within 24 hours	138	92.0	127	84.7	115	70.6	161	85.2	146	82.5	687	82.9
> 24 hours	12	8.0	23	15.3	48	29.4	28	14.8	31	17.5	142	17.1
Total	150	100	150	100	163	100	189	100	177	100	829	100

### Time to Injury to Fixation Open (Compound) Fracture

Fixation or Reduction	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Within 6 hours	23	57.5	30	69.8	17	50.0	35	71.4	31	66.0	136	63.8
> 6 hours	17	42.5	13	30.2	17	50.0	14	28.6	16	34.0	77	36.2
Total	40	100	43	100	34	100	49	100	47	100	213	100

### Laparotomy Therapeutic or Non Therapeutic

Laparotomy	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Therapeutic	46	79.3	57	86.4	56	86.2	42	85.7	52	80.0	253	83.5
Non Therapeutic	12	20.7	9	13.6	9	13.8	7	14.3	13	20.0	50	16.5
Total	58	100	66	100	65	100	49	100	65	100	303	100

### Craniotomy: Time from Injury

Injury to Craniotomy	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Within 4 hours	6	60.0	5	50.0	20	69.0	18	66.7	8	53.3	57	62.6
> 4 hours	4	40.0	5	50.0	9	31.0	9	33.3	7	46.7	34	37.4
Total	10	100	10	100	29	100	27	100	15	100	91	100

### Craniotomy: Time from Arrival in Emergency

Injury to Craniotomy	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Within 1 hour	1	7.1	2	12.5	9	29.0	10	38.5	7	35.0	29	27.1
> 1 hour	13	92.9	14	87.5	22	71.0	16	61.5	13	65.0	78	72.9
Total	14	100	16	100	31	100	26	100	20	100	107	100

### Patients Kept in Major Trauma Service

Kept in MTS	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Remain	619	93.2	687	93.0	698	94.7	783	95.4	797	95.7	3584	94.5
Transfer Out	45	6.8	52	7.0	39	5.3	38	4.6	36	4.3	210	5.5
Total	664	100	739	100	737	100	821	100	833	100	3794	100

### Time to Reduce Joint Dislocation

Relocation	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Within 1 hour	2	12.5	5	33.3	4	22.2	4	26.7	7	53.8	22	28.6
> 1 hour	14	87.5	10	66.7	14	77.8	11	73.3	6	46.2	55	71.4
Total	16	100	15	100	18	100	15	100	13	100	77	100

### Time to Laparotomy for Unstable Patient (Systolic <90)

Laparotomy	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Within 45 mins	*	*	12	70.6	9	81.8	3	60.0	14	60.9	39	68.4
> 45 minutes	*	*	5	29.4	2	18.2	2	40.0	9	39.1	18	31.6
Total	*	*	17	100	11	100	5	100	23	100	57	100

### Time to Re-vascularization Ischaemic Limb

Re-vascularize	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Within 4 hours	*	*	13	92.9	2	66.7	6	66.7	3	75.0	24	77.4
> 4 hours	*	*	1	7.1	1	33.3	3	33.3	1	25.0	7	22.6
Total	*	*	14	100	3	100	9	100	4	100	31	100

### No Unplanned Operations

Operations	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
All operations planned	*	*	308	94.5	321	95.3	354	97.3	342	95.0	1367	95.5
Unplanned return to OT	*	*	18	5.5	16	4.7	10	2.7	18	5.0	65	4.5
Total	*	*	326	100	337	100	364	100	360	100	1432	100

### No Unplanned Admission to Intensive Care

Admit ICU	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
All admissions planned	*	*	212	93.0	192	91.9	190	90.9	197	92.6	798	91.7
Unplanned return ICU	*	*	16	7.0	17	8.1	19	9.1	15	7.4	72	8.3
Total	*	*	228	100	209	100	209	100	202	100	870	100

### Document Temperature in Operating Theatre

Temperature	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
Documented	*	*	61	22.5	94	29.6	99	29.2	83	24.9	344	26.8
Not Documented	*	*	210	77.5	224	70.4	240	70.8	250	75.1	938	73.2
Total	*	*	271	100	318	100	339	100	333	100	1282	100

### Haemoglobin >85 mg/dL Throughout Admission

Haemoglobin	1995	%	1996	%	1997	%	1998	%	1999	%	Total	%
> 85 mg/dL	*	*	579	91.2	658	91.3	733	91.6	756	92.9	2781	91.8
≤ 85 mg/dL	*	*	56	8.8	63	8.7	67	8.4	58	7.1	250	8.2
Total	*	*	635	100	721	100	800	100	814	100	3031	100