



TARN

THE TRAUMA AUDIT & RESEARCH NETWORK

Sample MTC Hospital

CLINICAL REPORT ISSUE 2 - JULY 2017

I: CORE MEASURES FOR ALL PATIENTS

II: ORTHOPAEDIC INJURIES

Created on 11/07/2017

EXECUTIVE SUMMARY

Based on comparison between 14-15 and 15-16 core measures

Improvements are shown in **GREEN**, no change in **AMBER** and deteriorations in **RED**. These are the areas you may want to review.

2015-16 CORE section:

Case Ascertainment is 95.9 - 100+%, this is **above** the target of 80%.
This represents **no change** compared to previous year.

Meets target



Compared to previous year



Data Accreditation is 94.2%, this is **within 1% of** the target of 95%.
This represents **no change** compared to previous year.



The rate of survival is as expected
Ws is 0.67. 95% confidence intervals are **-0.08 to 1.42**



Compared to national average Compared to previous year

69% of ISS > 15 patients were seen by a Consultant within 5 minutes of arrival, this is **above** the national average of 45% and has **remained at the same level** compared to previous year.



65% of NICE criteria patients had a CT within 30 minutes, this is **above** the national average of 54% and has **increased by 6%** compared to previous year.
63% of the patients that had a CT within 30 minutes arrived between the hours of 08:00 - 20:00.



9 days median length of stay for ISS > 15 patients, this is **within 1 day of** the national average of 8 days.
This represents **no change** compared to previous year.



Rehabilitation prescription was completed for 98% of patients with ISS >8, this is **above** the national average of 63%. This has **remained at the same level** compared to previous year.



2015-16 THEMED section: Patients with orthopaedic injuries

56% of BOAST4 patients received Surgical Stabilisation within the target of 24 hours, this is **above** the national average of 54%. This represents **no change** compared to previous year.



50% of BOAST4 patients received Soft Tissue Coverage within the target of 72 hours, this is **above** the national average of 40%. This represents **no change** compared to previous year.



BEST PRACTICE SPOTLIGHT

Improving the management of BOAST4 injuries

Mr Miguel Fernandez: University Hospitals Coventry & Warwickshire NHS Trust.

First Prize (joint): TARN Award for Improvements in Care. Trauma care conference 2016

Data collected through TARN was utilised to implement changes in the treatment of open lower-limb fractures, taking the unit from one of the poorest performing centres for BOAST4 compliance, to one of the top performers, through the provision of definitive soft tissue coverage within 72 hours of injury for 70% of patients presenting with an open fracture (the national average being 45% of patients). The process not only produced a dramatic improvement in levels of service but also increased collaboration between specialities, with a weekly dedicated whole-day operating list set up for the management of open fractures by allocated senior plastic and orthopaedic surgeons. This, in turn, has led to the commissioning of an additional weekly operating session for surgery for open fractures. The model of dedicated cross-speciality operating sessions, with plastic and orthopaedic surgeons working together, has since been successfully applied to the hand trauma service at UHCW.

Contents

This Report contains the following sections:

1. **CORE** - includes ALL injured patients admitted in the time frames indicated.
2. **Orthopaedic** - includes patients with severe pelvic injuries, open fractures and BOAST 4 eligible injuries .
3. **Appendix** - detailed information on individual patients (provided on request as a separate file).

Core

- 1 - Case ascertainment & accreditation of patient data submission
- 2 - Accreditation breakdown
- 3 - Case mix standardised rate of survival
 - Breakdown
 - Caterpillar plots
 - Funnel plots
 - Comparison against other network hospitals
- 4 - ISS & injury mechanism
- 5 - Pre-hospital care
- 6 - Number of patients with a GCS < 9 (pre-hospital or in the ED) and definitive airway management
- 7 - Most senior doctor attending patients within 5 minutes of arrival
- 8 - Most senior doctor attending patients within 30 minutes of arrival
- 9 - Most senior doctor attending patients in the emergency department
- 10 - Time to CT scanning
- 11 - Median time to CT scan per month for all patients
- 12 - Time to first operation
- 13 - Patient pathway & transfer between hospitals
- 14 - Length of stay in hospital
- 15 - Length of stay in, and readmissions to, critical care

Orthopaedic

- 1 - Patients with BOAST 4 eligible injuries, stabilisation and cover
- 2 - Patients with BOAST 4 eligible injuries, grade of surgeon
- 3 - Patients with severe (AIS 4+) pelvic fractures
- 4 - Patients with open limb fractures

Some sections may not appear if there is insufficient data

Glossary

Explanation of acronyms, abbreviations and other key terms used in this report.

AIS	Abbreviated Injury Scale score. A value between 1 (minor) and 6 (very severe) can be assigned to each injury. TARN currently uses the AIS 2005 system, the most recent available.
BOAST 4	British Orthopaedic Association Standard 4, setting out key markers for care of patients with high energy open lower limb fractures.
Confidence interval	Indicates the precision and possible range of a result. A wide confidence interval indicates the potential for large variation from the measured value because of small sample size. The larger the sample, the smaller the confidence intervals. The smaller the confidence intervals, the more precise the measured value.
Direct admissions	Describes care in the first treating hospital.
ED	Emergency Department.
GCS	Glasgow Coma Scale. A measure of consciousness ranging from 3, indicating complete unconsciousness, to 15, indicating a state of normal alertness. GCS is composed of eye, verbal and motor scores.
HES / HIPE / PEDW	Hospital Episode Statistics / Hospital In-Patient Enquiry Scheme / Patient Episode Database Wales. Data collected in hospitals on all admissions. This data is used by TARN to produce an expected number of TARN eligible patients.
Interquartile range	Range of values within a selection of data excluding the top 25% and bottom 25%. This filters out unusually high and unusually low values and shows where the most significant values in the data range are concentrated.
Intubation	The insertion of a flexible plastic tube into the trachea to support a patient's airway.
ISS	Injury Severity Score. A score ranging from 1, indicating minor injuries to 75, indicating very severe injuries that are very likely to result in death. An ISS between 9 and 15 is considered moderate. An ISS of 16 or more is considered severe. ISS is calculated using the Abbreviated Injury Scale (AIS).
Median	The middle value in a range. Less easily distorted by very high or very low values than other aggregation methods, such as the mean.
NICE	National Institute for Health and Care Excellence. This organisation sets standards for patient care including for severe head injury, defined here as patients with any head injury and a Glasgow Coma Score (GCS) of less than 13.
Paediatric	Patients under 16 years of age at time of admission.
RTC	Road traffic collision.
STR	Specialist Trainee.
TARN fraction	The proportion of TARN patients in each PS band. Used as a weight to standardise hospital outcome performance according to case mix.
Thoracotomy	A surgical incision made into the pleural space of the chest.
W	Variable showing hospital outcome performance. W represents excess deaths or survivors per 100 patients. This is calculated using observed and expected survivors and the total number of patients in the hospital's rate of survival dataset. See rate of survival breakdown section of report for full formula.
Ws	Excess deaths or survivors (W) standardised according to hospital case mix using the TARN fraction. A hospital with the same case mix as the overall TARN population will have identical W and Ws values. A hospital whose case mix differs from the overall TARN population will have different W and Ws values.

Confidence and caution Confidence interval data is generated for over than 80% of the most common rate of survival bands. Caution should be taken when interpreting the data for the remaining 20% of cases in the hospital episode statistics (HES).

Expected Expected is defined as the number of survivors (80-85% of the total) that would be expected to survive based on the overall TARN population's rate of survival (based on the hospital episode statistics (HES)).

Extreme Extreme is data completeness. A hospital's OR (or quality) score is the ratio of observed to expected for the case to the TARN equivalent cases in the hospital episode statistics.



TARN

THE TRAUMA AUDIT & RESEARCH NETWORK

Sample MTC Hospital

SECTION I

CORE MEASURES FOR ALL PATIENTS



Case Ascertainment & Accreditation

If case ascertainment is low then the analysis in the rest of the report may not be reflective of true practice.

Trust / Hospital	01 April 2016 to 31 December 2016				01 April 2015 to 31 March 2016			
	N	E	C (%)	A (%)	N	E	C (%)	A (%)
NHS Foundation Trust					34	255 - 298	11.4 - 13.3	87.9
NHS Foundation Trust					228	729 - 823	27.7 - 31.3	97.0
Sample MTC Hospitals NHS Trust	1314	1172 - 1370	95.9 - 100+	94.2	1653	1472 - 1721	96 - 100+	94.1
NHS Foundation Trust	148	285 - 333	44.4 - 51.9	99.2	164	374 - 437	37.5 - 43.8	98.8
Hospitals NHS Trust	440	472 - 592	74.3 - 93.3	97.5	625	624 - 776	80.5 - 100+	95.3
Hospital	200	177	100+	98	286	225	100+	96.9
Hospital	240	256	93.7	97	339	342	99.2	93.9
NHS Trust	266	633 - 732	36.3 - 42	98.6	381	792 - 914	41.7 - 48.1	94.9

N The number of approved submissions for the period

E The expected number of submissions for the period (from HES / HIPE / PEDW)

C The case ascertainment % for the period

A The accreditation % for the period

HES / HIPE / PEDW

Hospital Episode Statistics / Hospital In-Patient Enquiry Scheme / Patient Episode Database Wales is the data collected in hospitals on all admissions. The TARN inclusion criteria is applied to this data to derive the expected number of cases for each site. Work with TARN participating sites has shown there is some over-estimation of cases in the results due to the variation in ICD10 coding.

Case ascertainment

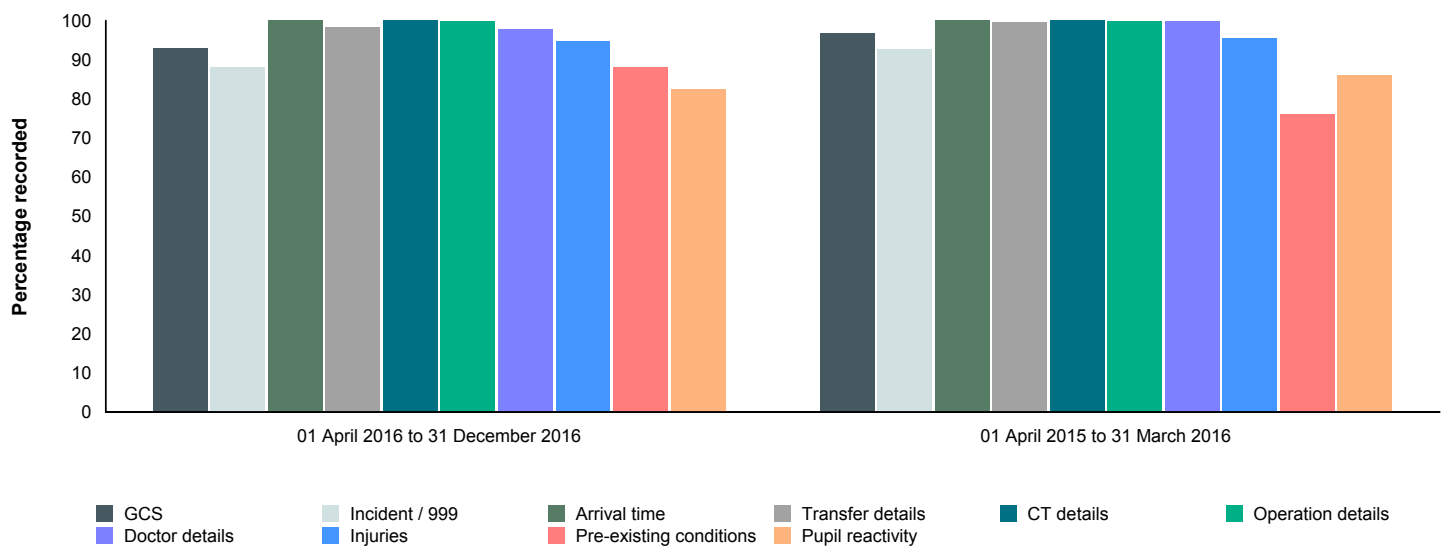
This is displayed as a percentage range and represents the number of patients submitted to TARN compared to the number of patients expected based on the HES dataset. The range represents the variance seen in the accuracy of the HES data. A single value is shown for hospitals that have provided feedback to TARN about their denominator.

Accreditation

This is the proportion of key fields used in this report that are filled in for each patient submitted to TARN.

Accreditation Breakdown

Component	01 April 2016 to 31 December 2016	01 April 2015 to 31 March 2016	Description
n	1314	1653	Number of patients
GCS	92.9%	96.7%	A GCS value or a recording of intubation / ventilation that can be used as part of the Ps calculation
Incident / 999 call details	87.9%	92.6%	Incident or 999 call date & time
Arrival time	99.9%	99.9%	Time of arrival at hospital
Transfer details	98.2%	99.4%	Reason for transfer & transfer request date
CT details	100.0%	100.0%	Date and time of recorded CT scan(s)
Operation details	99.8%	99.8%	Date and time, grade and speciality of surgeon and grade of anaesthetist for all recorded operations
Doctors in the ED	97.9%	99.8%	Date, time, grade and speciality of recorded ED doctor(s)
Injuries	94.8%	95.5%	Detailed injury descriptions
Pre-existing conditions	88.1%	75.9%	Information about pre-existing conditions
Pupil reactivity	82.3%	86.1%	Pupil reactivity for patients with AIS 3+ head injuries
Accreditation Total	94.2%	94.1%	



Sample MTC Hospital

Case mix standardised rate of survival (Ws) & Ws Breakdown (Ps14)

01 April 2015 to 31 December 2016

Patients who died at or were discharged from this hospital are eligible for Ws calculations. Patients who were transferred out from this hospital and not re-admitted are excluded.

Outcome at 30 days or discharge

PS Band	Number in band	Observed Survivors	Expected Survivors	Difference*	TARN fraction	Ws	95% confidence interval
95 - 100	1582	1562	1556.88	0.32	0.72	0.23	
90 - 95	407	375	378.91	-0.96	0.12	-0.12	
80 - 90	261	222	224.28	-0.87	0.07	-0.06	
65 - 80	176	145	130.59	8.19	0.04	0.32	
45 - 65	81	45	46.01	-1.25	0.03	-0.03	
25 - 45	51	25	18.33	13.08	0.02	0.21	
0 - 25	46	11	6.58	9.61	0.01	0.11	
Total	2604	2385	2361.59			0.67	-0.08 to 1.42

Outcome at 30 days via ONS data linkage

PS Band	Number in band*	Observed Survivors	Expected Survivors	Difference*	TARN fraction	Ws	95% confidence interval
95 - 100	1556	1535	1529.17	0.37	0.71	0.27	
90 - 95	359	331	333.30	-0.64	0.11	-0.07	
80 - 90	309	264	265.97	-0.64	0.08	-0.05	
65 - 80	190	154	140.25	7.24	0.04	0.31	
45 - 65	92	49	52.06	-3.32	0.03	-0.09	
25 - 45	51	27	18.11	17.44	0.02	0.29	
0 - 25	47	11	6.76	9.01	0.01	0.11	
Total	2604	2371	2345.61			0.75	-0.02 to 1.53

*The number of cases may be reduced due to missing NHS numbers preventing ONS linkage

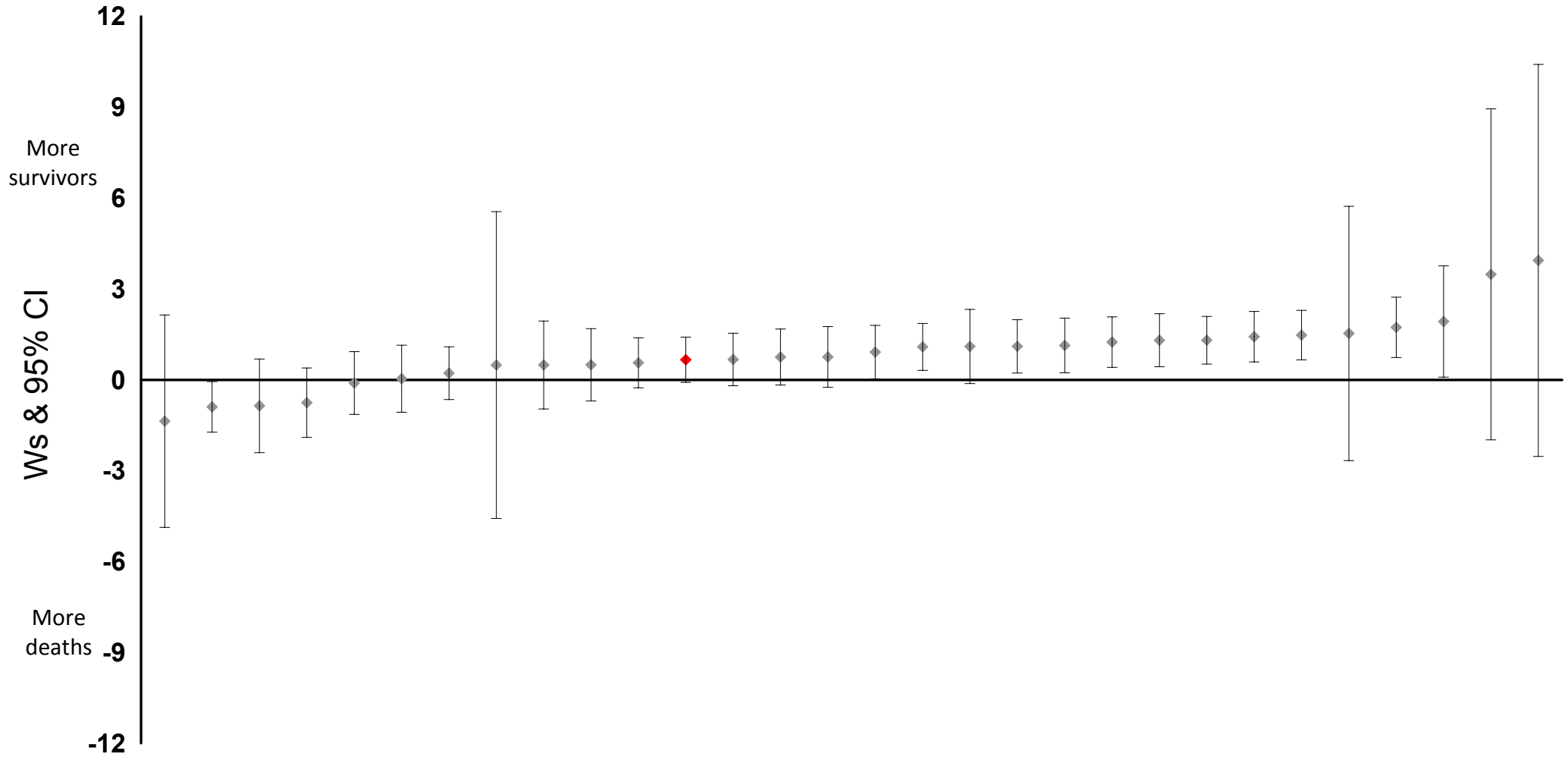
$$\text{* Difference (W)} = \frac{\text{Observed} - \text{Expected}}{\text{Number of patients}} \times 100$$

See glossary for further details of the variables included in the PS model.

Sample MTC Hospital
 Major Trauma Centres
 Comparative Outcome Analysis - 01 April 2015 to 31 December 2016
 Outcome at 30 days or discharge

Sample MTC Hospital is highlighted

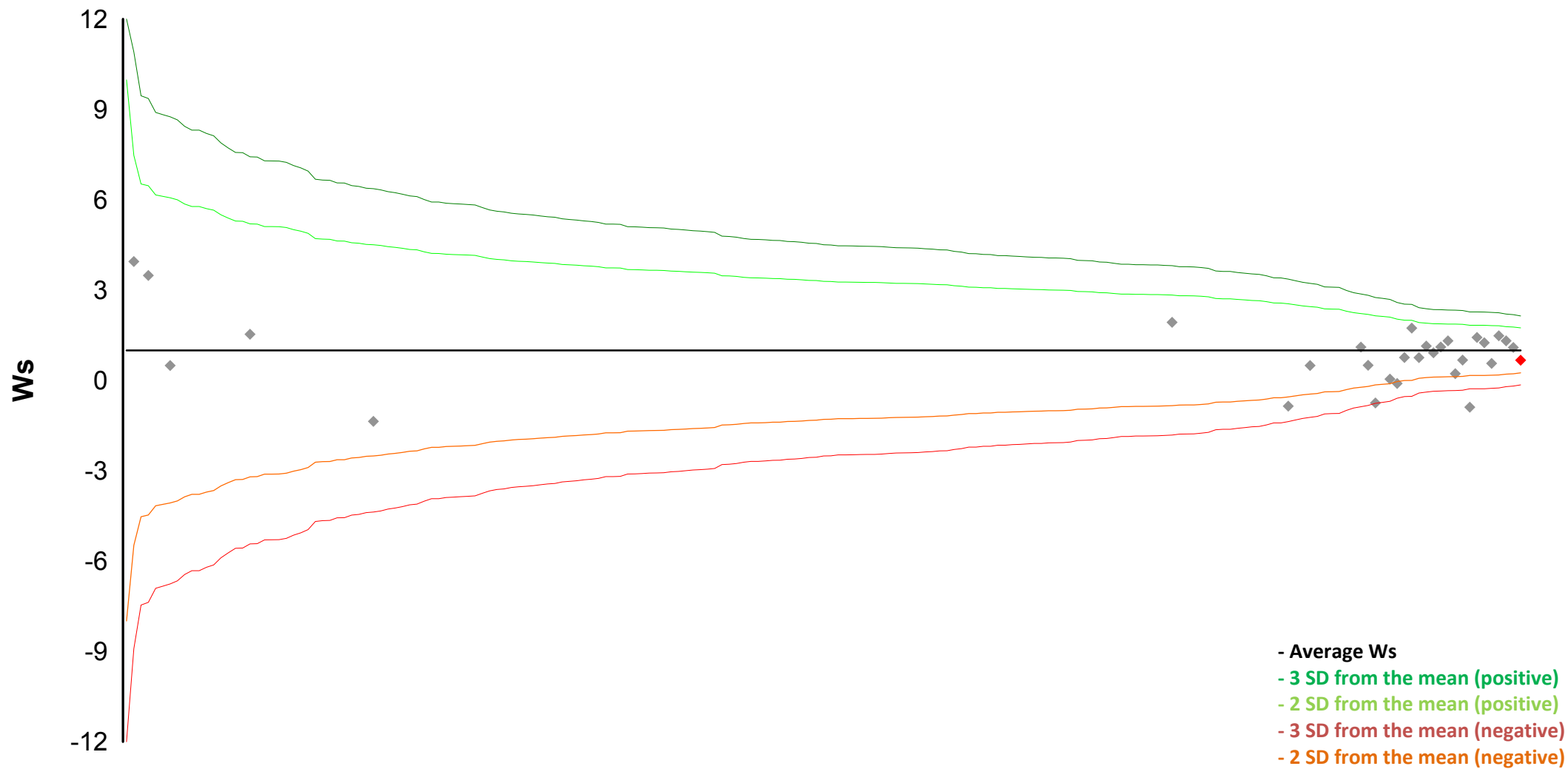
The Ws must be reviewed in conjunction with the Data Completeness and Accreditation figures.



Major Trauma Centres Comparative Outcome Analysis - 01 April 2015 to 31 December 2016 Outcome at 30 days or discharge

Sample MTC Hospital is highlighted

The Ws must be reviewed in conjunction with the Data Completeness and Accreditation figures.

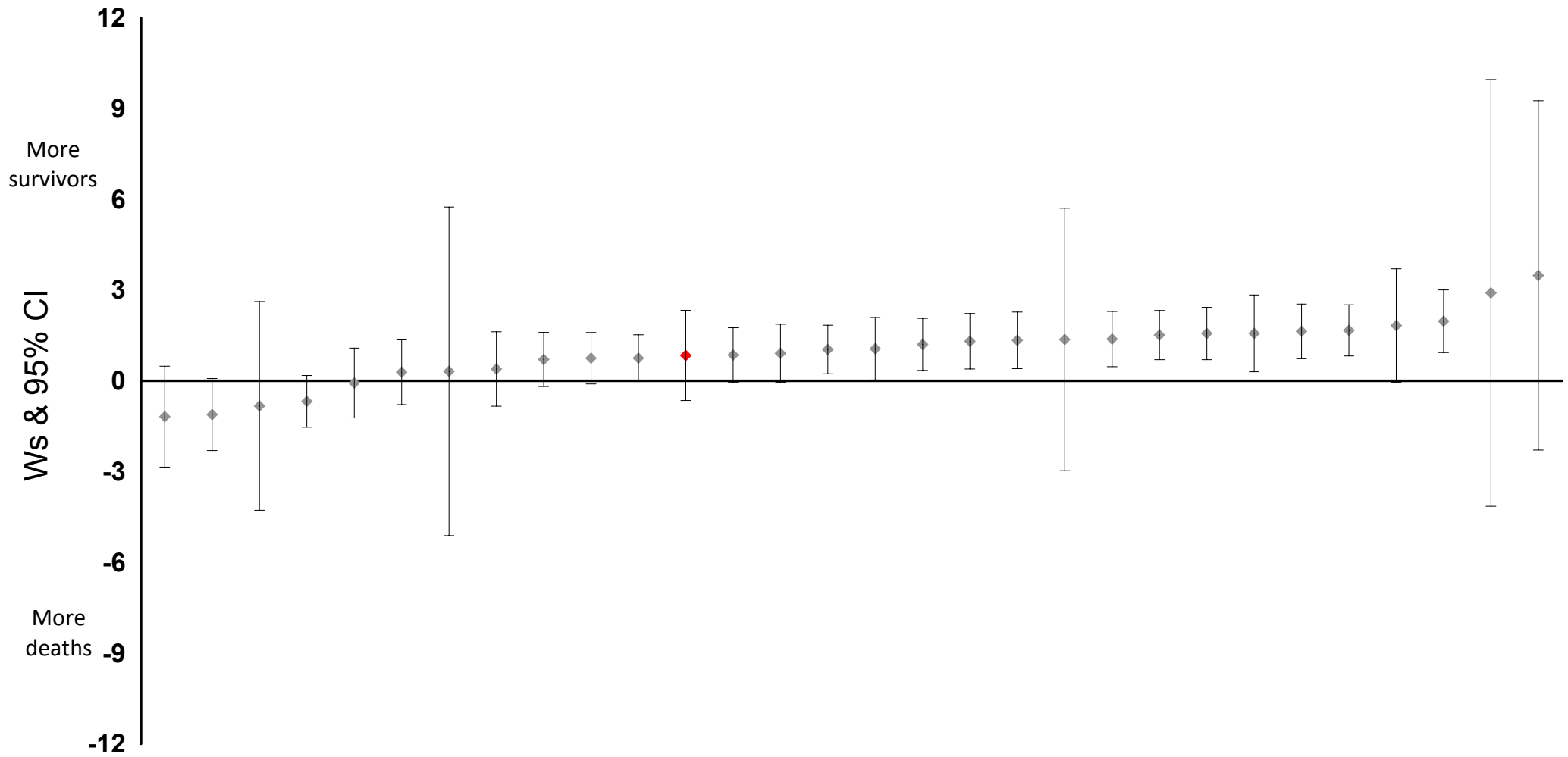


Hospitals are plotted in order of precision (1 / standard error).

Sample MTC Hospital
 Major Trauma Centres
 Comparative Outcome Analysis - 01 April 2015 to 31 December 2016
 True Outcome at 30 days via ONS data linkage

Sample MTC Hospital is highlighted

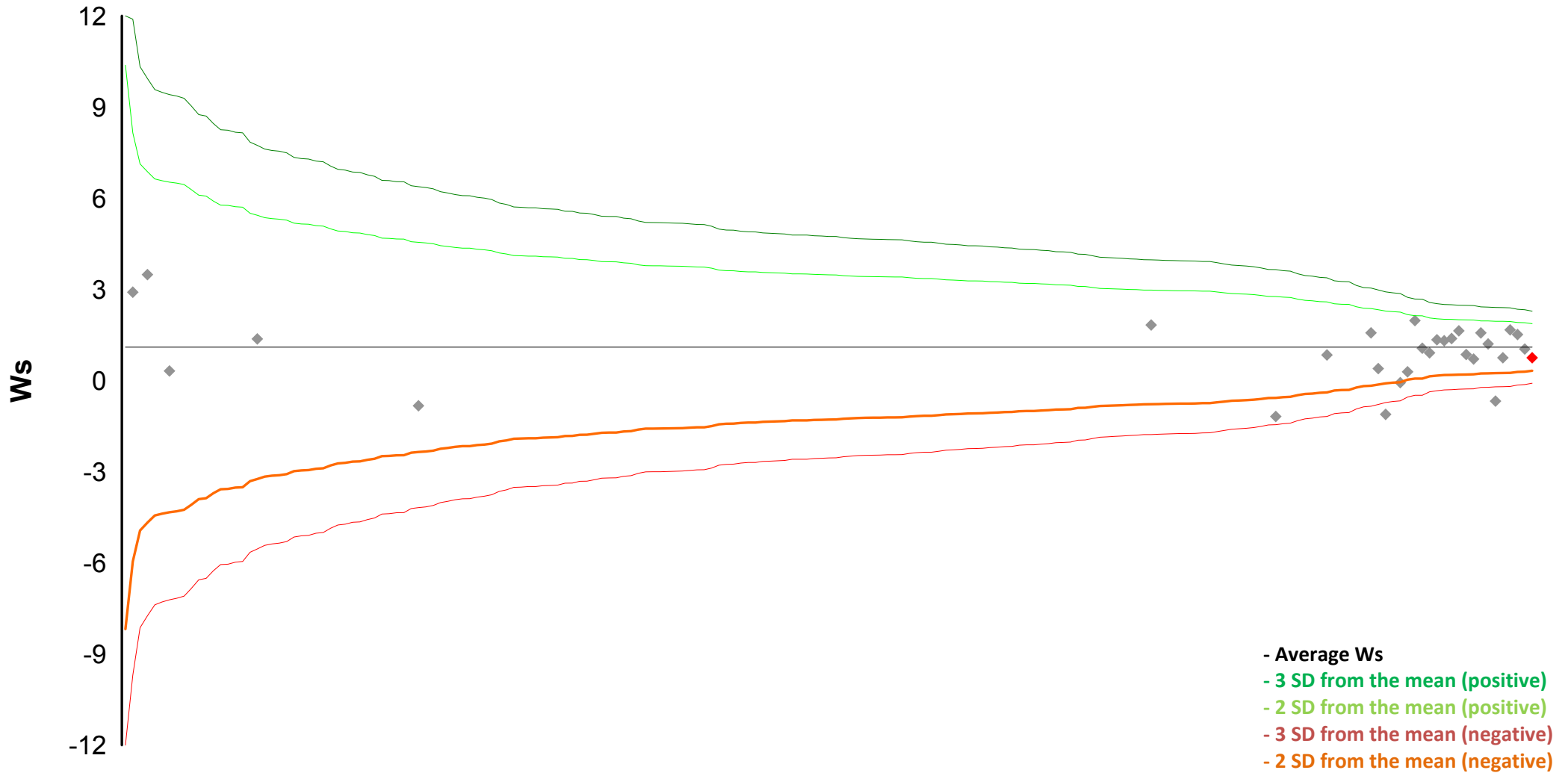
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**Major Trauma Centres
Comparative Outcome Analysis - 01 April 2015 to 31 December 2016
True Outcome at 30 days via ONS data linkage**

Sample MTC Hospital is highlighted

The Ws must be reviewed in conjunction with the Data Completeness and Accreditation figures.



Hospitals are plotted in order of precision (1 / standard error).

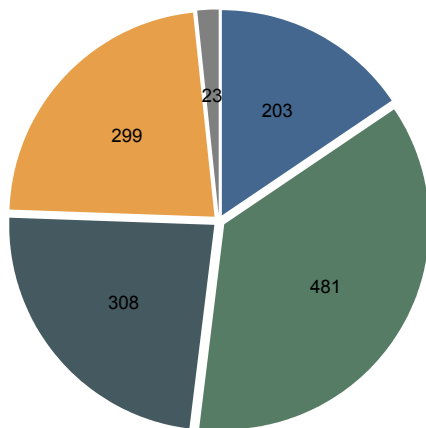
ISS & Injury Mechanism

(row percentages)

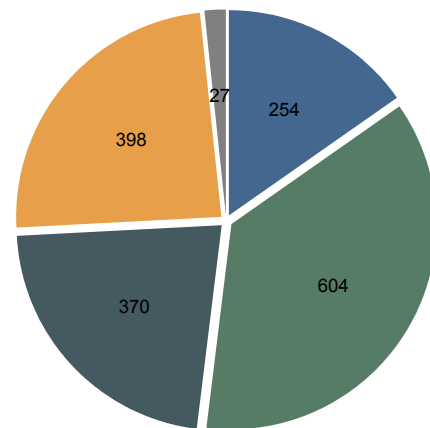
Mechanism	1 - 8	9 - 15	16 - 24	25 - 45	>45	Total	>15
01 April 2016 to 31 December 2016							
RTC	47 (12.4%)	112 (29.6%)	102 (26.9%)	103 (27.2%)	15 (4.0%)	379	220 (58.0%)
Fall < 2m	109 (18.2%)	267 (44.5%)	115 (19.2%)	108 (18.0%)	1 (0.2%)	600	224 (37.3%)
Fall > 2m	29 (13.4%)	64 (29.5%)	60 (27.6%)	59 (27.2%)	5 (2.3%)	217	124 (57.1%)
Shooting / Stabbing	5 (15.6%)	18 (56.3%)	4 (12.5%)	4 (12.5%)	1 (3.1%)	32	9 (28.1%)
Other	13 (15.1%)	20 (23.3%)	27 (31.4%)	25 (29.1%)	1 (1.2%)	86	53 (61.6%)
Total	203 (15.4%)	481 (36.6%)	308 (23.4%)	299 (22.8%)	23 (1.8%)	1314	630 (47.9%)

01 April 2015 to 31 March 2016

RTC	52 (10.6%)	142 (29.0%)	131 (26.8%)	145 (29.7%)	19 (3.9%)	489	295 (60.3%)
Fall < 2m	148 (18.7%)	353 (44.5%)	153 (19.3%)	138 (17.4%)	1 (0.1%)	793	292 (36.8%)
Fall > 2m	29 (12.7%)	53 (23.2%)	55 (24.1%)	84 (36.8%)	7 (3.1%)	228	146 (64.0%)
Shooting / Stabbing	4 (11.4%)	23 (65.7%)	7 (20.0%)	1 (2.9%)	0 (0.0%)	35	8 (22.9%)
Other	21 (19.4%)	33 (30.6%)	24 (22.2%)	30 (27.8%)	0 (0.0%)	108	54 (50.0%)
Total	254 (15.4%)	604 (36.5%)	370 (22.4%)	398 (24.1%)	27 (1.6%)	1653	795 (48.1%)



01 April 2016 to 31 December 2016



01 April 2015 to 31 March 2016

■ 1 - 8 ■ 9 - 15 ■ 16 - 24 ■ 25 - 45 ■ >45

Pre-hospital care

Direct admissions, 01 April 2016 to 31 December 2016

Number of patients: 1061

Number of patients with pre-hospital data: 831

Level of personnel on scene

Doctor	Paramedic	Not recorded
68 (8.2%)	672 (80.9%)	91 (11.0%)

Mode of transport to hospital

Ambulance	Helicopter	Self-presented	Not recorded*
770 (72.6%)	61 (5.7%)	8 (0.8%)	222 (20.9%)

Direct admissions, 01 April 2015 to 31 March 2016

Number of patients: 1355

Number of patients with pre-hospital data: 1055

Level of personnel on scene

Doctor	Paramedic	Not recorded
89 (8.4%)	896 (84.9%)	70 (6.6%)

Mode of transport to hospital

Ambulance	Helicopter	Self-presented	Not recorded*
953 (70.3%)	104 (7.7%)	1 (0.1%)	297 (21.9%)

*Mode of transport not recorded may include patients that self-presented.

Patients with GCS < 9 pre-hospital or in the ED and definitive airway management pre-hospital or in the ED

n	Definitive airway management	Pre-hospital	ED	Date & time recorded	Recorded within 30 mins of incident	Median time from incident (hours)
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Direct admissions, 01 April 2016 to 31 December 2016

92	77 (83.7%)	45 (48.9%)	32 (34.8%)	69 (89.6%)	1 (1.1%)	1.4
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Direct admissions, 01 April 2015 to 31 March 2016

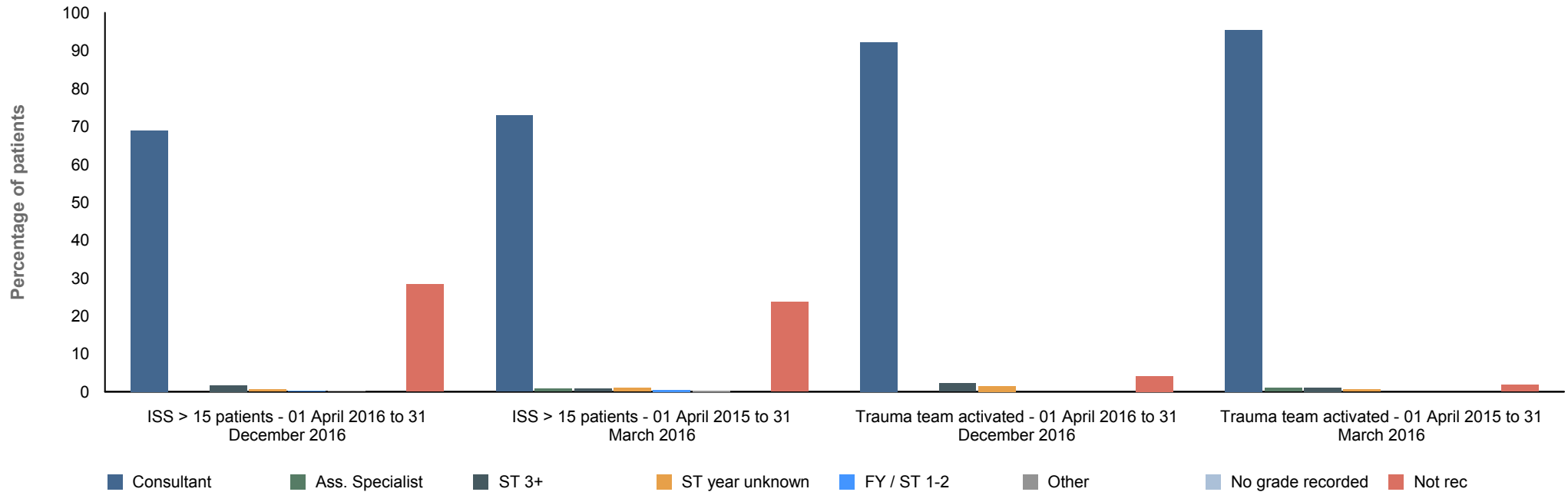
99	93 (93.9%)	46 (46.5%)	47 (47.5%)	89 (95.7%)	1 (0.0%)	1.5
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Definitive airway management is defined as the management of an airway using intubation, tracheostomy or cricothyroidotomy.

Most senior doctor seeing patients within 5 minutes of arrival

All patients directly admitted, all specialities

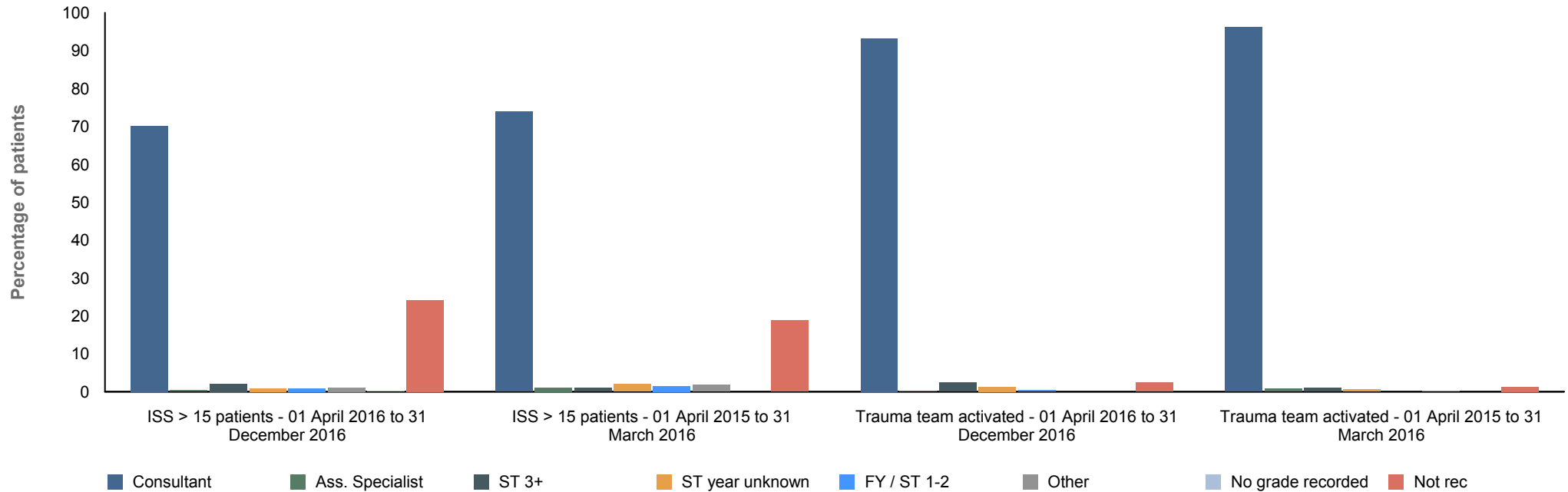
Category	Total	Consultant	Associate specialist	ST: 3+	ST: Year unknown	FY / ST: 1-2	Other	No grade recorded	No doctor recorded
01 April 2016 to 31 December 2016									
All patients	1061	611 (57.6%)	4 (0.4%)	12 (1.1%)	8 (0.8%)	3 (0.3%)	3 (0.3%)	0 (0.0%)	420 (39.6%)
ISS > 15 patients	466	321 (68.9%)	0 (0.0%)	8 (1.7%)	3 (0.6%)	1 (0.2%)	1 (0.2%)	0 (0.0%)	132 (28.3%)
Trauma team activated	461	425 (92.2%)	0 (0.0%)	10 (2.2%)	7 (1.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	19 (4.1%)
Trauma team not activated	600	186 (31.0%)	4 (0.7%)	2 (0.3%)	1 (0.2%)	3 (0.5%)	3 (0.5%)	0 (0.0%)	401 (66.8%)
01 April 2015 to 31 March 2016									
All patients	1355	852 (62.9%)	12 (0.9%)	9 (0.7%)	13 (1.0%)	6 (0.4%)	5 (0.4%)	0 (0.0%)	458 (33.8%)
ISS > 15 patients	612	446 (72.9%)	5 (0.8%)	5 (0.8%)	6 (1.0%)	3 (0.5%)	2 (0.3%)	0 (0.0%)	145 (23.7%)
Trauma team activated	628	600 (95.5%)	6 (1.0%)	7 (1.1%)	4 (0.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	11 (1.8%)
Trauma team not activated	727	252 (34.7%)	6 (0.8%)	2 (0.3%)	9 (1.2%)	6 (0.8%)	5 (0.7%)	0 (0.0%)	447 (61.5%)



Most senior doctor seeing patients within 30 minutes of arrival

All patients directly admitted, all specialities

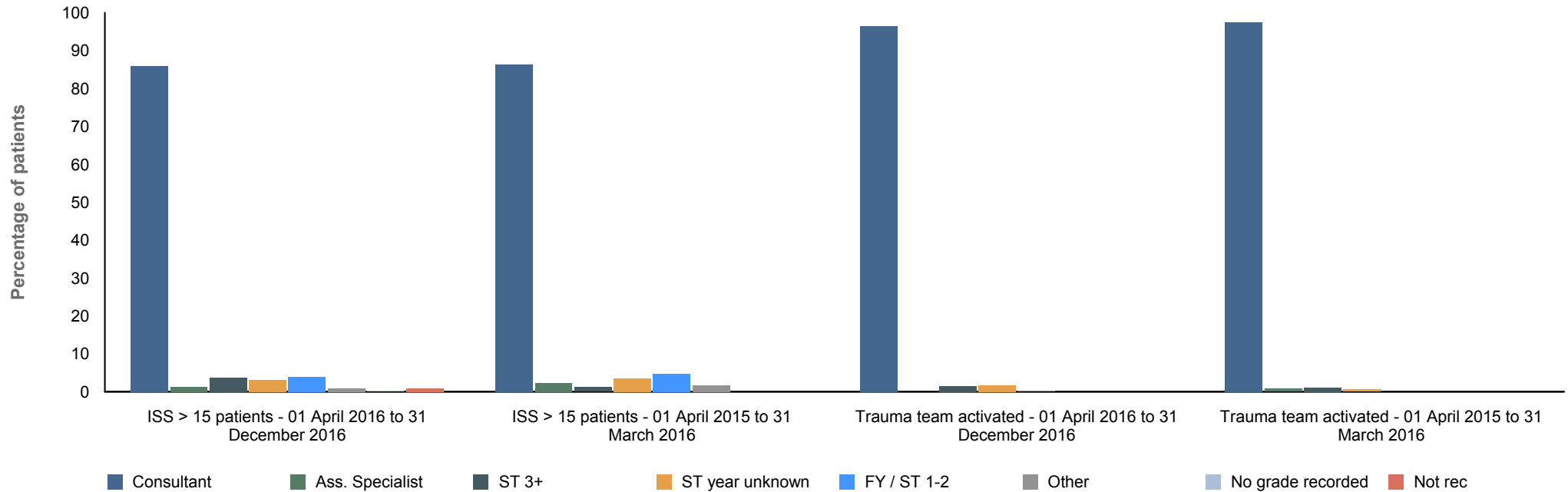
Category	Total	Consultant	Associate specialist	ST: 3+	ST: Year unknown	FY / ST: 1-2	Other	No grade recorded	No doctor recorded
01 April 2016 to 31 December 2016									
All patients	1061	626 (59.0%)	11 (1.0%)	17 (1.6%)	14 (1.3%)	15 (1.4%)	21 (2.0%)	2 (0.2%)	355 (33.5%)
ISS > 15 patients	466	327 (70.2%)	2 (0.4%)	10 (2.1%)	4 (0.9%)	4 (0.9%)	5 (1.1%)	1 (0.2%)	113 (24.2%)
Trauma team activated	461	430 (93.3%)	1 (0.2%)	11 (2.4%)	6 (1.3%)	2 (0.4%)	0 (0.0%)	0 (0.0%)	11 (2.4%)
Trauma team not activated	600	196 (32.7%)	10 (1.7%)	6 (1.0%)	8 (1.3%)	13 (2.2%)	21 (3.5%)	2 (0.3%)	344 (57.3%)
01 April 2015 to 31 March 2016									
All patients	1355	872 (64.4%)	22 (1.6%)	10 (0.7%)	32 (2.4%)	28 (2.1%)	31 (2.3%)	0 (0.0%)	360 (26.6%)
ISS > 15 patients	612	452 (73.9%)	7 (1.1%)	6 (1.0%)	12 (2.0%)	9 (1.5%)	11 (1.8%)	0 (0.0%)	115 (18.8%)
Trauma team activated	628	604 (96.2%)	5 (0.8%)	6 (1.0%)	4 (0.6%)	0 (0.0%)	1 (0.2%)	0 (0.0%)	8 (1.3%)
Trauma team not activated	727	268 (36.9%)	17 (2.3%)	4 (0.6%)	28 (3.9%)	28 (3.9%)	30 (4.1%)	0 (0.0%)	352 (48.4%)



Most senior doctor seeing patients in the Emergency Department

All patients directly admitted to the ED, all specialities

Category	Total	Consultant	Associate specialist	ST: 3+	ST: Year unknown	FY / ST: 1-2	Other	No grade recorded	No ED doctor recorded
01 April 2016 to 31 December 2016									
All patients	1040	788 (75.8%)	27 (2.6%)	41 (3.9%)	68 (6.5%)	78 (7.5%)	16 (1.5%)	6 (0.6%)	16 (1.5%)
ISS > 15 patients	458	394 (86.0%)	6 (1.3%)	17 (3.7%)	14 (3.1%)	18 (3.9%)	4 (0.9%)	1 (0.2%)	4 (0.9%)
Trauma team activated	461	445 (96.5%)	0 (0.0%)	7 (1.5%)	8 (1.7%)	1 (0.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Trauma team not activated	579	343 (59.2%)	27 (4.7%)	34 (5.9%)	60 (10.4%)	77 (13.3%)	16 (2.8%)	6 (1.0%)	16 (2.8%)
01 April 2015 to 31 March 2016									
All patients	1332	1066 (80.0%)	37 (2.8%)	11 (0.8%)	75 (5.6%)	101 (7.6%)	41 (3.1%)	0 (0.0%)	1 (0.1%)
ISS > 15 patients	603	521 (86.4%)	14 (2.3%)	7 (1.2%)	22 (3.6%)	29 (4.8%)	10 (1.7%)	0 (0.0%)	0 (0.0%)
Trauma team activated	628	612 (97.5%)	5 (0.8%)	7 (1.1%)	4 (0.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Trauma team not activated	704	454 (64.5%)	32 (4.5%)	4 (0.6%)	71 (10.1%)	101 (14.3%)	41 (5.8%)	0 (0.0%)	1 (0.1%)



Sample MTC Hospital

Time to CT Scan**Direct Admissions (excluding patients taken directly to theatre)**

Patient category	n	n (with CT recorded)	n (CT with date and time rec)	Median time to (mins)		
				CT	Provisional report	Final report
01 April 2016 to 31 December 2016						
All Patients	1050	806	805	54 (23 - 182)	30 (0 - 51)	134 (61 - 515)
AIS 3+ Head Injury	312	310	309	58 (23 - 144)	30 (0 - 50)	120 (59 - 466)
NICE head injury criteria	100	98	97	23 (16 - 35)	30 (0 - 55)	84 (58 - 350)
01 April 2015 to 31 March 2016						
All Patients	1346	1005	1004	48 (23 - 138)	30 (0 - 53)	127 (58 - 540)
AIS 3+ Head Injury	396	395	394	43 (22 - 119)	34 (0 - 53)	140 (58 - 549)
NICE head injury criteria	123	123	122	28 (16 - 38)	33 (0 - 53)	119 (54 - 462)

Median time to CT

Time from hospital arrival to first CT scan

Median time to provisional report

Time from first CT scan to the provisional report being produced

Median time to final report

Time from first CT scan to the review of the provisional report by a consultant

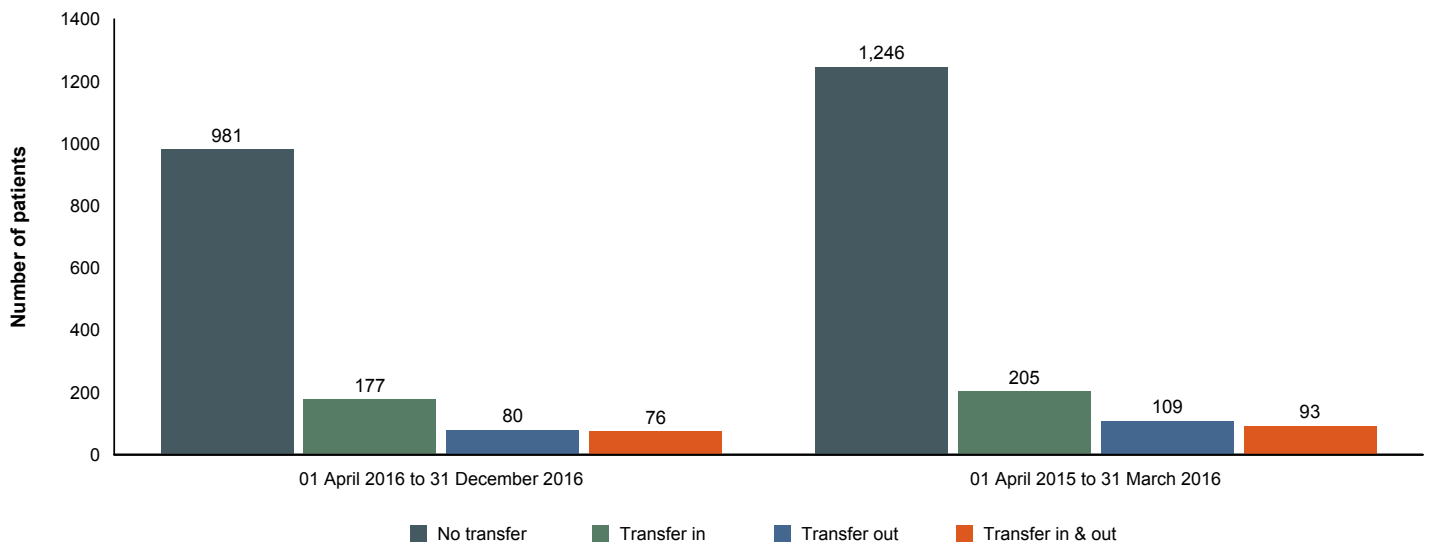
Time to Operation**Direct Admissions (excluding patients with a time difference greater than 24 hours)**

Patient category	n	Median time to operation (mins)
01 April 2016 to 31 December 2016		
All Patients	255	707 (256 - 1066)
AIS 3+ Head Injury	47	326 (174 - 722)
01 April 2015 to 31 March 2016		
All Patients	301	635 (238 - 1069)
AIS 3+ Head Injury	53	339 (155 - 731)

Transfer between hospitals

Transfer between hospitals

Date range	No transfer	Transfer in	Transfer out	Transfer in & out
01 April 2016 to 31 December 2016	981 (74.7%)	177 (13.5%)	80 (6.1%)	76 (5.8%)
01 April 2015 to 31 March 2016	1246 (75.4%)	205 (12.4%)	109 (6.6%)	93 (5.6%)

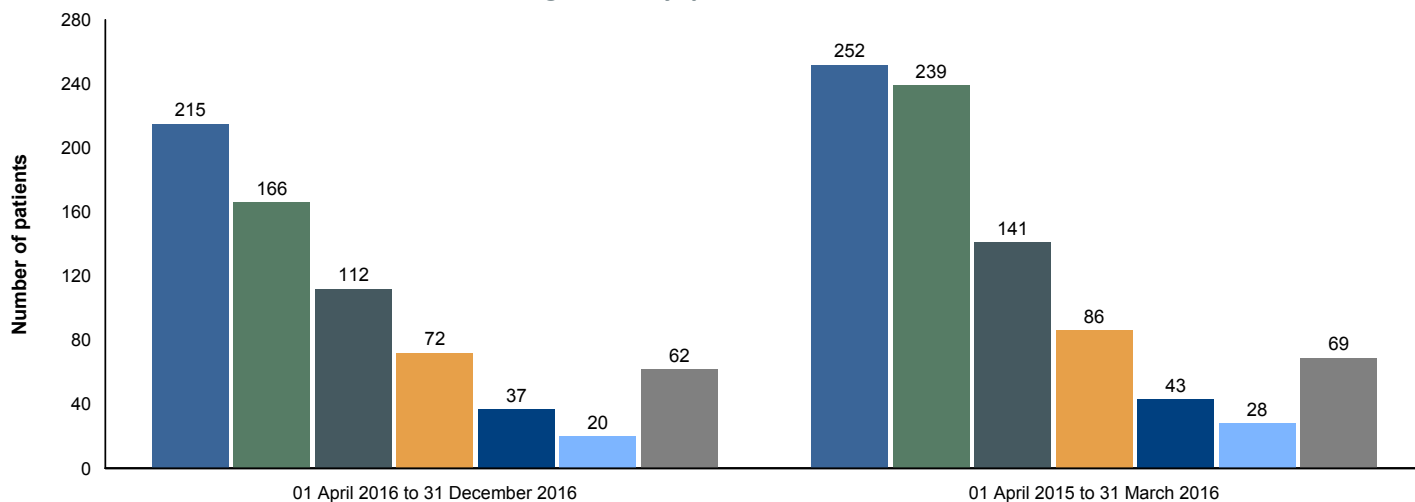


Length of stay in hospital

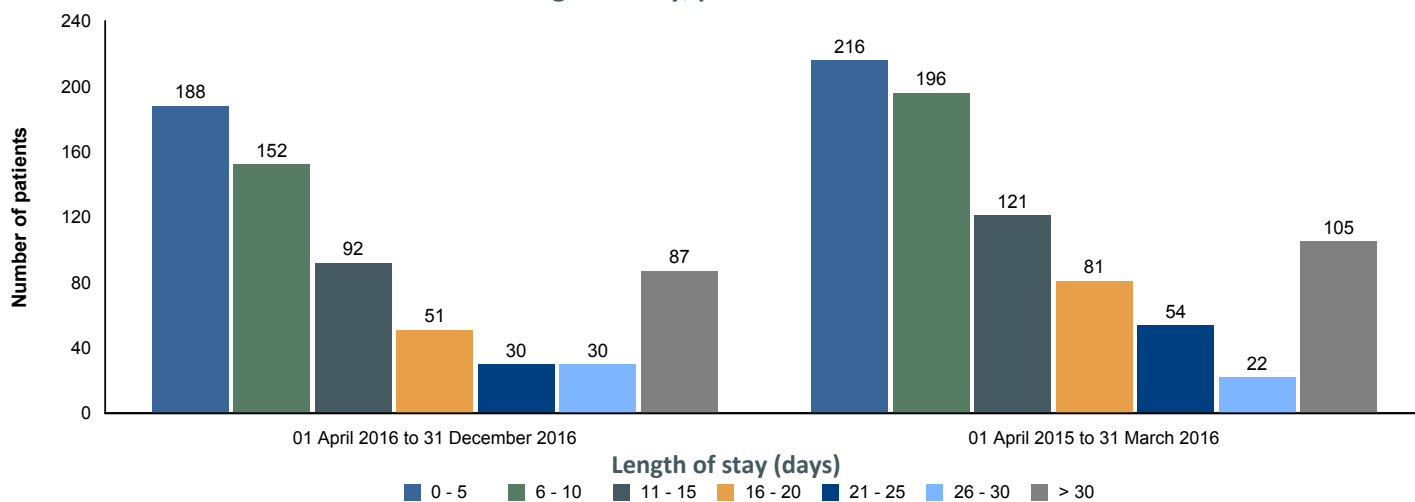
Date range	ISS <= 15			ISS > 15		
	n	Median length of stay	Total bed days	n	Median length of stay	Total bed days
01 April 2016 to 31 December 2016	684	9 (5 - 17)	9317	630	9 (5 - 19)	10090
01 April 2015 to 31 March 2016	858	9 (5 - 16)	11420	795	10 (5 - 19)	13989

All values are median number of days (interquartile range)

Total length of stay, patients with an ISS <= 15

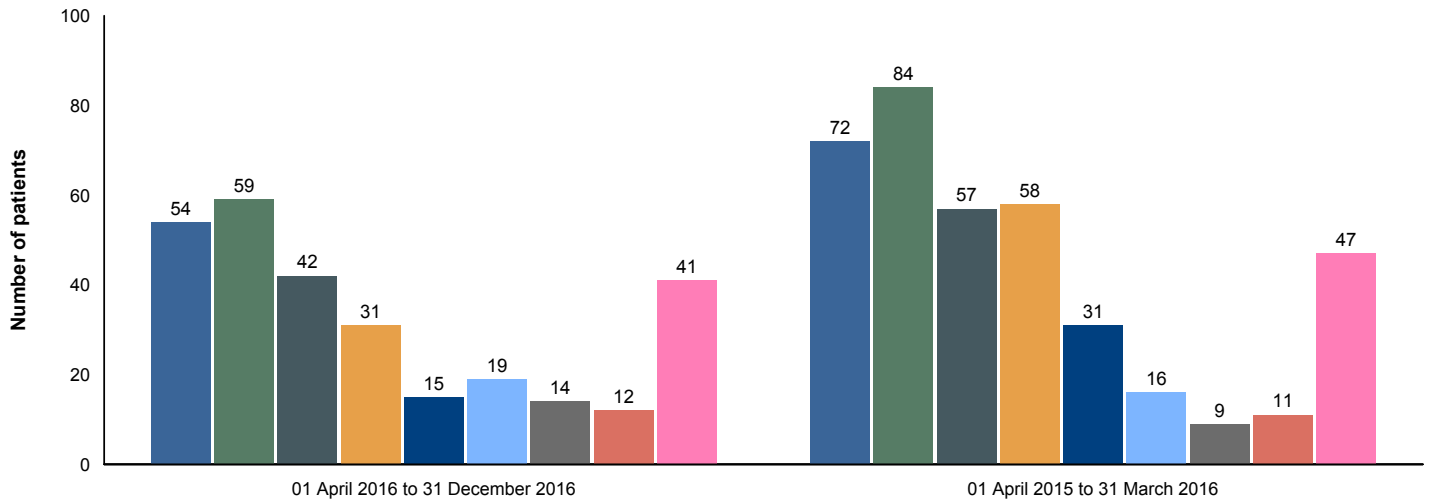


Total length of stay, patients with an ISS > 15

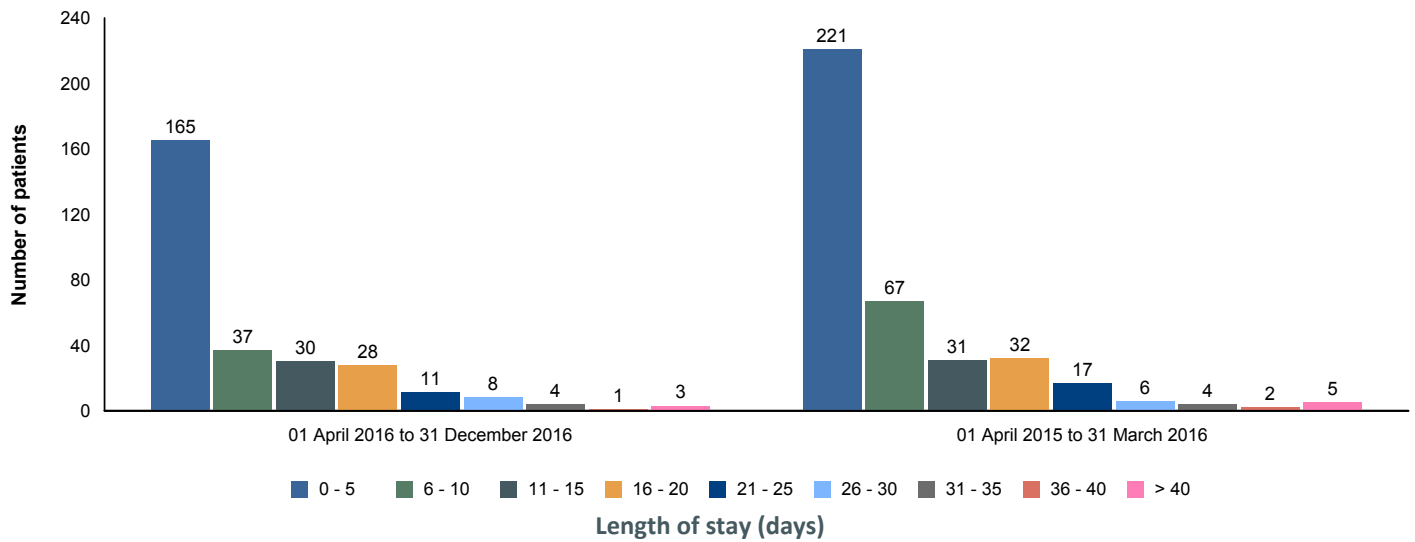


Date range	Patients that went to critical care	Median total length of stay (days)	Median length of stay in critical care (days)	Readmissions to critical care	Readmissions to critical care with dates recorded	Readmissions to critical care within 48 hours
01 April 2016 to 31 December 2016	287	14 (7 - 30)	4 (1 - 13)	36 (12.5%)	32 (11.1%)	0 (0.0%)
01 April 2015 to 31 March 2016	385	13 (7 - 23)	4 (2 - 11)	27 (7.0%)	19 (4.9%)	1 (0.3%)

Total length of stay, patients that went to critical care



Total length of stay in critical care





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THE TRAUMA AUDIT & RESEARCH NETWORK

Sample MTC Hospital

SECTION II

PATIENTS WITH ORTHOPAEDIC INJURIES



Sample MTC Hospital

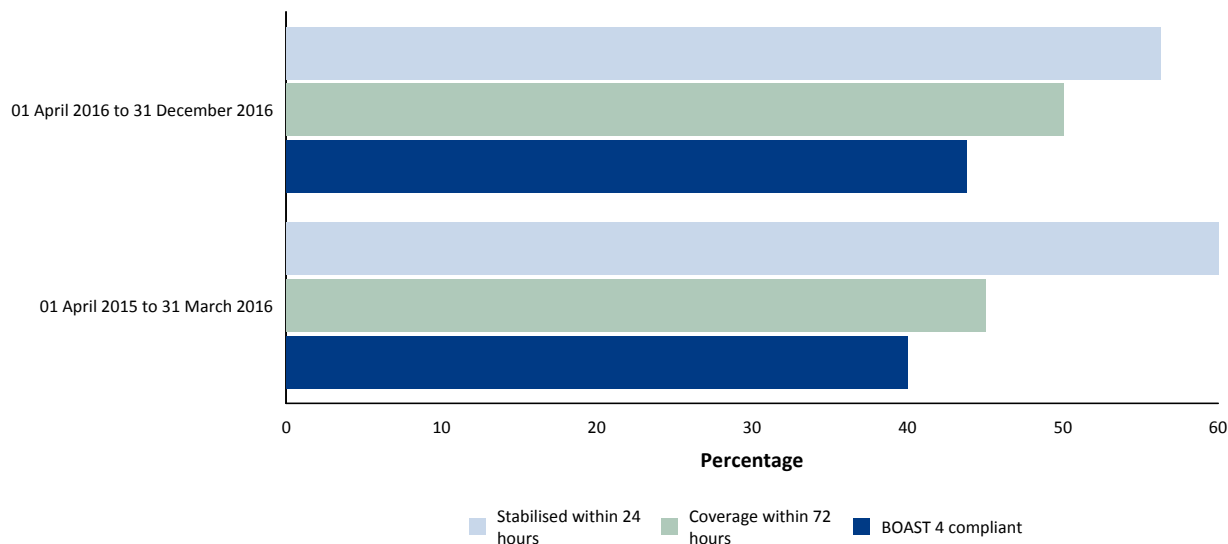
Patients meeting the BOAST 4 injury criteria - stabilisation and cover

The measures reported here reflect not only data recorded at this hospital but also others, where the patient was referred from or transferred to.

Patients with open fractures of the tibia, graded as Gustilo IIIB or IIIC are eligible for the BOAST 4 standard.

BOAST 4 compliance

Date range	Total	Stabilisation			Soft tissue cover			BOAST 4 compliant	
		Median hours to operation	Within 24 hours n	Within 24 hours %	Median hours to operation	Within 72 hours n	Within 72 hours %	n	%
01 April 2016 to 31 December 2016	16	16.4	9	56.3	38.5	8	50.0	7	43.8
01 April 2015 to 31 March 2016	40	14.5	24	60.0	50.0	18	45.0	16	40.0



In order to be BOAST 4 compliant patients need to be stabilised within 24 hours of injury and have soft tissue cover within 72 hours of injury.

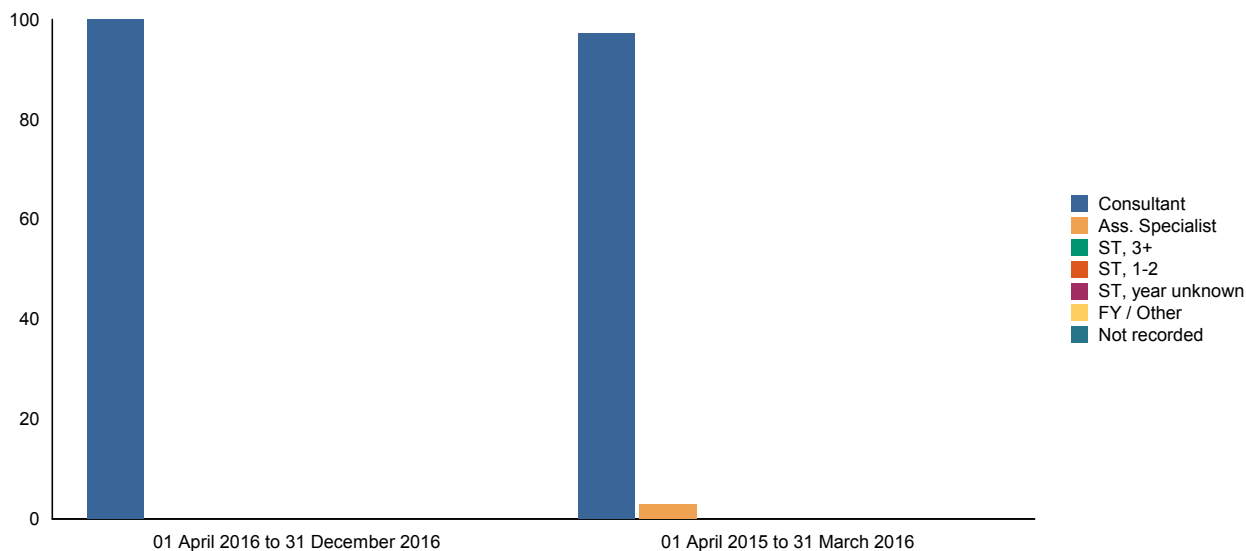
Sample MTC Hospital

Patients meeting the BOAST 4 injury criteria - grade of most senior surgeon providing stabilisation and cover

The measures reported here reflect not only data recorded at this hospital but also others, where the patient was referred from or transferred to.

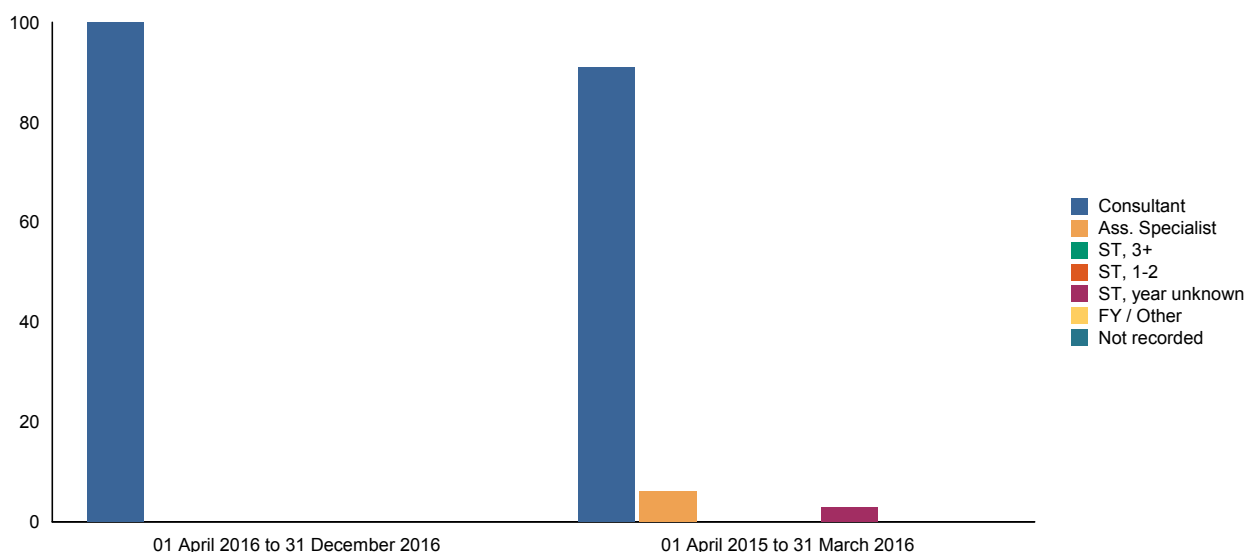
Surgical stabilisation of the fracture

Date range	Operation recorded	Consultant	Associate specialist	ST: 3+	ST: 1 - 2	ST: Year unknown	Foundation Year / Other	Not Recorded
01 April 2016 to 31 December 2016	11	11 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
01 April 2015 to 31 March 2016	36	35 (97.2)	1 (2.8)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)



Soft tissue cover of the fracture

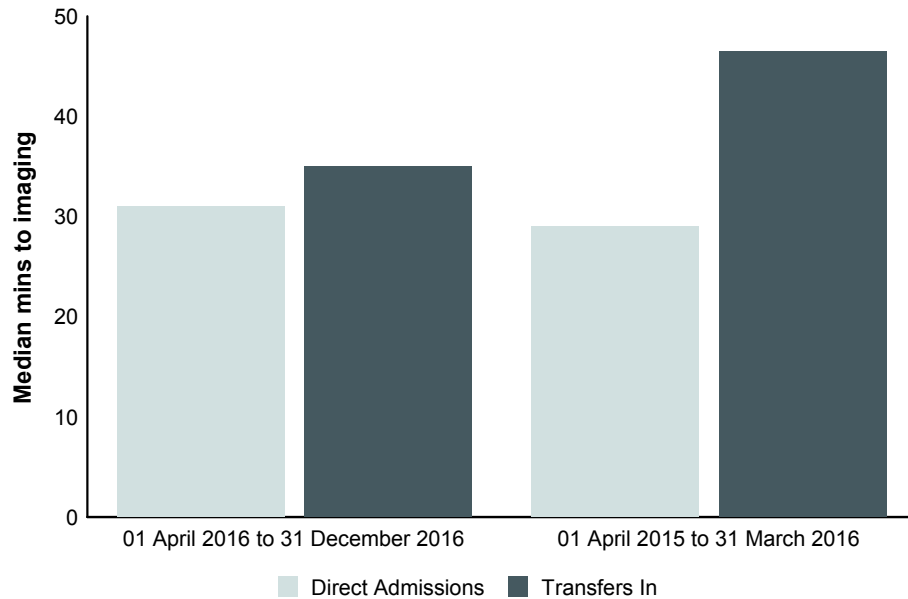
Date range	Operation recorded	Consultant	Associate specialist	ST: 3+	ST: 1 - 2	ST: Year unknown	Foundation Year / Other	Not Recorded
01 April 2016 to 31 December 2016	11	11 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
01 April 2015 to 31 March 2016	33	30 (90.9)	2 (6.1)	0 (0.0)	0 (0.0)	1 (3.0)	0 (0.0)	0 (0.0)



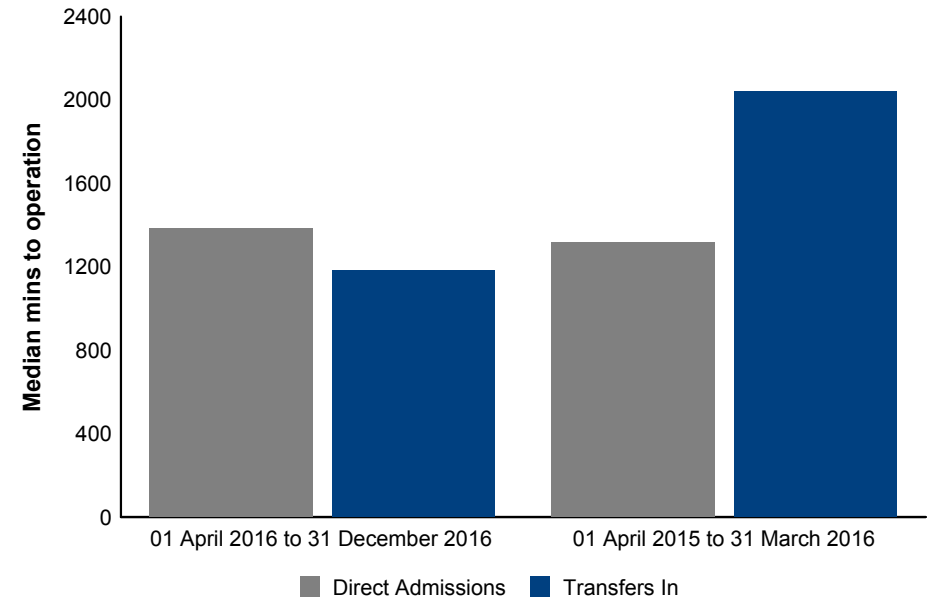
Sample MTC Hospital
Patients with severe (AIS 4+) pelvic fractures

Transfer Status	n	Imaging	Imaging date & time recorded	Median time to imaging (mins)	Interquartile range	Operation	Operation date & time recorded	Median time to operation (mins)	Interquartile range
01 April 2016 to 31 December 2016									
Direct Admissions	44	44	44	31	22 - 39	28	27	1382	722 - 2994
Transfers In	13	6	6	35	25 - 52	9	9	1180	283 - 3067
01 April 2015 to 31 March 2016									
Direct Admissions	71	68	68	29	19 - 46	46	45	1315	761 - 3624
Transfers In	18	10	10	47	25 - 167	13	13	2040	1020 - 4327

Time to imaging



Time to operation



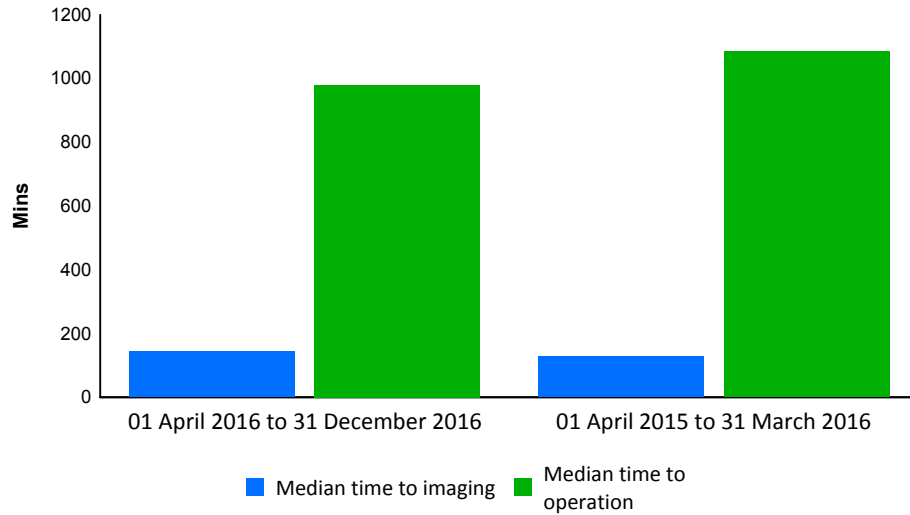
Imaging includes CT scan, CT scan + contrast, MRI scan and AP & Judet Radiograph

Sample MTC Hospital Patients with open fractures of the limbs

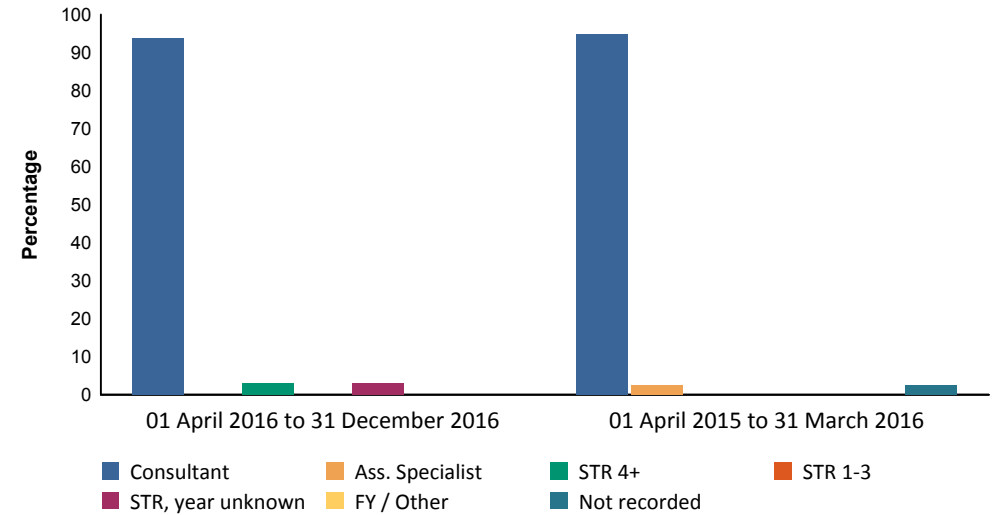
The measures reported here reflect not only data recorded at this hospital but also others, where the patient was referred from or transferred to.

Date range	Number of patients	Imaging with date & time recorded	Median mins to imaging (IQR)	Operation recorded	Operation with date & time recorded	Median mins to operation (IQR)	Grade of surgeon performing earliest operation						
							Consultant	Associate specialist	ST: 3+	ST: 1 - 2	ST: Year unknown	Foundation Year /	Not recorded
01 April 2016 to 31 December 2016	76	63	143 (116 - 187)	64	58	980 (694 - 1265)	60 (93.8%)	0 (0%)	2 (3.1%)	0 (0%)	2 (3.1%)	0 (0%)	0 (0%)
01 April 2015 to 31 March 2016	121	101	128 (105 - 162)	77	68	1085 (628 - 4111)	73 (94.8%)	2 (2.6%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (2.6%)

Time to scanning & operations



Grade of surgeon performing earliest operation



Imaging includes CT scan, CT scan + contrast, MRI scan and AP & Judet Radiograph

Appendix Information

The appendix for this report is a separate Excel file, below are details of which filters to apply in order to select patients relevant to each page.

Page	Filter(s) to apply
Pre-hospital care	Direct admission = Yes
Most senior doctor (5 / 30 minutes & ED)	Direct admission = Yes ISS > 15 / Trauma Team = Yes or No for categories
Time to CT scan	Direct admission = Yes Head 3+ = Yes / NICE = Yes for categories
Time to CT scan by month	Direct admission = Yes, Month is based on arrival date
Time to Operation	Direct admission = Yes Head 3+ = Yes for category
Critical care information	ICU LOS > 0
BOAST 4	BOAST4 = Yes
Severe pelvic fracture	AIS 4+ pelvic injury = Yes
Open limb fracture	Open limb fracture = Yes