

London Trauma Office

Hosted by London Specialised Commissioning Group
on behalf of London's PCTs

Annual Report April 2010 – March 2011



Foreword

The system of care for seriously injured Londoners has been transformed through the advent of the London Trauma System. This report reflects the achievements of the system in its first year of operation.

London's trauma system consists of four trauma networks. Three of the networks went live in April 2010, with seriously injured patients being taken to one of three specialist major trauma centres at The Royal London Hospital, Whitechapel, St George's Hospital, Tooting and King's College Hospital, Denmark Hill. The system was completed in January 2011 when the fourth major trauma centre at St Mary's Hospital Paddington became fully operational.

There have been significant improvements in both the processes of care and patient outcomes since the networks went live. There is now a consultant available 24/7 in the major trauma centres to immediately assess and treat these seriously injured patients. In addition they have rapid access to scanning facilities and operating theatres to enable correct diagnosis and treatment to take place within short time frames.

All of these improvements mean that an additional 58 Londoners who were expected to die of their injuries have survived. We are very proud of this and of all the achievements of the first year of the system. This has involved an enormous amount of hard work and dedication from all those people working in major trauma care. I would like to thank all those who have contributed to this success and look forward to the ongoing development of the system.

Dr Fiona Moore
London Trauma Director

CONTENTS

- 03 Executive summary
- 04 Background
- 05 The London trauma system
- 06 Trauma data: the Trauma Audit Research Network
- 07 The Trauma Patient Population
- 11 Data submission to TARN
- 12 NE London and Essex Trauma Network
- 14 SE London Trauma Network
- 16 SW London Trauma Network
- 18 North West London Trauma Network
- 20 Trauma Network Performance – Injury Specific Audits
- 22 Patient outcomes
- 22 Major Incident Planning
- 23 Paediatric Trauma
- 23 Education and Training
- 24 Rehabilitation
- 24 Linkages with Local Commissioners
- 24 Sharing experience
- 25 Plans for 2011–2012
- 25 Glossary and acknowledgements

LONDON TRAUMA OFFICE

From November 2011
Portland House, Stag Place
London SW1E 5RS

Email: enquiries@londontraumaoffice.nhs.uk
www.londontraumaoffice.nhs.uk

Executive summary

- In 2009 a Joint Committee of all 31 PCTs in London made a decision to commission four trauma networks in London to ensure effective care for seriously injured people
- The networks comprise a Major Trauma Centre (MTC) for those with the most serious injuries, linked to a number of local Trauma Units (TUs). The four MTCs are located at:
 - The Royal London Hospital, Whitechapel
 - St George's Hospital, Tooting
 - King's College Hospital, Denmark Hill
 - Imperial College – St Mary's Hospital, Paddington
- Three of the four trauma networks in London went live on April 6th 2010, with the fourth at St Mary's Hospital fully operational from January 2011
- A triage tool ensures those people with potentially the most severe injuries (major trauma) are taken by ambulance crews directly to a specialist MTC, bypassing their local hospital
- In the first year of operation over 4,000 patients triggered the triage tool, and had the benefit of direct conveyance to a MTC and immediate specialist treatment
- Mean travel time from scene of the incident to a major trauma centre was 16 minutes
- Once in the MTC a consultant is available 24/7 to treat these patients immediately, backed up by rapid access to imaging and specialist surgical teams
- There has been a significant reduction in the time to CT scan – the median time to CT in MTCs ranges from 36 to 60 minutes from admission. This enables more rapid decision making about the need for emergency surgery and ultimately better outcomes for patients
- 58 Londoners are now alive who were expected to die of their injuries when their chances of survival are compared to data on similar patients nationally
- Of the patients taken directly to a major trauma centre 32% have an injury severity score of greater than 15 (major trauma) and a further 12% have moderately serious injuries (ISS 9 -15).
- The predominant cause of injury is through road traffic collisions, followed by falls from a height and stabbing injuries
- Quarterly performance visits to the networks have driven a number of improvements in patient care, including better collaboration between orthopaedic and plastic surgical teams when operations are carried out on people who have suffered severe open fractures
- Through collaboration with the London Deanery innovative new trauma courses are being developed which will provide the best trained trauma workforce in the country
- Protocols for how the trauma networks function in a major incident have been drawn up and tested through collaboration with NHS London Emergency Preparedness team so that the daily benefits of networks are built upon and realised in a major incident
- Robust data on issues around rehabilitation has been compiled indicating for the first time the degree to which some rehabilitation services are not delivering for patients. Commissioners and trauma networks are using this data as a basis for improvement in rehabilitation
- Significant support has been given by the London Trauma Office to the emerging Regional Trauma Networks nationally to ensure that the learning that has taken place in London is shared for the benefit of injured patients in other regions

Background

Following publication of *Healthcare for London: a Framework for Action* in July 2007, the Healthcare for London (HfL) programme was set up by London PCTs and NHS London to develop and implement its recommendations, one of which was to improve major trauma services for London.

Subsequently proposals were developed to devise a trauma system in London composed of trauma networks. Further to these, a public consultation was undertaken on these proposals. On 20th July 2009 the Joint Committee of PCTs (JCPCT) comprising all London PCTs and SW Essex PCT, approved the proposals and took the decision to designate four major trauma centres (MTCs) each within its own trauma network, at the same time agreeing to invest in the new model of care.

The four major trauma centres were identified as:

- The Royal London Hospital, Whitechapel
- St George's Hospital, Tooting
- King's College Hospital, Denmark Hill
- Imperial College – St Mary's Hospital, Paddington

Following an external assessment and assurance process undertaken in January 2010, three of the four networks went live on April 6th 2010. The North West Trauma Network with a MTC at St Mary's Hospital had a later planned start date. In the interim, transition arrangements for North West London ensured patients were taken to the most appropriate location based on their injuries. St Mary's went live as a MTC 24/7 on 11th January 2011 completing the four networks which make up the London Trauma System.

Each major trauma centre sits within a trauma network, linked into a number of trauma units (TUs). Some trauma networks extend outside of London and include trauma units and take trauma patients from neighbouring SHAs where clinically appropriate and supported by the relevant commissioners.

The London Specialised Commissioning Group was given lead responsibility to implement commissioning proposals for major trauma, whilst working with the London PCT clusters who commission the trauma units. It is believed that major trauma commissioning will move to the NHS Commissioning Board over the next 18 months - this has yet to be confirmed.

As part of the London Trauma system the JCPCT supported the creation of the London Trauma Office (LTO). This is led by a part-time Clinical Director (Dr Fionna Moore, Medical Director of London Ambulance Service), and a full-time Trauma System Manager (Tracy Parr). The London Trauma Office has oversight of the ongoing development of the system and co-ordinates the overall performance management of the major trauma model. This is undertaken on a network basis in conjunction with local cluster commissioners.

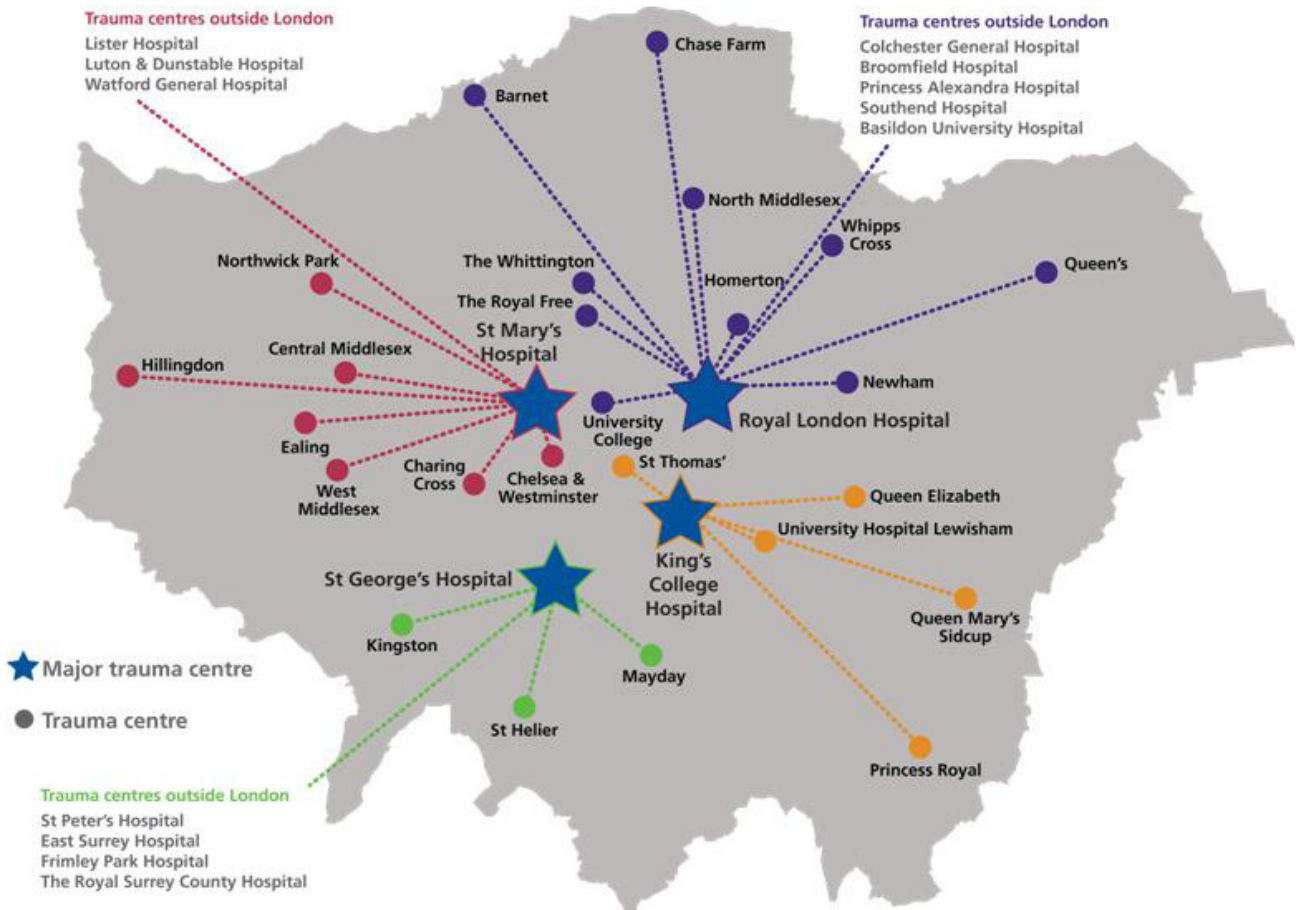
In support of the system a new triage system was introduced by the London Ambulance Service (LAS). With the establishment of the system, potential major trauma patients are taken to a major trauma centre for definitive treatment by the resident specialist major trauma team. The National Audit Office Report¹ published in 2010 reported that the literature^{2,3} suggested that where trauma systems had been introduced, in-hospital mortality reduced by 15 to 20 per cent. On the basis of an estimate of 3,000 deaths in hospital from major trauma each year, this suggested an additional 450 to 600 lives could be saved each year across England. As the system develops it is estimated that there will be around 100 additional lives saved in London annually, with improvement in outcomes for many more.

This is a report on progress within the London Trauma System in its first year of operation April 2010 – March 2011.

Keith Willett, National Clinical Director for Trauma Care:

"I am delighted to see the enormous progress that has been made in London since the system went live last year. I am hugely impressed by the work and commitment of all those involved in developing the networks. Seriously injured patients across the capital now have access to a world class trauma system."

The London trauma system



Major trauma patient – severely injured in motorcycle accident October 2010:

“I was very pleased to have been taken directly to a hospital which had all the specialists I needed to treat my injuries.”

¹ National Audit Office (2010), *Major Trauma Care in England*.

² Celso B, Tepas J, Langeland-Orban B, Pracht E, Papa L, Lottenberg L, Flint L. (2006), A systematic review and meta-analysis comparing outcome of severely injured patients treated in trauma centers following the establishment of trauma systems, *Journal of Trauma* 60(2): 371-378.

³ NC Mann et al (1999). Systematic review of published evidence regarding trauma system effectiveness. *Journal of Trauma* 47: S25-S33.

Trauma data – the Trauma Audit Research Network

The severity of trauma is described using the Injury Severity Score (ISS), an internationally recognised system which ranges from 1 to 75.

In England and Wales this data is collected and validated through a national organisation, the Trauma Audit & Research Network (TARN). An ISS score of more than 15 describes the group of patients with the most serious injuries, known as major trauma. The JCPCT made its decision to commission four MTCs based on an estimated range of patients of ISS >15 of between 1200 and 2000 per annum. This would give each MTC between 300 and 500 patients with ISS>15 per year.

There are a large number of data fields collected through the TARN electronic data collection and reporting system (eDCR) of which ISS is one component. In addition to ISS, the eDCR enables the collection of data on processes which demonstrate potential improvements to patient care such as time to CT scan. We now have data for the full year April 2010 to March 2011 from the MTCs which is described later in the report.

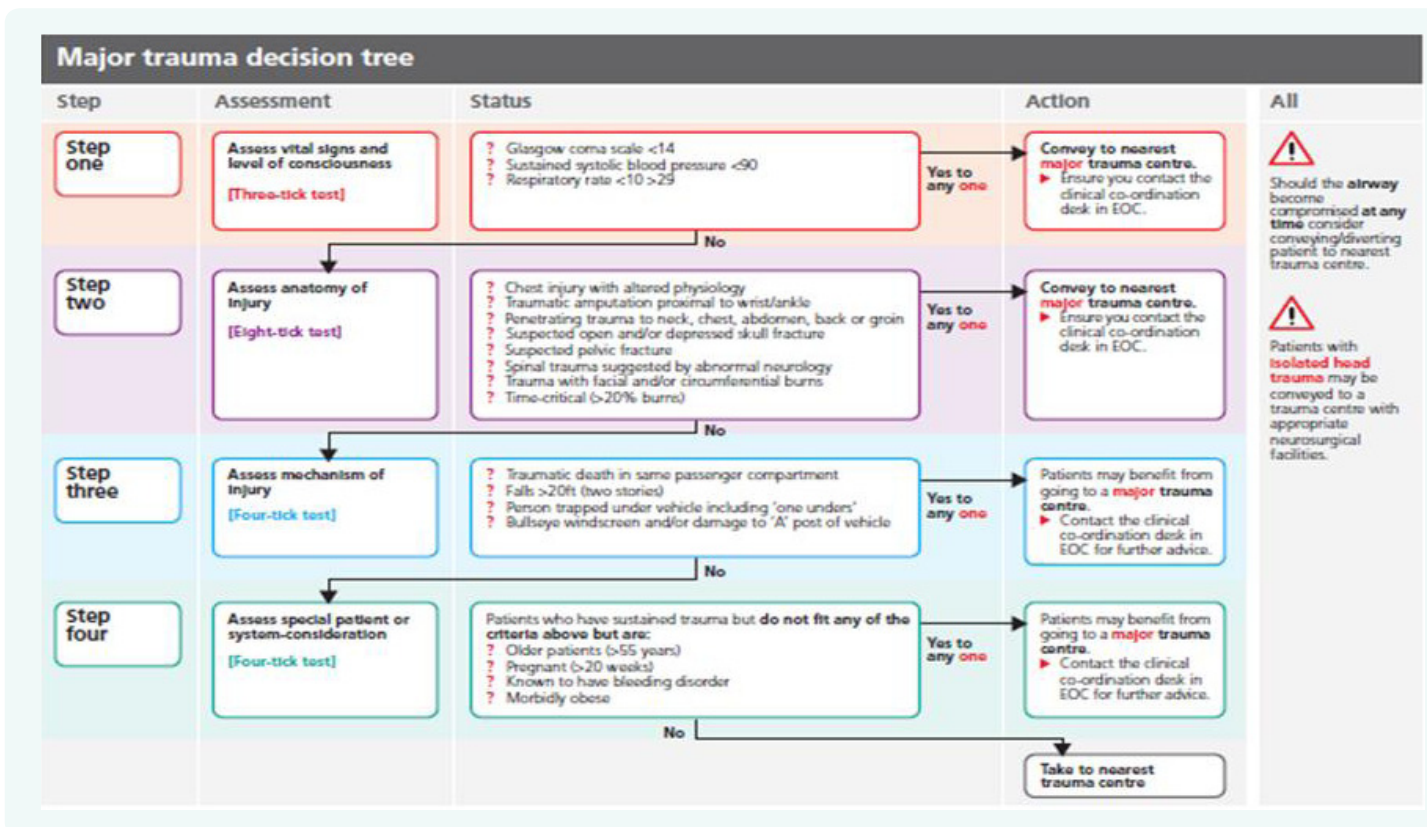
There are specific inclusion criteria for patient data to be submitted to TARN:

- Admission to Intensive care
- Hospital admission > 3 days
- Death during admission
- Transfer for specialist care

Injuries are then coded centrally and an ISS score attributed to each individual patient.

Evaluation of the Trauma Triage Tree

Patients who have been injured are assessed by LAS crews using the triage tool shown below. It gives an indication of which patients may have sustained major trauma, although major trauma cannot be diagnosed until patients have gone through a full diagnostic assessment in a MTC. To understand the effectiveness of the triage tool, data has to be manually triangulated from three different sources. This is a manual process and very time-consuming. Using this method we have detailed data from the first six months of operation (April to September 2010).

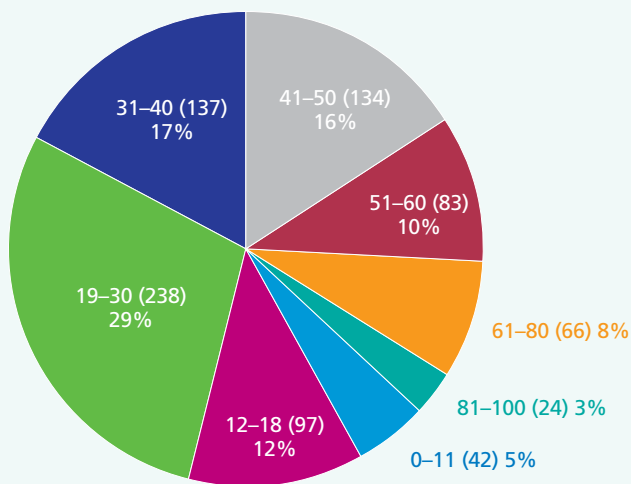


The Trauma Patient Population

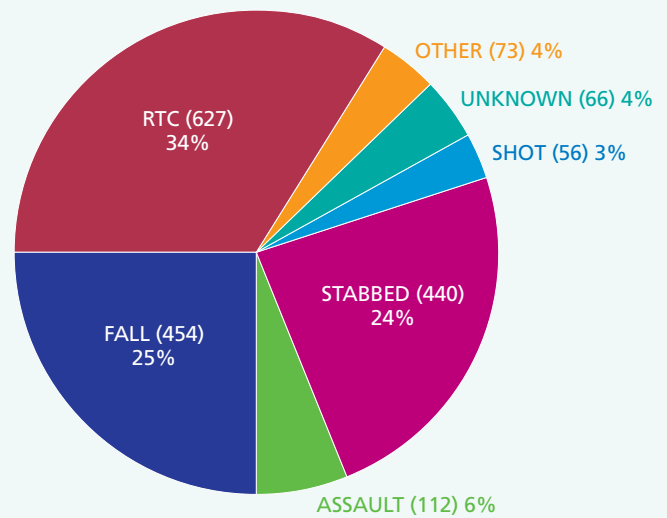
Major trauma is primarily a disease process affecting young men. This is shown in the profile of patients who trigger the tree and who fulfil the criteria for submission to TARN. 74% of these patients are male, 26% female. Nearly half (46%) of these patients are between 19 and 40 years of age.

The predominant injury mechanism (34%) is through road traffic collisions (including car occupants, pedestrians, cyclists and motorcyclists). Falls make up 25% of the triage positive patients with stabbing contributing another 24%.

All TARN eligible patients by age
06/04/2010 to 30/09/2010, n=821

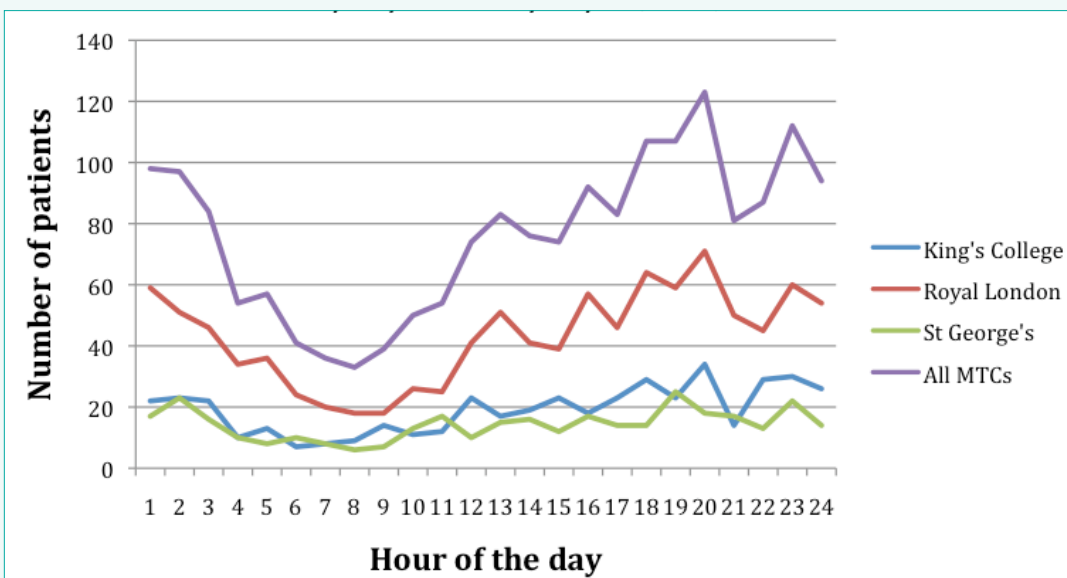


Triage Tool positive patients by injury mechanism
06/04/2010 to 30/09/2010, n = 1,828



The time of day when triage positive patients present to MTCs shows remarkable similarity across all the three networks during this period. The least busy time is just before the morning rush hour. This builds to a peak at around 2100h which diminishes in the early hours of the morning.

All MTCs Triage Tool Positive patients by time of admission 06/04/10 to 30/09/10, n=1,828

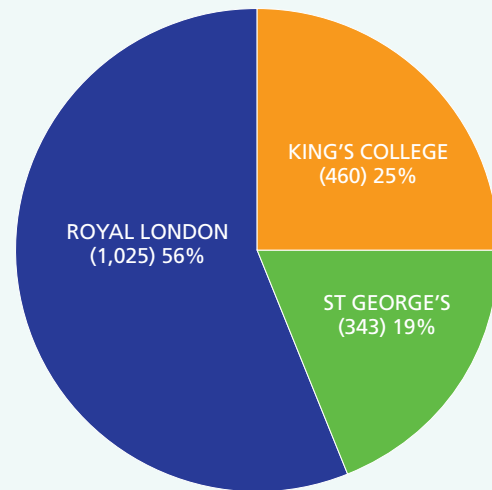


The Royal London Hospital was given the largest network, as it was the most established centre prior to formal designation. It was receiving 56% of all the triage positive patients before St Mary's went live. King's College and St George's received 25% and 19% of the total number of patients respectively. This number does not include patients who required secondary transfer. Data is currently being analysed to understand the impact of the fourth major trauma centre on activity in the other centres.

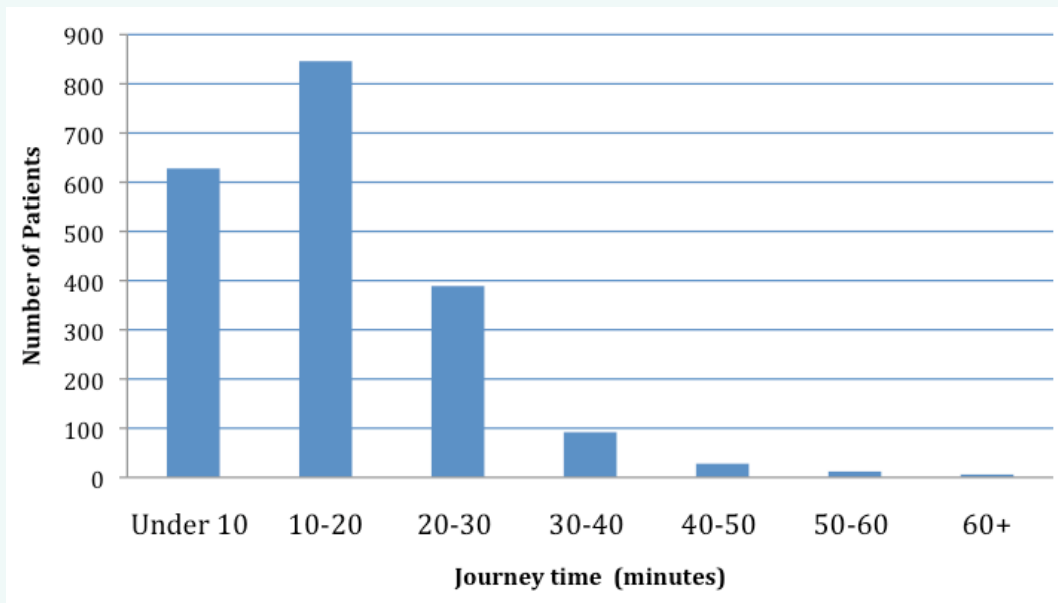
Ambulance Journey Times

The establishment of the London Trauma System was based on a maximum ambulance journey time of 45 minutes. Data is collected on all ambulance conveyances for patients who bypass to a MTC. Of the 2001 patients in this data set, 1,474 (74%) of patients reached the MTC within 20 minutes rising to 1,863 (93%) within 30 minutes. In total, 1,955 (97%) of all patients arrived within 40 minutes. The remaining 3% patients had significant clinical reasons why they had prolonged journey times, such as spinal injuries which necessitated slower driving conditions. The mean journey time to a MTC was 16 minutes with a median of 14 minutes. Data has kindly been supplied by London Ambulance Service Clinical Audit and Research Department.

**Triage Tool positive patients by destination MTC
06/04/2010 to 30/09/2010 n=1,828**



Ambulance journey time from incident to MTC 01/05/10 to 30/11/10 n = 2,001



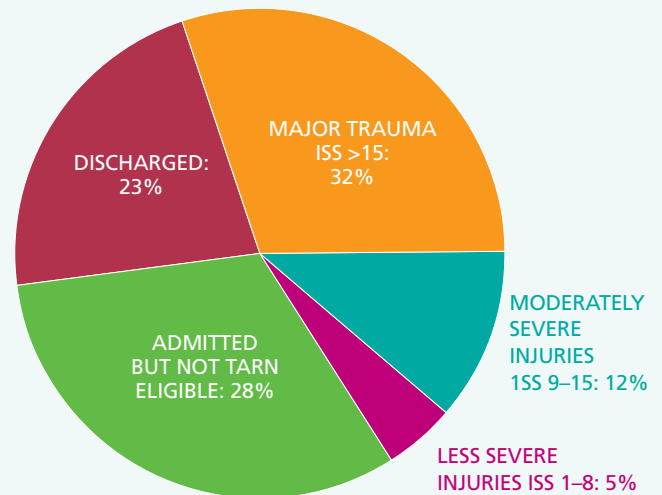
Triage of patients using the Major Trauma Triage Tool

Pre-hospital triage protocols attempt to use a variety of variables to identify which patients warrant immediate transfer to an MTC and which can be safely managed at a local Trauma Unit. Evidence has highlighted the difficulties in trying to identify the severity of injury in the pre-hospital environment. For reasons of patient safety, triage tools are expected to give a degree of over-triage, as this enables the injuries of patients to be assessed within the MTC with immediate access to the numerous services they may require. The most important goal of these systems is to minimise under-triage (seriously injured patients who are not taken to a MTC), which can lead to preventable mortality and morbidity.

The triage tool used in London was developed by a group of experts in pre-hospital care and was based on the tool developed by the American College of Surgeons. It uses a four-stepped approach based on physiological signs, anatomy of the injury, mechanism of the injury and other factors. Patients who trigger the tool on one of the four steps are conveyed to a MTC where they have immediate access to consultant-delivered diagnosis and care.

Initial analysis shows that on average 11 patients a day trigger the tool and are conveyed to a MTC. This equates to over 4,000 patients a year who are benefiting from direct access to a MTC with appropriate expertise and facilities. Of these, 32% of them have major trauma (ISS>15), with a further 12% having sustained significant injuries (ISS 9 – 15). Around a quarter are discharged from the emergency department as they have not sustained any significant injuries. This degree of over-triage is to be expected and represents a margin of safety which enables people with potentially serious injury to be rapidly assessed in the MTC.

Triage Tool positive patients by outcome
06/04/2010 to 30/09/2010 n=1,828



Further evaluation of the London triage tool

It is really important to understand the degree of over and under triage produced by a triage tool. The latter requires robust TARN data collection in TUs. This identifies seriously injured patients who have been incorrectly conveyed to a TU and not transferred. This area of work has been very challenging as the degree of TARN data submission within TUs in London is very poor and does not provide an accurate picture of this patient group. The LTO has been given funding by the Department of Health to undertake an evaluation of the triage protocol. TARN have been commissioned to work with TUs to provide this data from TUs to enable complete understanding of the triage tool. A report will be published during 2011–2012.

Primary bypass into SW London

NHS Surrey has led on a project, in collaboration with the Trauma Network and South East Coast Ambulance Service (SECAmb), to implement primary bypass in St George's for major trauma within and on the M25 in Surrey from March 21st 2011. This benefits patients in this area by giving them direct access to a MTC instead of going to their local Surrey hospital and then having a secondary transfer. The LAS triage decision tree was modified for local use and a checklist developed for the crews to complete at the scene to aid their decision-making. Clinical support was put in place for the crews via a Critical Care Paramedic on call rota.

Formal evaluation of the pilot pathway will be undertaken at the end of the 6 month pilot phase but preliminary findings are as follows:

- 2-3 patients are triggering the decision tree on a weekly basis
- For the 36 patients who were decision tree positive and bypassed to St George's, 10 (28%) triggered step 1 vital signs and level of consciousness, 13 (36%) triggered step 2 anatomy of injury and 13 (36%) triggered step 4 special patient or system consideration. To date, no patients triggered step 3 mechanism of injury.

The decision tree will need reviewing in the light of differing emerging models from other trauma networks. Clinical support will be strengthened with the aid of the Air Ambulance Service within the Emergency Dispatch Centre, and further roll out of primary bypass will be reviewed once the trauma unit designation process is complete across the South East Coast region.

- Royal London Hospital
- King's College Hospital
- St George's Hospital

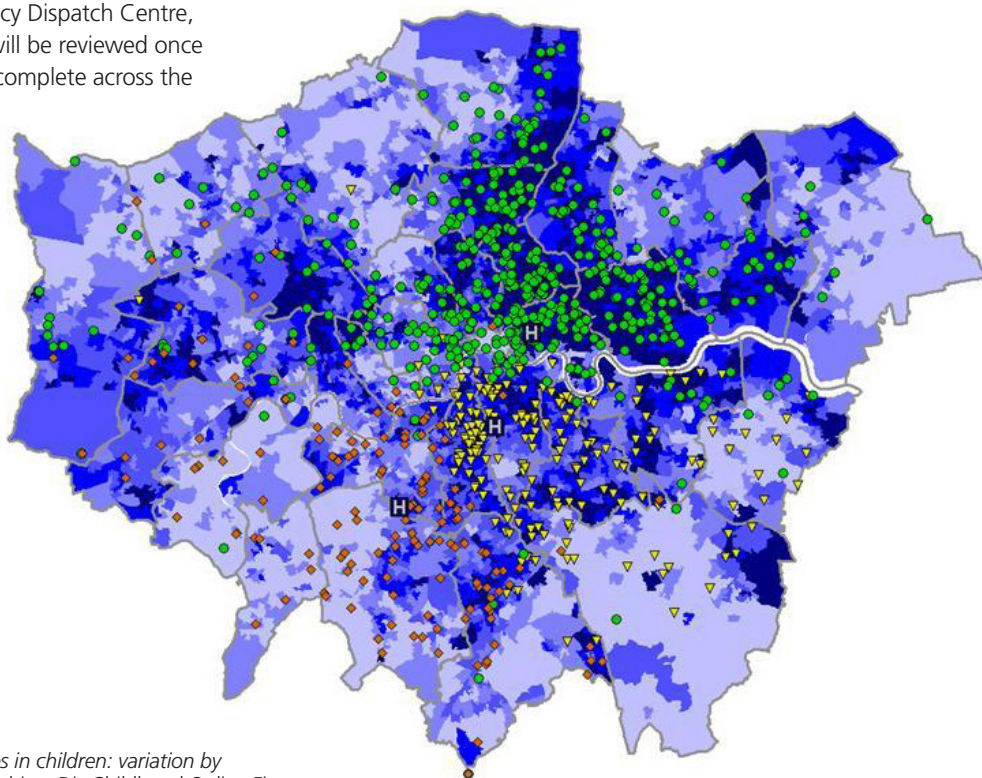
Helicopter Emergency Service (HEMS)

The London Air Ambulance plays an important role in the London Trauma System, taking a senior doctor and specially trained LAS paramedic to cases which the ambulance control centre believes would benefit from this enhanced level of care. The service operates using a helicopter during the day and rapid response cars at night. In April 2010 the service went 24/7 to coincide with the establishment of the London Trauma System.

Major Trauma and Social Deprivation

There is a wealth of literature demonstrating the link between social deprivation and the incidence of major trauma^{4,5}. An analysis was undertaken plotting the location of incidents where patients triggered the tree against a map of social deprivation of London. Darker areas represent the most deprived areas, the lightest are the least deprived areas. There is a clear concentration of major trauma incidents in the most deprived areas. Further work to explore these linkages will be undertaken in 2011–2012.

Major Trauma Tree Positive Incidents and Social Deprivation in London



⁴ Edwards P. et al (April 2008) *Serious injuries in children: variation by area of deprivation and settlement type* Archives Dis Childhood Online First.

⁵ Silversides J.A. et al (2005) *Social deprivation and childhood injuries in North and West Belfast* Ulster Med J.

Trauma Activity in London April 2010 – March 2011

Data submitted to TARN is now available for the full year since go-live. The total no of patients with ISS>15 in MTCs is 1228, with a further 250 patients of ISS>15 who are taken to one of the two TUs with neurosurgery who are able to treat patients with isolated head injuries (at Queen's Romford and the Royal Free Hampstead).

The three MTCs for which we have one year's data have seen an increase in activity of the most seriously injured patients (ISS>15), with differing degrees of change in activity of patients with ISS<15.

Performance of Trauma Networks

The quality of clinical care delivered is described for the most part through data submitted to TARN by Trusts in the trauma networks. The trauma clinical steering group has devised a set of performance standards for the delivery of trauma care within the networks. Quarterly meetings have been undertaken where a review of specific aspects of performance is undertaken according to the timetable laid out in the performance framework. The London Trauma Office has been working very closely with TARN to modify and refine reports on performance using trauma data submitted by network hospitals to TARN. London has the first regional trauma networks requiring data to be used in this way, so this has required an innovative approach from LTO and TARN working in collaboration. Over the year there has been enormous progress in refining the reports to ensure they deliver the information required in a way that is useful in measuring performance.

MTC	ISS>15 2009–2010	ISS>15 2010–2011	Change in activity
Royal London Hospital	354	559	+205
King's College Hospital	158	298	+148
St George's Hospital	250	310	+60
St Mary's Hospital (Jan – Mar data only)	19	61	+42

Data submission to TARN

The TARN dataset involves collection of a large number of data items. A time lag of up to 3 months from admission is normal. Data completeness is the number of patients reported in each hospital's TARN submission compared to the expected number of patients using Hospital Episode Statistics (HES) data as a baseline. (This is used as a guide only as some hospitals have better resources than others for collecting data, and this may affect the quality and completeness of the data). In the following reports data completeness for each MTC and TU is shown for the period April 2009 – Mar 2010 and April 2010 – Mar 2011. For each network the following data will be shown:

- Completeness of patient data submitted to TARN from each Trust in the network for the year pre and post go-live
- Breakdown of TARN-eligible patients 2009 – 2010 compared with 2010 - 2011
- Most senior doctor in the emergency department receiving triage tool positive patients
- Time to CT scan
- Developments within each Trauma Network

Maralyn Woodford, Executive Director, Trauma Audit & Research Network (TARN):

“As regional trauma networks go live next year the importance of patient care data, submitted to TARN, in demonstrating improvement will become more evident. The collaborative work we have undertaken in conjunction with clinicians and the London Trauma Office this year has enabled refinement in the way data is analysed and presented. This has been invaluable in establishing the effective use of TARN to describe the performance of trauma networks.”

North East London and Essex Trauma Network

TARN DATA COMPLETENESS

Trust	April 2009 to Mar 2010	April 2010 to Mar 2011
	Data Completeness %	
Barking, Havering and Redbridge Hospitals NHS Trust	101.8	98.9
Barnet and Chase Farm Hospitals NHS Trust	49.8	52.9
Barts and the London NHS Trust	64.7	98.9
Basildon and Thurrock University Hospital NHS Foundation Trust	97.1	35.1
Homerton University Hospital NHS Foundation Trust	10.9	18.6
Mid Essex Hospital Services NHS Trust	22.9	46.9
Newham University Hospital NHS Trust	5	11.7
North Middlesex University Hospital NHS Trust	0	0
Royal Free Hampstead NHS Trust	9.0	60.6
Southend University Hospital NHS Foundation Trust	40.5	91.6
University College London Hospitals NHS Trust	0.4	55.9
Whipps Cross University Hospital NHS Trust	8.3	16.1
Whittington Hospital NHS Trust	14.3	70.1

- The Royal London Hospital has seen an increase in Trauma Team activations from 1644 in the year before go live to 2160 in the year since the London Trauma System went live in April 2010

TARN-ELIGIBLE PATIENTS ROYAL LONDON HOSPITAL

ISS	1-8	9-15	16-24	25-45	45-75	TOTAL	ISS>15
April 6th 2009 - Mar 31st 2010	60	170	106	218	30	584	354
April 6th 2010– Mar 31st 2011	86	247	225	288	46	892	559
Change in activity (+/-)	+26	+77	+119	+70	+16	+308	+205

MOST SENIOR DOCTOR IN THE EMERGENCY DEPARTMENT

Consultant	STR	Foundation Year/Other	Not recorded
733	26	0	17

Through its TARN data, the Royal London Hospital has demonstrated very effectively the consultant presence for the vast majority of its major trauma patients.

North East London and Essex Trauma Network

TIME TO CT SCAN

6th April – 31st March 2010			
	n	Median time to CT (hours)	Interquartile Range
All patients	549	0.7	0.5 – 1.0
6th April – 31st March 2011			
All patients	777	0.6	0.4 - 1.0

Education:

- The network submitted a successful bid to develop the pan-London Trauma Team Leader Course.
- The Royal London Hospital held a multidisciplinary 2 day major trauma integrated education programme in December 2010 which was very well received. One hundred and twenty people attended from a range of specialties. It is intended that this will be an annual educational conference
- A network damage control surgery course was held for surgical trainees in April with a 2nd course scheduled to take place in November 2011
- A Trauma Surgery Manual is being developed

Paediatrics

- A network paediatric workstream was established in July 2010 which includes representatives from Great Ormond Street Hospital and CATS
- A network paediatric trauma pathway has been developed
- Paediatric trauma data is collected monthly from all hospitals within the Network
- Network paediatric trauma documentation has been developed and is in place across the Network
- Paediatric Anaesthetic Trauma Standard Operating Procedures have been developed at the MTC
- A Paediatric Anaesthetic Trauma Simulation Course has been developed at the RLH and was piloted in May 2011.
- The Paediatric Trauma Simulation Course is in place at the RLH and has been rolled out to Newham Hospital. A phased roll out to the NELETN hospitals is planned

Trauma Units

- Twice yearly multidisciplinary trauma study days take place at Queen's Hospital Romford
- Barnet and Chase Farm Hospitals have appointed a Trauma Education Lead and have developed a FAST scanning course for that will be rolled out to the Network
- In addition they have implemented twice monthly trauma simulation training.
- All patients with an ISS>10 are discussed at monthly trauma governance meetings.

- North Middlesex Hospital has rolled out a 1 day Trauma Life Support Training course that is compulsory for all nurses and junior medical staff working in or attending the ED. Alongside this is a compulsory trauma e-learning module for all ED staff and trauma team members
- The Whittington Hospital has developed a repatriation and rehabilitation pathway for trauma patients including a weekly patient-focussed trauma multidisciplinary round
- Trauma head injury training and multiple-site fracture training has also been developed for therapists and nurses at the Trust.

Governance:

- Network governance meetings take place quarterly and include a data review of MTC and TU data, case reviews and an educational session

Research:

- The Trauma Outcomes Unit has been piloting the use of several tools to measure rehabilitation need, dependency and quality of life both during patients' hospital stay and following discharge.
- A Trauma Outcomes Clinic was established in January 2010 to follow up major trauma patients. Patients are being followed up in relation to quality of life issues. The success of the clinic has prompted a bid to be submitted to further investigate patient outcomes
- A retrospective study of nearly six hundred severely injured Trauma patients from 2008–2010 has been undertaken and shows the significant enhancement of patient outcomes with clinician-grade care in the acute phase of resuscitation (e.g. time to emergency diagnostic imaging or time to definitive haemorrhage control). The study provides compelling evidence for best practice recommendations regarding the level of care in major trauma centres.
- A 3-year (£0.5m) proposed programme of work has been developed with the London MTCs to define a core set of ICF data that will be evaluated and implemented across London and inform the future measure of trauma patients' rehabilitation and needs.

South East London Trauma Network

TARN DATA COMPLETENESS

Trust	April 2009 to Mar 2010	April 2010 to Mar 2011
	Data Completeness %	
Guys & St Thomas' NHS Foundation Trust	56.8	40.2
South London Healthcare Trust	0.3	45.5
Lewisham Hospital NHS Trust	4.3	22.5
King's College Hospital NHS Foundation Trust	38.9	90

TARN data collection at Kings continues to improve, and there are now robust systems in place to ensure that all patients are submitted on to TARN. Within the Network, however Trusts are facing ongoing challenges identifying and capturing all TARN eligible patients. King's will be working alongside its Network partners to support the roll out of best practice and improve data completeness in the coming year.

TARN-ELIGIBLE PATIENTS KING'S COLLEGE HOSPITAL

ISS	1-8	9-15	16-24	25-45	45-75	TOTAL	ISS>15
April 6th 2009 - Mar 31st 2010	25	70	77	76	5	253	158
April 6th 2010– Mar 31st 2011	105	170	131	164	15	585	310
Change in activity (+/-)	+80	+100	+54	+88	+10	+333	+153

MOST SENIOR DOCTOR IN THE EMERGENCY DEPARTMENT

Consultant	STR	Foundation Year/Other	Not recorded
348	3	0	11

Provision of a 24/7 on site rota ensures that all patients who present in the Emergency Department as Major Trauma are seen immediately by a consultant. The rota, which is jointly provided by Critical Care and ED consultants, has been running for 18 months and has proven invaluable in the provision of a consultant led service.

TIME TO CT SCAN – KING'S COLLEGE HOSPITAL

6th April – 31st March 2010			
	n	Median time to CT (hours)	Interquartile Range
All patients	209	1.3	0.8 - 1.9
6th April – 31st March 2011			
All patients	456	1.0	0.6 - 1.9

Following the opening of the new CT scanner adjacent to the Emergency Department, King's has streamlined patient pathways to further improve access to and from the scanner – thus reducing waiting times.

South East London Trauma Network

Other developments within the MTC and network

- Fully open Acute Surgical Ward, with 10 Level 1 Trauma beds
- Opening of dedicated CT scanner adjacent to emergency department
- Joint appointment for plastics between King's and St Thomas' to support trauma patients
- Embedded multi-specialty governance structure across entire network, utilising electronic reporting systems that cross organisational boundaries into pre-hospital care
- Local adaptation of tertiary transfer policy across the Network
- Formalised Secondary Transfer policy now operational
- Daily review of trauma patients from previous day – 7 days a week
- Weekly open forum teaching and education sessions
- Catalogue of Standard Operating Policies to underpin governance structure and training programme for trauma team
- Monthly mortality and morbidity meetings to promote education and development
- Implementation of weekly rehabilitation multidisciplinary meetings and ward rounds, to support the development of patients timely and appropriate ongoing care plans

Plans for 2011/2012

- Development of orthoplastics service across King's and St Thomas'
- Implementation of Trust-wide CODE RED activation
- Review of rehabilitation provisions, and collaborative working to address ongoing care needs for trauma patients
- Opening of 10 bedded resuscitation department (November 2011)
- Commencement of ICU redevelopment consultation
- Review guidance/ funding for overseas patients
- Launch of electronic Trauma Booklet

South West London Trauma Network

TARN DATA COMPLETENESS

Trust	April 2009 to Mar 2010	April 2010 to Mar 2011
	Data Completeness %	
Ashford and St Peter's Hospitals NHS Trusts	26.0	60.5
Croydon University Hospital NHS Trust	11.7	22.3
Epsom and St Helier University Hospitals NHS Trust	94	78.8
Frimley Park NHS Foundation Trust	72.5	77.7
Kingston Hospital NHS Trust	4.3	26.2
Royal Surrey County Hospital NHS Trust	10.6	26.9
St George's Healthcare NHS Trust	68.3	84.5
Surrey and Sussex Healthcare NHS Trust	2.5	48.9

TARN-ELIGIBLE PATIENTS ST GEORGE'S HOSPITAL

ISS	1-8	9-15	16-24	25-45	45-75	TOTAL	ISS>15
April 6th 2009 - Mar 31st 2010	110	93	110	130	10	453	250
April 6th 2010– Mar 31st 2011	117	145	125	159	14	560	298
Change in activity (+/-)	+7	+52	+15	+29	+4	+107	+48

MOST SENIOR DOCTOR IN THE EMERGENCY DEPARTMENT

Consultant	STR	Foundation Year/Other	Not recorded
195	50	3	14

St George's has a robust 24/7 consultant rota for the emergency department. The data does not appear to reflect, but there were known issues with TARN data collection in the Trust early in 2010. These have now been resolved and the consultant input is now being recorded effectively.

TIME TO CT SCAN

6th April – 31st March 2010			
	n	Median time to CT (hours)	Interquartile Range
All patients	230	1.6	1 – 2.9
6th April – 31st March 2011			
All patients	336	0.8	0.4 – 1.4

South West London Trauma Network

Network developments

- The network appointed a Network Director in 2010
- The secondary transfer policy and the spinal injury pathway were revised .
- The head injury policy has been refined to enable rapid referral of patients with isolated head injury
- A business case has been agreed for a helipad to allow wider access to the MTC
- This has been approved by Trust Board and is going into planning stages
- A new policy for the investigation of serious untoward incidents is currently being designed to enable a more co-ordinated and effective response
- A robust network governance log and closure process has been established enabling incidents to be investigated and acted upon in a timely fashion.
- Bi-monthly governance meetings are being implemented leading to a good system of case review.
- The network will host its first annual trauma network conference this Autumn
- A strong 1, 3 and 5 year strategy for the network is in development and will ensure future-proofing and planning
- An innovative head injury service at St George's hospital under a consultant neurologist has led to a significant improvement in the standard of aftercare.
- There are discussions around potential head injury care outreach from the MTC to the TUs and a network approach to ensure the right patients can benefit from transfer for head injury rehabilitation
- Plans are in place to open two dedicated rehabilitation beds at Queen Mary's Hospital to take patients with a variety of injuries

North West London Trauma Network

TARN DATA COMPLETENESS

Trust	April 2009 to Mar 2010	April 2010 to Mar 2011
	Data Completeness %	
Chelsea and Westminster Hospital NHS Foundation Trust	0	7.7
Ealing Hospital NHS Trust	9.8	26.2
Hillingdon Hospital NHS Trust	15.3	0
Imperial College Healthcare NHS Trust	60.9	101.1
Luton and Dunstable NHS Foundation Trust	0	2.0
North West London Hospital NHS Trust	1.5	6.1
West Hertfordshire Hospital NHS Trust	0	0
West Middlesex University Hospital NHS Trust	2.2	19.6

- Weekly trauma calls have been increasing and have just reached a plateau at about 40/ week.

TARN-ELIGIBLE PATIENTS ST MARY'S HOSPITAL

ISS	1-8	9-15	16-24	25-45	45-75	TOTAL	ISS>15
April 6th 2009 - Mar 31st 2010	8	27	9	10	0	54	19
April 6th 2010– Mar 31st 2011	11	41	33	27	1	113	61
Change in activity (+/-)	+3	+14	+24	+17	+1	+59	+42

MOST SENIOR DOCTOR IN THE EMERGENCY DEPARTMENT JANUARY –MARCH 2011

Consultant	STR	Foundation Year/Other	Not recorded
89	0	0	0

TIME TO CT SCAN

6th January – 31st March 2010			
	n	Median time to CT (hours)	Interquartile Range
All patients	50	2.5	1.6 – 5.2
6th January – 31st March 2011			
All patients	90	0.7	0.5 – 1.0

North West London Trauma Network

Network overview

- A Network Director has been appointed
- A Neurosurgical unit at St Mary's has been established as a new stand alone emergency unit.
- A new spinal team has been established comprising both Neurosurgical and Orthopaedic Consultants.
- A Dedicated Trauma Orthopaedic team established.
- A new 16 bedded trauma ward has been fully opened with daily Consultant led ward rounds with Trauma Consultant of week, Neurosurgical Consultant and ITU Consultant for all level 3 patients.
- Weekly meetings have been established and are well attended.
- A dedicated new imaging centre is established with direct lift access to the emergency department
- Quality measures around time to CT scan are continuing to improve.
- TARN data for the MTC is improving with modest improvement in network. Most TUs have plans in place to achieve the required data collection

Plans for 2011 - 2012:

- To strengthen the Trauma network connections
- To improve TARN data collection in TUs
- To make some of the current locum posts substantive
- An improvement in the research profile

Trauma Team Review

All MTCs showed an excellent standard of trauma team response with a consultant present 24/7. There was wide variation in the trauma team responses within TUs, with some having difficulty in providing the level of seniority of personnel required. The Trauma Unit Criteria were revised in 2010, and a further exercise to assess the ability of each TU to deliver the criteria will be undertaken in 2011 – 2012.

Massive Transfusion Protocol

Each MTC was able to demonstrate the presence of an effective massive transfusion protocol and its use in practice. This is a key component of the management of seriously injured patients and significant progress has been made in enabling rapid access to large amounts of blood and blood products. The work of the Trauma Haematology Group has been instrumental in driving this forward.

Head Injury

For patients with polytrauma and head injury, the automatic acceptance policy at MTCs is working well. Good examples were given of patients with such injuries being transferred to the MTC following a telephone call to alert the receiving Trauma team in the MTC. In some networks, for patients with isolated head injuries, the pathway remains one of referral through the neurosurgical registrar in the MTC. This continues at times to produce delays in transfer or acceptance at the MTC. Referral pathways are being developed in some networks to facilitate automatic acceptance of these patients. This remains an area where there is room for improvement in access to the MTC – there is ongoing work in this area.

Open Fracture Management

In some networks there was evidence of good compliance with the BOAST standard for open fracture management. This requires timely administration of antibiotics and a joint approach to surgical management involving both orthopaedic and plastic surgeons. Where this was not evident, MTCs have put plans in place for a combined surgical team approach, with new appointments of plastic surgeons in some MTCs. These plans are being monitored as part of the regular performance reviews to ensure the highest standards are being delivered for patients.


Pelvic Fracture Management

BOAST guidelines are also in place for the management of pelvic fractures. These require surgery to be undertaken within a specific time frame as patients get better results and the potential for complications is minimised. There was good compliance with this standard in general, although the ability to undertake complex pelvic surgery is very specialised and some patients will require transfer for definitive surgery.


NHS
National Institute for
Health and Clinical Excellence

Head injury

Triage, assessment, investigation and early management of head injury in infants, children and adults




BRITISH ORTHOPAEDIC ASSOCIATION and
BRITISH ASSOCIATION OF PLASTIC, RECONSTRUCTIVE
AND AESTHETIC SURGEONS
STANDARD for TRAUMA – 2009




BAPRAS
British Association of Plastic
Reconstructive and Aesthetic Surgeons

BOAST 4: THE MANAGEMENT OF SEVERE OPEN LOWER LIMB FRACTURES



BRITISH ORTHOPAEDIC ASSOCIATION
STANDARDS for TRAUMA (BOAST)
December 2008



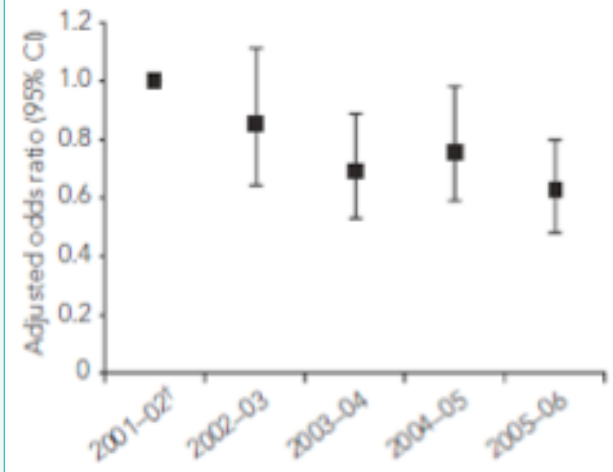
BOAST 3: PELVIC and ACETABULAR FRACTURE MANAGEMENT

Patient outcomes

An intended benefit of the London Trauma System is improved survival for patients. In order to show the impact of the system most effectively, data will be required to demonstrate a lowering of risk adjusted mortality across the system (including TU data) over a period of several years. There is insufficient data at present to be able to do this meaningfully - this work will be undertaken as data accrues over time. An example of how this has been undertaken in Victoria Australia illustrates a year on year reduction in the odds ratio for death due to major trauma.⁶

TARN compares outcomes from all hospitals who submit data on patients. A probability of survival according to injury severity is calculated for all patients within the dataset. It quantifies how many patients are expected to survive their injuries compared to the actual number that survive. This analysis gives an early indication of the benefits of having a system of care to treat injured patients. Compared with the outcomes of patients in the national TARN dataset, there have been 58 additional survivors in London since the go-live of the system. We anticipate further additional survivors and will continue to report on these outcomes.

4 Adjusted odds ratios for death in hospitalised patients admitted with major trauma* in Victoria, 2001–2006, by year



* Injury Severity Score > 15. † Reference category. ◆

Andy Wapling, Head of Emergency Preparedness, NHS London:

“The London Trauma System has provided the capital with the ability to build on robust major incident plans to enable an even more effective response in the event of a major trauma incident.”

Major Incident Planning

In a trauma system, patients are triaged on a daily basis according to their injuries, and ambulance and other personnel are experienced in conveying patients to the most appropriate destination. In a major incident where there are a number of casualties the same principles are applied but on a larger scale. In collaboration with NHS London department of emergency preparedness, guidance has been produced on how the networks should function in a major incident. This includes descriptions of how major incidents are communicated within a network, how the MTC manages patient flows and how patients move within or between networks. A second table top exercise was held in October to test these systems and refine the guidance.

⁶ A Cameron P.A . et al, Medical Journal of Australia (2008) 189 pp 546 -500 *A Statewide System of Trauma Care in Australia – effect on patient survival.*

Paediatric Trauma

Paediatric trauma initially fell under the remit of the original Healthcare for London major trauma project. It was then subsumed into the children's and young people's workstream. A report has now been published with recommendations regarding the commissioning of tertiary paediatric services.⁷ This includes services such as neurosurgery and paediatric intensive care, both of which are required for seriously injured children. In addition, the national clinical advisory group on paediatric trauma has also published a series of recommendations.⁸

In view of the impetus towards developing tertiary services, a paediatric trauma group was established to take this specific area forward. The group has now completed a service specification for a children's major trauma centre, a paediatric triage protocol and a pathway for secondary transfer of seriously injured children. These products will feed into the wider work being undertaken at London Specialised Commissioning Group on the development of tertiary paediatric care.

Education and Training

Over the last 18 months London Deanery and the London Trauma Office have developed an innovative and highly productive working relationship through a shared commitment to educational excellence and the adoption of novel and effective education commissioning strategies. Capable and well-trained staff ensure that trauma patients across London receive the highest possible quality of care.

The Deanery has funded the development of two courses to support this aim for which networks were invited to tender. The Trauma Team Leader course is being developed by the North East London and Essex Trauma Network. The two South London Networks are jointly producing the Trauma Team Member course. The courses will be fully rolled out across the networks in a phased approach over the next two years ensuring all staff involved in trauma resuscitation have been trained in a consistent and effective manner.

Dr Ian Curran, Postgraduate Dean, Dean of Educational Excellence, Head of Innovation, London Deanery & London Commissioner for Medical & Dental Education:

This expert approach to service development has ensured that high quality educational interventions are delivered and grounded in the needs of the service. Such a collaborative way of working supports service transformation and has wide potential application across the NHS."

⁷ Commissioning Support for London Children's and Young People's Project: *London's Specialised Children's Services: Guide for Commissioners*, March 2011

⁸ National Clinical Advisory Group: *Management of Children with Major Trauma*, February 2011

Rehabilitation

One of the issues that has been challenging in relation to attempts to improve rehabilitation has been difficulty in gaining data to describe the issues affecting this population. Rehabilitation clinicians from the four MTCs designed a booklet in order to collect data to address this issue. This has provided a large amount of very useful information on which a number of recommendations have been based.⁹ The main findings are:

- The most common injuries, both isolated and non-isolated were head injuries (39%) and complex musculo-skeletal injury (28%).
- 72 % of patients required ongoing rehabilitation services on departure from the MTC but 39% of patients did not receive the level of service matched to their assessed need
- Delays in access to services and lack of service existence were primarily accountable for the mis-match
- The least optimal pathway was evident for the most complex patients (those requiring the most specialised services)
- There is a gap in service provision for patients requiring local specialist services which primarily affects patients with complex musculoskeletal injuries
- Pathway transfer delays were identified and accounted for 487 inappropriate hospital bed stay days in the MTC, equivalent to £292,200 during a 2 month study period
- A trauma co-ordinator role appears to have a positive impact on capacity to collect data and handover of therapy care.

A number of recommendations for service providers and commissioners have been made in the report and progress in implementing these will be monitored through the London Trauma Office.

Trauma Haematology Group

A group of haematologists and transfusion practitioners from across London has been established and is working to strengthen the protocols in place to support the management of trauma patients

Vascular Injury Working Group

A group of vascular surgeons from across London has developed pathways and protocols for patients with vascular injury. These will help to standardise care for this group of patients. These are currently nearing completion prior to dissemination across the networks.

Trauma Research Group

A trauma research group has been formed with representation from across London. It has started to scope out research opportunities using the four trauma networks.

Linkages with Local Commissioners

The LTO holds regular meetings to ensure local commissioners are up to date with developments in trauma in their cluster and across London. Commissioners are invited to participate in the performance meetings and receive copies of their feedback reports and action plans.

Sharing experience

The London Trauma System was the first area of England to go live with regional trauma networks. As such, the LTO receives numerous requests for support as other networks develop. The requests number 5 - 10 per week. The service specification, triage protocol and other outputs have been widely used to inform other networks. In addition, a number of bespoke requests for data analysis and questions around specific issues are received.

Presentations have been given on behalf of the London Trauma Office at a number of conferences

- TARN /National Neurotrauma Symposium
- The National Trauma Conference
- The London Trauma Conference
- Regional Trauma Network Conferences

Several clinicians from the Royal London and the London Trauma System Manager were invited by the South Korean Department of Health in 2010 to visit Seoul. Guidance on the establishment of trauma systems was shared with a wide number of interested clinicians.

Darzi Fellow

Within the London Trauma Office an Emergency Medicine Registrar completed a one year secondment as a Darzi (Clinical Leadership) Fellow in 2011. LTO bid successfully for a further fellow who came into post in August 2011. The remit of the fellow is to lead the work on prevention, support educational initiatives and complete collation of the triage evaluation.

Shared Learning Day

To mark the occasion of a year since the system went live, a day to share best practice and learning was held on March 8th 2011. This was very well received and it is hoped to run this as an annual event.

⁹ London Trauma Office: *Understanding the rehabilitation needs of the trauma population and recommendations for improvement*, September 2011

Plans for 2011–2012

A number of projects have been completed during the year. There is further work to be undertaken in the next year

- Development and continuation of performance assessment
- Completion of evaluation of the triage protocol
- Refinement and roll out of Trauma Team Leader and Member courses
- Trauma Unit Criteria were revised in 2010. A process to assess how each TU is able to deliver the criteria will be undertaken during the next year
- Work will begin on scoping out an injury prevention strategy
- Further work on patient engagement

Glossary

CT scan

Computerised tomography – a procedure using a large number of x-rays and computer processing to form a three dimensional image of the interior of a region of the body

Major Trauma Centre

A centre which has been designated to accept and treat the most seriously injured patients and which contains all the specialties required to treat these patients

Trauma Unit

A hospital which treats less seriously injured patients from its local area.

Acknowledgements

The achievements listed to date would not be possible without the expert input of a large number of clinicians, managers, commissioners and patients from across London. We would like to thank everyone who has contributed to the establishment and running of the London Trauma System and look forward to further successes.