



The effect of introducing a Trauma Network on patient flow, hospital finances and trainee operating



Daniel Higgs^a, Simon Jameson^b, An Murty^c, Rob Gregory^d, David Large^e, Jackie Gregson^c, Ramsay Refaie^a, Mike Reed^{c,*}

^a Health Education North East, Newcastle Upon Tyne, UK

^b Royal Devon & Exeter NHS Foundation Trust, Exeter, UK

^c Northumbria Healthcare NHS Foundation Trust, Ashington, UK

^d County Durham and Darlington NHS Foundation Trust, Durham, UK

^e University Hospital Ayr, Ayr, UK

ARTICLE INFO

Keywords:

Major Trauma Centre
Polytrauma
Training
Trauma Network

ABSTRACT

In April 2012 the National Health Service in England introduced the Trauma Network system with the aim of improving the quality of trauma care. In this study we wished to determine how the introduction of the Trauma network has affected patient flow, hospital finances and orthopaedic trauma training across our region.

The overall pattern of trauma distribution was not greatly affected, reflecting the relative rarity of major trauma in the UK.

A small decrease in the total number of operations performed by trainees was noted in our region. Trainees at units designated as Major Trauma Centres gained slightly more operative experience in trauma procedures overall, and specifically in those associated with high energy, such as long bone nail insertion and external fixation procedures. However, there have been no significant changes in this pattern since the introduction of the Trauma Networks. Falling operative numbers presents a challenge for delivering high quality training within a surgical training programme, and each case should be seen as a vital educational opportunity.

Best practice tariff targets for trauma were delivered for 99% of cases at our MTCs. Future audit and review to analyse the evolving role of the MTCs is desirable.

© 2015 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

In April 2012 the National Health Service in England introduced the Trauma Network system with the aim of improving the quality of trauma care. Data collected by the Trauma Audit & Research Network (TARN) before 2012 showed wide variations in outcomes between hospitals with a range from eight unexpected deaths to five unexpected survivors per 100 trauma patients [1].

Trauma Networks were designed to care for patients with multiple injuries that could result in death or serious disability, including head injuries, life-threatening wounds and multiple fractures. Major Trauma Centres (MTCs) were designated to provide specialist care with consultant-led teams having access to the best diagnostic and treatment facilities, involving orthopaedic surgery, neurosurgery and radiology. The MTCs function as hubs that work in conjunction with a series of Trauma Units (TUs)

that provide care for the majority of injured patients. Major trauma is defined as serious, possibly multiple injuries with an Injury Severity Score (ISS) [2] of 15 or above [1].

Justification for the introduction of MTCs is based in part on the results of the National Confidential Enquiry into Patient Outcome and Death report in 2007 “Trauma who cares?” that showed that over 90% of hospitals treated a severely injured patient less than once per week. Those that dealt with high volumes delivered a higher proportion of care conforming to a standard defined as good practice [3]. The introduction is also based on the results of comparative studies. The Australian state of Victoria introduced a Trauma Centre system in 2000 and when the outcome of treatment of patients with severe injuries including head injuries was compared with that of similar patients treated in England between 2001 and 2006, the odds of death, according to TARN data and data from the Victoria State Trauma Registry, was found to be significantly higher in England (AOR = 3.22; 95% CI = 2.84–3.65).

The benefit of MTCs and Trauma Networks has been observed all around the world. The USA [4], Denmark [5] and Canada [6] all

* Corresponding author.

E-mail address: mike.reed@nhs.net (M. Reed).

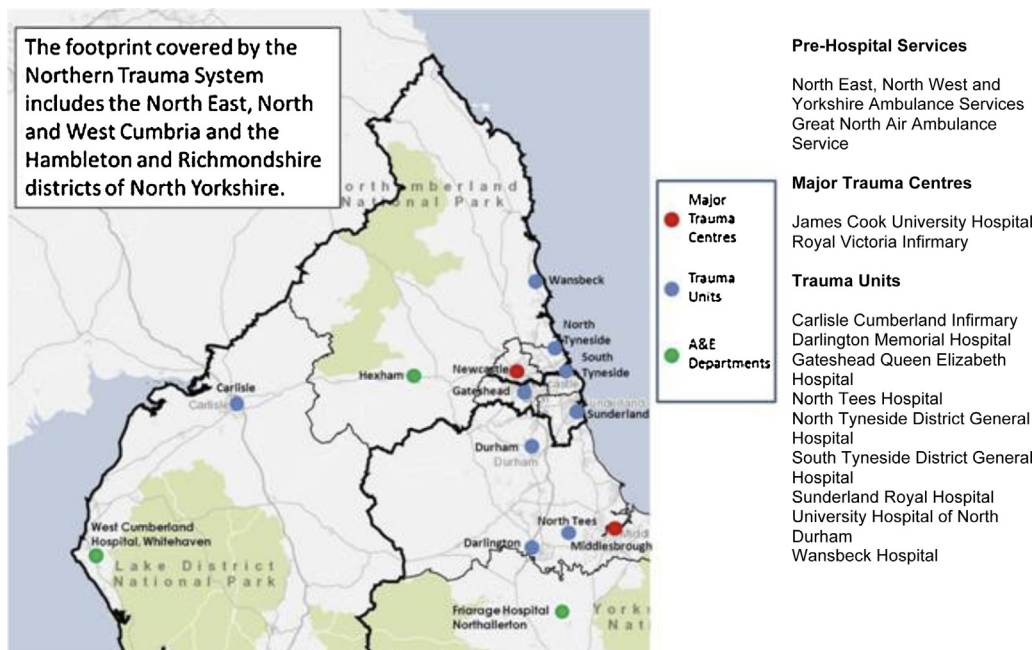


Fig. 1. Location of the Northern Trauma Network within the UK.

report benefit in terms of both mortality and morbidity following the introduction of the centralisation of management of serious trauma and with direct rather than delayed referral. Nathens and colleagues showed that a volume in excess of 650 major trauma cases per year was associated with a significant improvement in outcome in terms of mortality and length of stay. The authors recommended the relocation of trauma to specific regional centres for those patients likely to have an adverse outcome [7].

A system that improves outcomes should also bring significant financial savings. Trauma (including self-harm and poisoning) accounts for 16,000 deaths in England and Wales each year [8]. TARN suggests that each trauma death costs the nation in excess of £750K and every major injury costs £50K [9].

The following MTCs were designated across England:

- 12 treating both adults and children
- 8 treating adults only
- 4 treating children only
- 2 regional collaborative trauma networks.

A pre-hospital triage system was introduced with the aim of bypassing Trauma Units if the patient satisfies certain Network defined criteria. These criteria are standardised across England and are based on several factors including mechanism of injury, physiological assessment, anatomical assessment and special circumstances related to age, pregnancy and bleeding risk.

Within this changing framework there remains the need to adequately train providers of specialist care, such as future Trauma and Orthopaedic (T&O) surgeons. The current T&O curriculum requires trainees to perform specific numbers of defined “index” trauma-related procedures during a six-year training programme [10,11]. In accordance with the Trauma Network initiative, TUs rather than MTCs should continue to provide the vast majority of trauma care [12]. However, the actual redistribution of patients is unknown, raising concerns over the level of exposure of trainees to trauma cases [13]. A major redistribution of patients could de-stabilise the delicate balance of specialist personnel on-call rota and theatre staffing, resulting in financial and training instability in the longer term.

The aim of this study is to determine how the introduction of the Trauma Network has affected patient flows, hospital finances

and orthopaedic trauma training across a region. As a case study we have used the Northern Trauma Network encompassing training posts within Health Education North East training programme for analysis. The programme is located in the North of England extending from the Scottish Borders to North Yorkshire and from the east coast to the west coast (Fig. 1). Training is delivered within eight of nine separate hospital trusts comprising two MTCs and eight TUs. There are currently 64 training posts for specialist orthopaedic trainees [10]. Most of the training posts based at MTCs provide exposure to both major trauma together with another Orthopaedic subspecialty. All posts at Trauma Units have a large elective component in addition to trauma (Table 1).

Patients and methods

Patient flow and finances

Health Resource Groups (HRG) provides similar treatments and utilise similar levels of healthcare resources. They allow the NHS to understand each hospital’s intake of patients and activities related to these patients and the mechanism through which hospital Trusts access funding for clinical care. They also allow performance comparison between different hospital Trusts [11].

Data was analysed for all unplanned admissions relating to orthopaedic trauma within the Northern Trauma Network between October 2009 and February 2014. We used version 4.5 of the Health Resource Groupings from HA11A through to HA99Z, with the exclusion of head injury codes (HA82A–HA83C). Neurosurgical services did not change when the network was introduced. For full listings of the codes, see Appendix. The data set analysed contained 96,622 records.

Trainee operating

The electronic surgical logbook (www.elogbook.org.uk) was developed by clinicians to provide an electronic resource in which trainees and consultants can record operative procedures. Prospective entry of records has been mandatory for trauma and orthopaedic trainees in the UK since 2003.

Download English Version:

<https://daneshyari.com/en/article/6083197>

Download Persian Version:

<https://daneshyari.com/article/6083197>

[Daneshyari.com](https://daneshyari.com)