NATIONAL CLINICAL PROGRAMME IN TRAUMA AND ORTHOPAEDIC SURGERY

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Planning the Future of Major Trauma Services in Ireland
What does good look like?

Charter Day 2017
Trauma system and services
Report of the Trauma Working Group

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SYMPOSIUM: TSCHERNE FESTSCHRIFT

Trauma Care in Germany
An Inclusive System

Johannes A. Sturm MD, Hans-Christoph Pape MD, Thomas Dienstknecht MD

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Abstract
Background Development of trauma systems is a demanding process. The United States and Germany both have sophisticated trauma systems. This manuscript is a summary of political, economic, and medical changes that have led to the development of both trauma systems and the current high-quality standards.

Questions/purposes We specifically asked three questions: (1) What tasks are involved in developing a modern trauma system? (2) What is the approach to achieve this task? (3) Do these systems work?

study selection from our experiences was added when their contribution to the topic was judged important.

Results Worldwide, similar tasks concerning trauma care have to be addressed. In most societies, traffic accidents and firearm-related injuries contribute to a high number of trauma victims. The German approach has been to decrease the number of accidents through injury prevention and to provide better care by establishing an emergency medical system. For in-hospital treatment, clinical care has constantly improved and a close interaction with members from the American Association for the Surgery of Trauma...
Minister for Health Leo Varadkar TD:
“This Model of Care is a significant milestone for trauma and orthopaedic surgery. The new document provides the basis for a world-class trauma and orthopaedic service. It gives clinicians, managers and healthcare workers clear guidelines on how to deliver best practice care to trauma and orthopaedic patients. The HSE and the Hospital Groups must now work together on implementing the Model of Care, so that it leads to real improvements.”
It’s enormously rewarding for the NHS and the people it serves that in just three years we have seen a fifty per cent increase in the odds of survival with life-threatening injuries, that’s hundreds more patients saved since the networks started.” C. G. Moran, MD, FRCS, Professor of Orthopaedic Trauma

Chairman of the British Orthopaedic Association Trauma Group and the National Hip Fracture Database

RCSI November 2014
National Dashboard: All Major Trauma Centres
Consultant-led Trauma Team *on arrival*, patient ISS > 15

Year

2011
2011-12
2012-13
2013-14

Q4
Q1
Q2
Q3
Q4
Q1
Q2
Q3
Q4
Q1
Q2
Q3
Q4

P = 0.001

4,000 patients

11,300 patients
National Dashboard: All Major Trauma Centres

Tranexamic acid within 3h injury

80%
70%
60%
50%
40%
30%
20%
10%
0%

Year

2011
2011-12
2012-13
2013-14

Q1
Q2
Q3
Q4

81.5%
20-40% increase in survival

**Odds ratio of survival in England**

Hospitals with consistent submissions

- **ISS > 8**  \( n = 65,399 \) (8.8% mortality)
- **Imputed:**
  - **missing GCS**  \( n = 6,834 \) (10.4%),

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**MAJOR TRAUMA NETWORKS INTRODUCED**

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**Financial Year**

- 2008/2009
- 2009/2010
- 2010/2011
- 2011/2012
- 2012/2013
- 2013/2014
- 2014/2015
Charter Day 2015

Major Trauma Centre - Services

Pre-hospital care → Acute care → Ongoing care and reconstruction → Rehabilitation

Network organisation
NATIONAL STEERING GROUP FOR TRAUMA

- Chair: Prof Eilis McGovern National Programme Director, Medical Education and Training, Health Service Executive
- Fionnuala Duffy Head of Unit, Acute Hospital Policy Unit 2, DoH
- Colm Henry National Clinical Adviser and Group Lead - Acute Hospitals, HSE
- Cathal O’Donnell Medical Director, National Ambulance Service
- Paddy Kenny Joint Lead, Trauma and Orthopaedics Programme
- Gerry McCarthy Lead, Emergency Medicine Programme
- Jacinta Morgan Lead, National Rehabilitation Programme
- Colette Cowan Group CEO of UL Hospitals
- Mary McCarron Dean of Faculty of Health Sciences, Trinity College Dublin
- Philippa Ryan Withero Deputy Chief Nursing Officer, DOH
- Máirín Ryan Director of Health Technology Assessment, HIQA
- Mark Ryan Former CMD of Accenture Ireland
- Adviser Prof Chris Moran NHS National Clinical Director for Trauma, Professor of Orthopaedic Trauma Surgery, Nottingham University Hospital
IS THE CURRENT SYSTEM ACCEPTABLE?
WHY CHANGE?

• Mortality rates associated with major trauma will be reduced
• 400-600 lives saved per year in England (*The National Audit Office*)

• Improved quality of care for trauma patients

• Optimise outcomes: Long term disability will be reduced

• Efficient use of resources – staff & facilities

• Save money, as well as lives
AN INCLUSIVE TRAUMA SYSTEM

Designed to ensure expeditious transfer to the appropriate level of care commensurate with the patient’s injuries wherever the geographic location.

A patient with a minor injury deserves access to a facility that is committed and equipped to give optimal care for the injury.
AN INCLUSIVE TRAUMA SYSTEM

Must encompass the entire continuum of care including all injured patients
Must go beyond the hospital
Must include prevention
Must address the critical element of rehabilitation
Must address end of life care

Injury is a public health problem
Table 1. Comparison of Public Health Core Functions and 1992 Model Trauma Care System Components*

<table>
<thead>
<tr>
<th>Core Function</th>
<th>Essential Service</th>
<th>1992 Core Components</th>
<th>Subcomponents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>Monitor health</td>
<td>Evaluation</td>
<td>Needs assessment</td>
</tr>
<tr>
<td></td>
<td>Diagnose and investigate</td>
<td></td>
<td>Data collection</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Research</td>
</tr>
<tr>
<td>Policy Development</td>
<td>Inform, educate, and</td>
<td>Public information and education</td>
<td>Injury prevention</td>
</tr>
<tr>
<td></td>
<td>empower</td>
<td></td>
<td>Trauma advisory committee</td>
</tr>
<tr>
<td></td>
<td>Mobileize community</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>partnerships</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Develop policies</td>
<td>Legislation and regulations</td>
<td>Trauma system planning and operations</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Regulations and rules</td>
</tr>
<tr>
<td>Assurance</td>
<td>Enforce laws</td>
<td>Lead agency</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ensure links to or provision of care</td>
<td>Prehospital care</td>
<td>Communications</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Triage and transport, medical direction, and treatment protocols</td>
</tr>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Definitive care</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Facilities (designation), interfacility transfer, and rehabilitation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ensure competent workforce</td>
<td>Human resources</td>
<td>Workforce resources and educational preparation</td>
</tr>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Evaluation</td>
<td>Data collection</td>
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<td></td>
<td>Research</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Interdisciplinary review committee</td>
</tr>
</tbody>
</table>

*From Health Resources and Services Administration. Model Trauma System Planning and Evaluation. Rockville, MD: Health Resources and Services Administration; 2006.16.
Lessons from the England/Wales experience

- MTC on multiple sites – don’t do it!
- Inclusive v exclusive trauma systems- inclusive
- TU with specialised services - maximise value of existing services
- Funding - not just MTCs
- Road-based ambulance travel times
- Incremental implementation
- Outcomes measurement
UK National Peer Review Process

Ensuring services are as safe as possible

Improving the quality and effectiveness of care

Improving the patient and carer experience

Undertaking independent, fair reviews of services

Providing development and learning for all involved

Encouraging the dissemination of good practice.
Planning the Future of Major Trauma Services in Ireland

What does good look like?

Charter Day 2017
CLINICAL WORKING REPORT
Prepared for the National Office of Clinical Audit
CORE MEASURES FOR ALL PATIENTS
THORACIC & ABDOMINAL INJURIES
PATIENTS IN SHOCK
MARCH 2015

Major Trauma Audit in Ireland;
Where are we now?

Dr Conor Deasy
Consultant in Emergency Medicine, Cork University Hospital
Clinical Lead, Major Trauma Audit, National Office for Clinical Audit (NOCA)
Deputy Medical Director, National Ambulance Service
Associate Adjunct Professor, School of Primary Care, Monash University
FIGURE 3: CAUSE OF INJURY

- Fall less than 2m: 1598 (2014), 1565 (2015)
- Fall more than 2m: 494 (2014), 363 (2015)
23% SERIOUS HEAD INJURY Severe head trauma, both isolated and that associated with other injuries, accounted for 23% of all major trauma.

11% SERIOUS SPINAL INJURY Severe spinal trauma, both isolated and that associated with other injuries, accounted for 11% of major trauma.

35% MULTIPLE INJURIES 35% of major trauma patients had multiple injuries.

2014-2015
## Table 27: Characteristics of Major Trauma Patients Who Die Following Injury

<table>
<thead>
<tr>
<th></th>
<th>Young Population (n=16)</th>
<th>Working Age Population (n=117)</th>
<th>Older Population (n=151)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Age (IQR)</td>
<td>11 years (5-14 years)</td>
<td>44 years (30-56 years)</td>
<td>83 years (77-89 years)</td>
</tr>
<tr>
<td>Gender</td>
<td>Male - 75%</td>
<td>Male - 76%</td>
<td>Female - 51%</td>
</tr>
<tr>
<td>Predominant cause of injury</td>
<td>Other asphyxia/drowning - 50%</td>
<td>Other asphyxia/drowning - 28%</td>
<td>Fall less than 2m - 75%</td>
</tr>
<tr>
<td>Median ISS (IQR)</td>
<td>25 (25-26)</td>
<td>25 (25-30)</td>
<td>25 (16-26)</td>
</tr>
</tbody>
</table>
### Consultant within 30 minutes
ISS > 15    Direct Admissions

<table>
<thead>
<tr>
<th>Patient group = Adults</th>
<th>Hospitals in England</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11/12</td>
</tr>
<tr>
<td>Consultant recorded within 30 minutes</td>
<td>3266 (39.3%)</td>
</tr>
<tr>
<td>Directly admitted to MTC: Consultant recorded within 30 minutes</td>
<td>2110 (58.3%)</td>
</tr>
<tr>
<td>Directly admitted to Trauma Unit: Consultant recorded within 30 minutes</td>
<td>1156 (24.7%)</td>
</tr>
</tbody>
</table>

### TABLE 17: MOST SENIOR DOCTOR SEEING PATIENTS WITH AN ISS > 15

<table>
<thead>
<tr>
<th></th>
<th>2014 (n=970)</th>
<th>2015 (n=850)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Seen by Dr in ED &lt; 30 mins</td>
<td>Seen by Dr in ED</td>
</tr>
<tr>
<td>Consultant</td>
<td>210 (22%)</td>
<td>421 (43%)</td>
</tr>
<tr>
<td>Associate Specialist</td>
<td>0 (-)</td>
<td>2 (-)</td>
</tr>
<tr>
<td>Specialist Registrar</td>
<td>2 (-)</td>
<td>418 (43%)</td>
</tr>
<tr>
<td>Registrar</td>
<td>306 (32%)</td>
<td>19 (2%)</td>
</tr>
<tr>
<td>SHO</td>
<td>14 (1%)</td>
<td>91 (9%)</td>
</tr>
<tr>
<td>Intern</td>
<td>74 (8%)</td>
<td>1 (-)</td>
</tr>
<tr>
<td>Other (not recorded)</td>
<td>1 (-)</td>
<td>4 (-)</td>
</tr>
<tr>
<td>Detail not captured at time point</td>
<td>363 (37%)</td>
<td>14 (1%)</td>
</tr>
</tbody>
</table>
58% BETWEEN 4PM & 8AM
### Table 20: Time to CT for Head Injury Patients with GCS < 13

<table>
<thead>
<tr>
<th></th>
<th>2014</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median (hours) (IQR)</td>
<td>1.4 (0.9-2.0)</td>
<td>1.3 (0.8-1.8)</td>
</tr>
</tbody>
</table>
Irish Hip Fracture Database
National Report 2015

Louise Brent
National IHFD Audit Coordinator

Mr Conor Hurson
Clinical Lead Orthopaedics

Dr. Emer Ahern
Clinical Lead Geriatrics
Participating sites (N=16)

**TABLE 1: HOSPITALS PARTICIPATING IN IHFD**

- AMNCH Tallaght Hospital
- Beaumont Hospital
- Connolly Hospital Blanchardstown
- Cork University Hospital
- Galway University Hospitals
- University Hospital Kerry
- Letterkenny University Hospital
- Mater Misericordiae University Hospital
- Mayo University Hospital
- Midland Regional Hospital, Tullamore
- Our Lady of Lourdes Hospital, Drogheda
- Sligo University Hospital
- St. James's Hospital
- St. Vincent’s University Hospital
- University Hospital Limerick
- University Hospital Waterford

Hospitals highlighted in black indicate those included in this report who submitted data on 25 or more hip fracture discharge cases between 1st January 2015 and 31st December 2015.
Summary

- All 16 sites participating
- Improved data quality and coverage
- Improved time to theatre
- Improved input from geriatricians
- Facilities audit
- International collaboration

2017
- Strive for national bypass for all hip fractures
- 100% Data entry in 16 sites
- Individual hospital comparison
I think you should be more explicit here in step two."
MANAGEMENT IS DOING THINGS RIGHT

LEADERSHIP IS DOING THE RIGHT THINGS

Peter F Drucker, Essential Drucker: Management the Individual and Society
THANK YOU