

# MATTS: Major Trauma Triage Tool Study

<b>Submission date</b> 18/01/2019	<b>Recruitment status</b> No longer recruiting	<input checked="" type="checkbox"/> Prospectively registered <input checked="" type="checkbox"/> Protocol
<b>Registration date</b> 18/01/2019	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 26/05/2026	<b>Condition category</b> Injury, Occupational Diseases, Poisoning	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

Serious injuries are a major health problem in England, responsible for 3,000 deaths and 8,000 disabilities each year. Treatment in specialist hospitals, called major trauma centres, can improve survival following such injuries. In order to benefit from this expert care, ambulance crews must first correctly identify suitable patients at the scene of injury and then transport them to a major trauma centre, potentially bypassing closer non-specialist hospitals.

The presence of serious injury is not always obvious and assessment can be difficult. Taking patients with minor injuries to the major trauma centre could waste time, money and resources; denying treatment to those who require it by overstressing the capacity of the major trauma centre. It could also inconvenience patients and their families by taking them further from home. In contrast, failing to recognise serious injury could result in less effective treatment or increased harm.

The term 'triage' means to sort patients in terms of priority. Ambulance crews currently use a 'triage tool' to help them to recognise whether a patient is seriously injured or not. The tool is a checklist of patient and injury features, for example the presence of low blood pressure, that indicate that care in a major trauma centre care might be beneficial. Unfortunately, research has suggested that current tools are not very accurate, as they could miss patients with serious injury and often unnecessarily direct patients with more minor injuries to a major trauma centre. This study aims to develop a new and more accurate tool that will help to ensure that the right patient gets to the right place at the right time.

### Who can participate?

Any patient seen by one of the 4 participating Ambulance Services, who is suspected of suffering a major trauma, will be subject to the use of the new major trauma triage tool (during the 4 month intervention phase of the study)

### What does the study involve?

We will carefully study existing triage tools used in England and world-wide. We will also use data already collected by ambulance services and the English national major trauma database (the Trauma Audit and Research Network, TARN) to investigate what factors are important for

detecting serious injury at the scene of the incident. Additionally we will develop a computer model that simulates the costs and outcomes of using different triage tools. Together, we will take this information to a group of experts and ask them to develop a new triage tool.

We will then test the experts' triage tool, together with other existing tools, to see how they perform. In order to do this we will link data that is routinely collected by the Yorkshire, West Midlands, South Western and London Ambulance services, with hospital information collected by TARN. It has been suggested that identifying major trauma in older people is particularly difficult, so we will also specifically focus on this age group. We will then take the best-performing tool and introduce it into practice in an area of each ambulance service, to see how it works in real life. To find out about the experiences and views of patients, and paramedics using the tool, we will carry out interviews and focus groups. We will also consult with major trauma specialists, service managers and other stakeholders to assess the possible impact of the tool.

We have talked to patients affected by serious injury, and a group of patients involved in research about emergency care, while developing these research ideas. Members of these groups have agreed to join an advisory panel to help guide any future study. We have included a lay person with personal experience of major trauma as part of our research team alongside specialists in emergency medicine, pre-hospital practice, and major trauma. We have also consulted national specialist groups and gained support from participating ambulance services.

What are the possible benefits and risks of participating?

Patients may be correctly identified as suffering a true major trauma by the use of the new tool (which could have a potential positive impact on their overall care), whereas under previous tools, they may not.

Equally, the new tool may fail to recognise true major trauma patients (which could have a potential negative impact on their overall care), when the previous used tool would have correctly identified them.

Where is the study run from?

The University of Sheffield's Clinical Trials Research Unit (CTRU) is the leading centre.

The 4 Ambulance Services involved are:

Yorkshire Ambulance Service NHS Trust

West Midlands Ambulance Service NHS Trust

London Ambulance Service NHS Trust

South West Ambulance Service NHS Foundation Trust

When is the study starting and how long is it expected to run for?

From November 2018 to August 2022

Who is funding the study?

The study is funded by the National Institute of Health Research, Health Technology Assessment programme.

Who is the main contact?

Dr Sam Keating

Email: [s.m.keating@sheffield.ac.uk](mailto:s.m.keating@sheffield.ac.uk)

## Contact information

Type(s)

Public

**Contact name**

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## **Additional identifiers**

**Protocol serial number**

v1 19Dec18, v2 18Sep19

## **Study information**

**Scientific Title**

MATTS (Major Trauma Triage Tool Study): identification, development, validation and evaluation of major trauma triage tools

**Acronym**

MATTS

**Study objectives**

To develop an accurate, acceptable and usable pre-hospital triage tool to identify patients with major trauma who benefit from MTC care.

**Ethics approval required**

Old ethics approval format

**Ethics approval(s)**

Approved 28/06/2019, Yorkshire & The Humber - Bradford Leeds Research Ethics Committee (NHSBT Newcastle Blood Donor Centre, Holland Drive, Newcastle upon Tyne, NE2 4NQ; +44 (0) 207 1048 088; [nrescommittee.yorkandhumber-bradfordleeds@nhs.net](mailto:nrescommittee.yorkandhumber-bradfordleeds@nhs.net)), ref: 19/YH/0197

**Study design**

Phase One: review and development by expert consensus

Phase Two: prospective cohort

Phase Three: non-randomized interventional

## **Primary study design**

Interventional

## **Study type(s)**

Screening

## **Health condition(s) or problem(s) studied**

Major trauma

## **Interventions**

MATTS is a programme of research in 3 phases, that will be conducted over 31 months in total, whose overall aim is to establish a new and improved major trauma triage tool for use in NHS settings.

Phase 1 involves establishing which major trauma triage tools are currently in use in NHS settings, gathering data around their use and performance, gathering feedback on major trauma triage from key stakeholders, and then convening an expert consensus panel to design a new and improved major trauma triage tool.

Phase 2 involves gathering data from 4 Ambulance Services (and the Hospital sites they deliver patients to) on all major trauma patients, then modelling the performance of a short list of triage tools (including our new tool), then further refining the tool which will be implemented for use in Phase 3.

Phase 3 involves training ambulance staff from the 4 participating Ambulance Services to use our new major trauma triage tool, then gathering ambulance service and hospital data around its performance, for a period of 4 months. The patients who will be screened using the new triage tool will be followed up in Hospital until the end of that specific episode.

## **Intervention Type**

Other

## **Primary outcome(s)**

The performance of the new major trauma triage tool will be defined by its over and under triage rates, with regard to identifying a case of true major trauma as defined by expert consensus panel. This will be measured only once, after the patients have been screened by the new major trauma triage tool, been received in a Hospital site, and their episode has concluded.

## **Key secondary outcome(s)**

The performance of the new major trauma triage tools will be defined by sensitivity, specificity, predictive values, and c-statistics with their 95% confidence intervals (95% CI), with regard to identifying a case of true major trauma as defined by expert consensus panel. This will be measured only once, after the patients have been screened by the new major trauma triage tool, been received in a Hospital site, and their episode has concluded.

## **Completion date**

31/08/2022

## Eligibility

### Key inclusion criteria

Patients who have experienced major trauma in participating trauma networks

### Participant type(s)

Patient

### Healthy volunteers allowed

No

### Age group

All

### Sex

All

### Total final enrolment

38010

### Key exclusion criteria

N/A

### Date of first enrolment

01/09/2019

### Date of final enrolment

01/11/2020

## Locations

### Countries of recruitment

United Kingdom

England

### Study participating centre

**West Midlands Ambulance Service NHS Foundation Trust**

Trust Headquarters

Millennium Point

Waterfront Business Park

Waterfront Way

Brierley Hill

West Midlands

England

DY5 1LX

**Study participating centre**  
**London Ambulance Service NHS Trust**  
Headquarters: Waterloo  
220 Waterloo Road  
London  
England  
SE1 8SD

**Study participating centre**  
**Yorkshire Ambulance Service NHS Trust**  
Trust Headquarters  
Brindley Way  
Wakefield 41 Business Park  
Wakefield  
England  
WF2 0XQ

**Study participating centre**  
**South West Ambulance Service NHS Foundation Trust**  
South Western Ambulance Service NHS Foundation Trust  
Abbey Court  
Eagle Way  
Exeter  
England  
EX2 7HY

**Study participating centre**  
**The University of Sheffield**  
Western Bank  
Sheffield  
England  
S10 2TN

## **Sponsor information**

**Organisation**  
The University of Sheffield

**ROR**

## Funder(s)

### Funder type

Government

### Funder Name

Health Technology Assessment Programme

### Alternative Name(s)

NIHR Health Technology Assessment Programme, Health Technology Assessment (HTA), HTA

### Funding Body Type

Government organisation

### Funding Body Subtype

National government

### Location

United Kingdom

## Results and Publications

### Individual participant data (IPD) sharing plan

The datasets generated during and/or analysed during the current study are/will be available upon request from the Trial Manager, Dr Sam Keating (s.m.keating@sheffield.ac.uk).

### IPD sharing plan summary

Available on request

### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>		21/05/2024	04/06/2024	Yes	No
<a href="#">Results article</a>		01/05/2026	26/05/2026	Yes	No
<a href="#">HRA research summary</a>			28/06/2023	No	No
<a href="#">Protocol file</a>	version v2	18/09/2019	13/02/2020	No	No
<a href="#">Study website</a>	Study website	11/11/2025	11/11/2025	No	Yes