

Clinical Randomisation of an Anti-fibrinolytic
in Symptomatic mild Head injury in older adults

Intramuscular tranexamic acid for the treatment of symptomatic mild traumatic brain injury in older adults: a randomised, double-blind, placebo-controlled trial

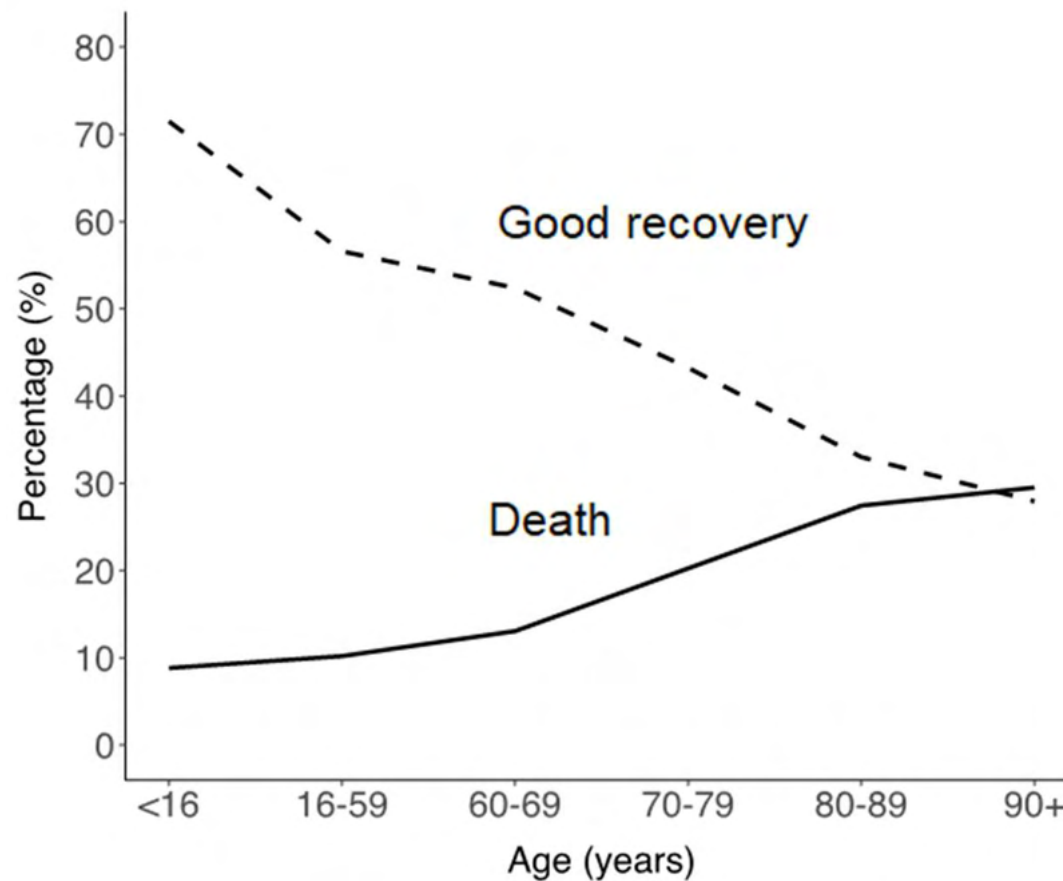
TRIAL OVERVIEW

BACKGROUND

- Every year in England & Wales, about 1.4 million patients attend UK Emergency Departments (ED) with a Traumatic Brain Injury (TBI)
- Most are categorised as mild (Glasgow Coma Scale (GCS) score 13-15)
- The term 'mild' is misleading in older adults who have higher death rates and worse neurological outcomes than younger adults
- TBI is a strong risk factor for dementia, particularly in older adults
- Even mild TBI without loss of consciousness doubles dementia risk

BACKGROUND

Older adults have worse outcomes after TBI
(more older adults die and fewer have a full recovery)



BACKGROUND


TBI patients have microbleeds not visible on CT scan, which early TXA treatment may prevent

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BRAIN
A JOURNAL OF NEUROLOGY

Traumatic microbleeds suggest vascular injury and predict disability in traumatic brain injury

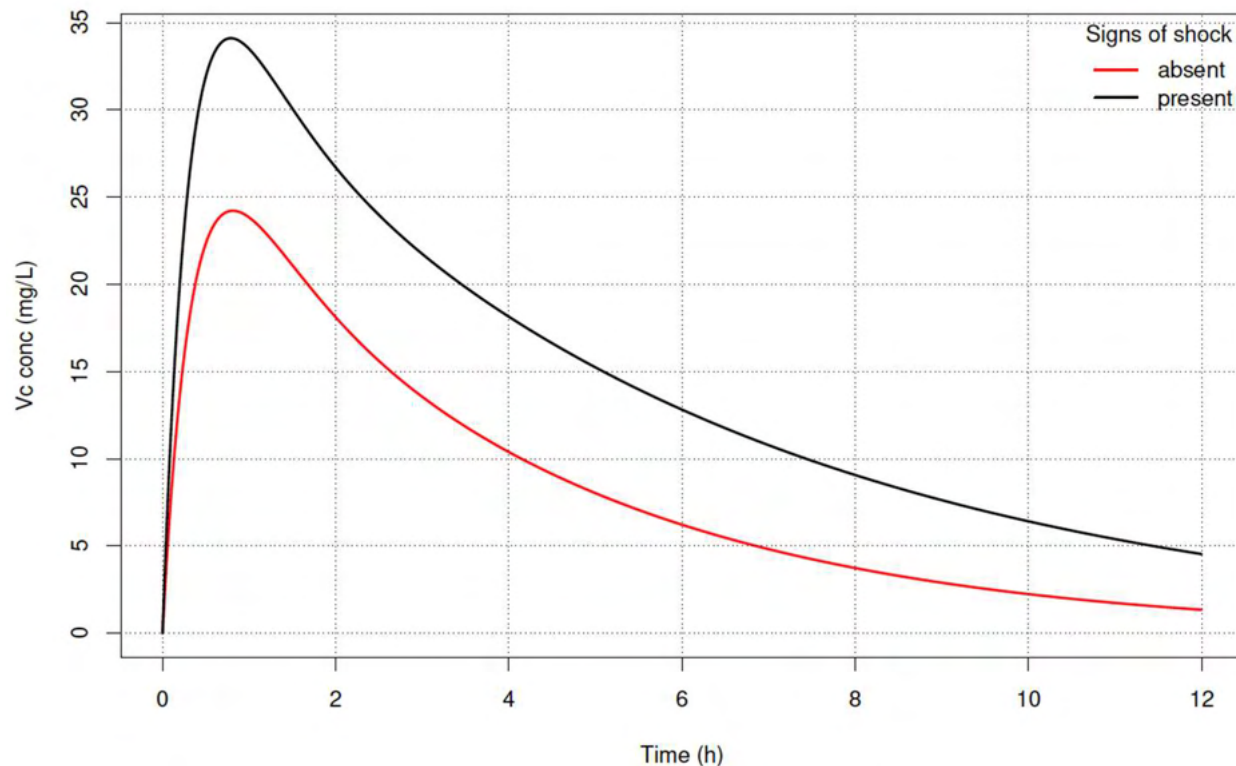
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BACKGROUND

- The CRASH-3 trial showed that:
 - early (within 3 hours of injury) tranexamic acid (TXA) treatment improves outcome in patients with mild head injuries who have bleeding on a CT scan
 - with no evidence of adverse effects or complications
- CRASH-3 only included patients with GCS 12-15 if bleeding was present on CT scan.
- But many of these patients are scanned too late to benefit from treatment
- Earlier TXA treatment may prevent intracranial bleeding and increase the number of patient who can benefit

BACKGROUND

Intramuscular TXA is well tolerated and rapidly absorbed reaching therapeutic blood levels within 11 minutes of injection



Therapeutic concentrations reached after 1 gram TXA:

- 5 mg/L \cong 4 minutes
- 10 mg/L \cong 11 minutes

AIM

To assess the effectiveness and safety of early intramuscular TXA administration in older adults with symptomatic mild head injury

To provide reliable evidence about the effects of early intramuscular TXA on intracranial haemorrhage, disability, death, and dementia

TRIAL DESIGN

- Randomised, double blind, placebo-controlled trial
- 10,000 older adults
- Symptomatic mild head injury
- Patients randomly allocated to receive intramuscular TXA (500mg) or matching placebo (0.9% NaCl)
- The trial will be conducted by ambulance services and in emergency departments of trauma centres and trauma units in the UK

PILOT PHASE

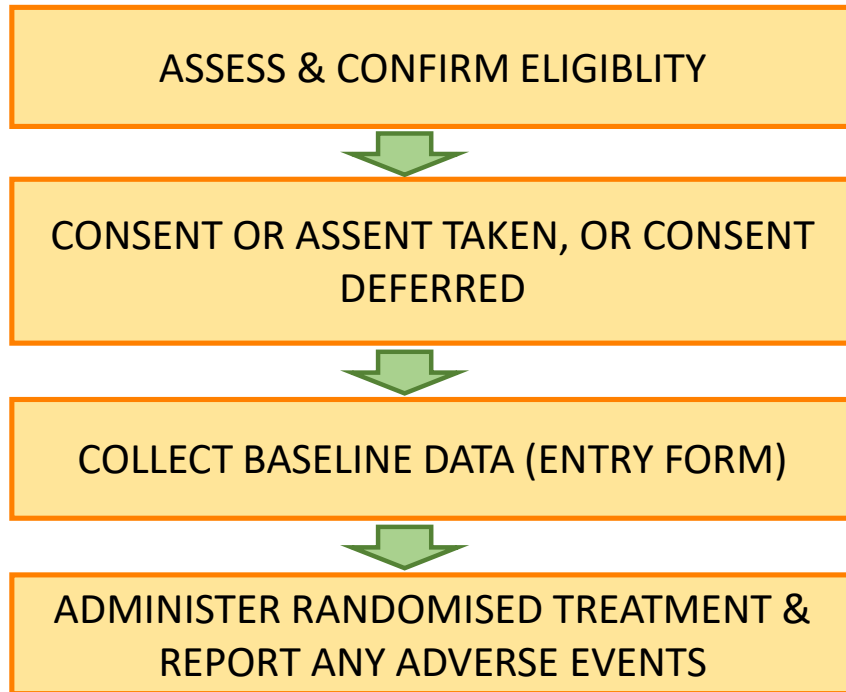
A pilot phase is planned due to the current SARS-CoV-2 pandemic

The pilot phase will allow us to:

- assess the potential impact on recruitment rate
- determine whether the trial procedures are fit for purpose

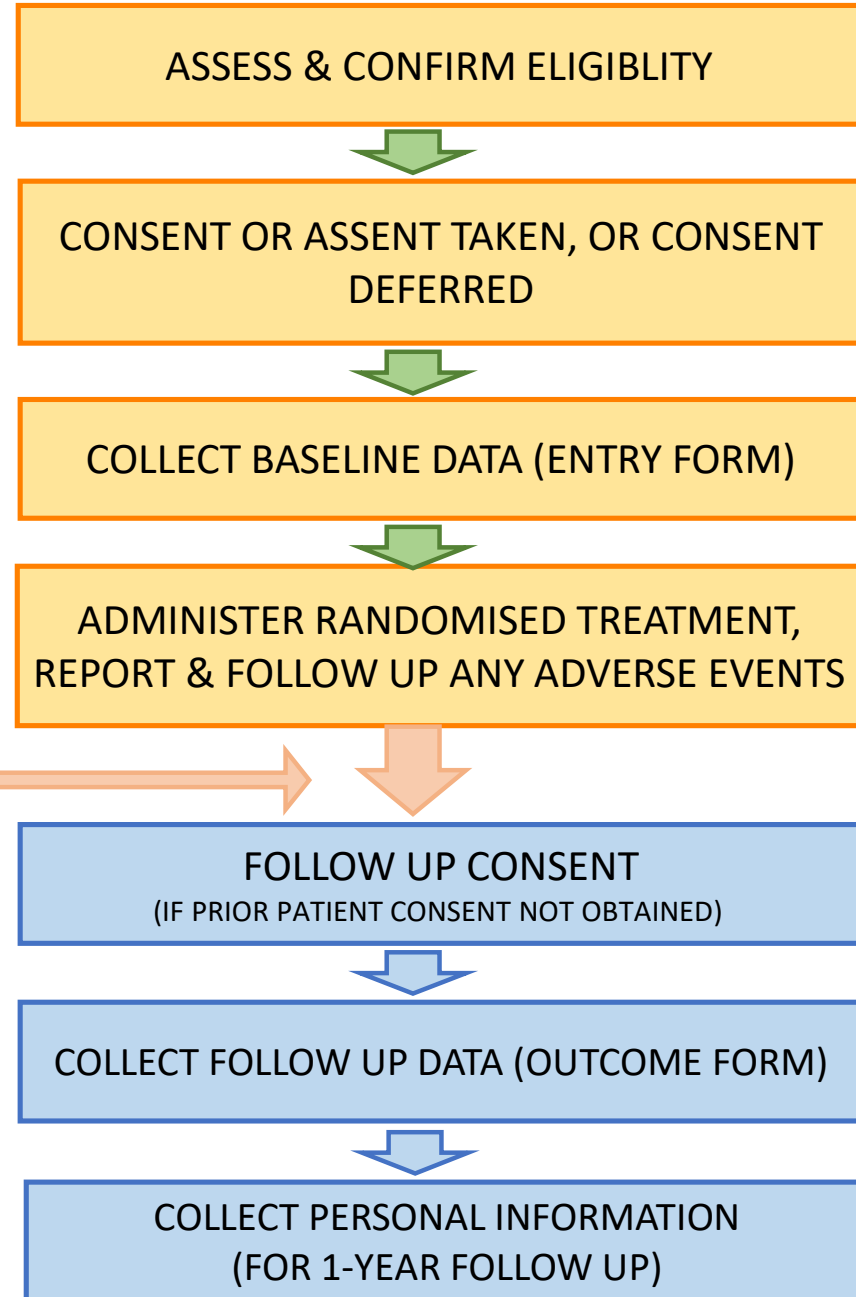
TRIAL OVERVIEW

RECRUITMENT BY PARAMEDICS



Handover of patient to hospital

RECRUITMENT IN EMERGENCY DEPT



ELIGIBILITY CRITERIA

- Appears 50 years or more
- Signs of head injury (e.g. laceration, bruise, swelling, pain in head or face) and has/had impaired consciousness (loss of consciousness, amnesia, confusion) or nausea or vomiting
- GCS \geq 13
- Within 3 hours of injury (do not include if interval cannot be estimated)
- Not living in nursing home, mental health institution, prison
- TXA is not indicated (e.g. major bleeding) or contraindicated (e.g. known allergy or suspected acute arterial or venous thrombosis)
- Patient will be taken to a participating hospital

ASSESSMENT OF CAPACITY TO CONSENT

- Eligible patients may not have the capacity to consent - they have sustained a symptomatic head injury and may have impaired consciousness.
- Capacity to consent needs to be assessed by the person responsible for the patient's care.
- Does the patient possess sufficient mental capability to:
 - understand the information provided, including the risks and benefits
 - appreciates how it is relevant to their circumstances
 - make a reasoned decision about whether or not to participate
 - to communicate that choice
- Relatives/friends might not be available, or if available, their capacity to give informed consent might be impaired due to shock and the short time available

CONSENT OPTIONS (1)

Where a patient has full capacity:

- Obtain written consent from patient

Where a patient does not have full capacity:

- Give information to level of capacity and obtain verbal assent – Note: this is not consent.
- Respect decision if assent not given

If patient is unable to give assent and a personal representative (relative/friend) is available and willing and able to make a decision on behalf of the patient:

- Obtain written consent from personal representative or
- Obtain verbal assent

CONSENT OPTIONS (2)

Where neither the patient or personal representative can consent or assent:

- Get consent from the Professional Legal Representative (an independent doctor working with the patient or a person nominated by the healthcare provider) if available in the emergency (unlikely to be used where patients are recruited at pre-hospital) OR
- Defer consent

FOLLOW UP CONSENT

Where deferred consent, or assent has been used:

- Obtain consent for continuation in the trial

Situations where no/missed opportunity to obtain consent:

- Patient discharged directly from ED without admission to hospital: post information sheet and consent form to patient (max 3 times)
- Patient dies: the most appropriate healthcare professional should notify the relative/friend of the research involvement. Where it has been determined that obtaining informed consent from relative/friend is not appropriate, informed consent will be obtained from a PrLR

CONSENT DOCUMENTATION

Electronic consent / paper consent

Consent documents provided:

- brief information sheet
- information sheet
- consent form
- invitation letter to the participant
- invitation letter to the representative

Appendix 3: Brief Information Sheet

Personalise to each site

BRIEF INFORMATION SHEET

The CRASH-4 Trial

Short title: Clinical Randomisation of Antifibrinolytic in Symptomatic mild Head Injury in older adults
Long title: A trial of tranexamsic acid in older adults after a head injury

Personalise to each site

Appendix 6: Information Sheet for Participants and their Representatives

INFORMATION SHEET FOR PARTICIPANTS AND THEIR REPRESENTATIVES

You have suffered and serious complications prevent bleeding outcomes. We want to collect your name information from you.

As part of the study, you will be invited to take part in an important, what it involves

Personalise to each site

Appendix 7: Consent Form

CONSENT FORM

INVITATION TO TAKE PART
We are inviting people to take part in an important, what it involves

Personalise to each site

Appendix 8: Letter for the Representative

LETTER EXPLAINING THE ROLE OF THE REPRESENTATIVE

The CRASH-4 Trial

Short title: Clinical Randomisation of Antifibrinolytic in Symptomatic mild Head Injury in older adults
Long title: A trial of tranexamsic acid in older adults after a head injury

Dear [representative's name],

Your friend or relative suffered a head injury needing hospital care. Bleeding into the brain is a common and serious complication of head injury and older adults are at highest risk. Even a small bleed into the brain can cause disability, and some patients can die if the bleeding is more severe. We know that giving a drug called tranexamsic acid to patients with bleeding into their brain from a head injury reduces their chance of dying. We are doing a study to see if this drug can prevent bleeding into the brain after head injury. We hope that this will lead to better health outcomes. You have been included in this study soon after your head injury.

As part of the study, you were given 1 or 2 injections of the trial treatment into your thigh, shoulder or buttock and we collected some information about your injury and any previous health problems. There are no further treatments as part of the study, but we would like your permission to collect information about your recovery from your medical records at one month and at one year since your injury.

To help you to decide, we ask that you read the 'Information Sheet for Participants and their Representatives'. This will tell you about the whole trial.

If you have any questions, you are welcome to ask the study team.

We hope you recover well.

Yours sincerely,

CRASH-4 Letter for the Representative version 1.0 dated 16/06/2016
Randomised Controlled Trial 2016-02-00000-06, ClinicalTrials.gov ID: NCT02631000

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BASELINE DATA

ENTRY FORM

DATA FOR 1-17 TO BE COLLECTED PRIOR TO RANDOMISATION

SECTION A: SITE INFORMATION

1. Hospital / Ambulance Service Name	1.A Site Number
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SECTION B: ELIGIBILITY

2. Age (approximate if unknown)	if age < 50 do not randomise		3. Sex (circle one)	MALE	FEMALE
4. Clinical signs/history of head injury	YES	NO	Clinical signs include: laceration, bruising, swelling or pain to head or face; if no, do not randomise		
5. Any history of brain injury symptoms since head injury? (does not have to be present at time of assessment)	LOSS OF CONSCIOUSNESS		AMNESIA	CONFUSION / DROWSY	
	NAUSEA		VOMITING	Circle all that apply – if none, do not randomise	
6. Estimated time since injury	HH	MM	if more than 3 hours, do not randomise		
7. Pupil reaction to light	BOTH REACT		ONE REACTS	NONE REACT	UNABLE TO ASSESS
	8A-EYE OPENING		8B-VERBAL RESPONSE	8C-MOTOR RESPONSE	
8. Glasgow Coma Score (GCS) (circle one response for each category and provide total score)	4 SPONTANEOUS		5 ORIENTATED	6 OBEYS COMMANDS	
	3 TO SOUND		4 CONFUSED SPEECH	5 LOCALISING	
	2 TO PAIN		3 WORDS	4 NORMAL FLEXION	
	1 NONE		2 SOUNDS	3 ABNORMAL FLEXION	
			1 NONE	2 EXTENDING	
				1 NONE	
	8D-TOTAL SCORE				
9. Living in a nursing home, mental health institution or prison?	YES	NO	if yes to any, do not randomise		
10. Is TXA indicated (e.g. major bleeding present) or contraindicated (e.g. known allergic reaction or suspected acute arterial or venous thrombosis)?	YES	NO	if yes to either, do not randomise		
11. Will be/has been conveyed to hospital?	YES	NO	if no to either, do not randomise		
12. Eligible for trial? (age ≥ 20, clinical signs/history of head injury, TBI symptoms present, injury within last 3 hours, GCS ≥ 13, not living in a nursing home, TXA not indicated or contraindicated, will be conveyed to hospital)	YES	NO	if no to either, do not randomise		

For all vital signs, please use the most recent measurement prior to randomisation

13. Respiratory rate (breaths per minute)	14. Heart rate (beats per minute)	15. Blood Pressure (mmHg)	a. SYSTOLIC	b. DIASTOLIC
16.A Is the patient currently taking anticoagulants?	YES	NO	DON'T KNOW	16.B Is the patient currently taking antiplatelets?
17. Clinical frailty score	Assess using scale overleaf			

SECTION C: RANDOMISATION INFORMATION

18. Which consent process used? (circle one)	ASSENT / DEFERRED CONSENT	PATIENT CONSENT	PERSONAL REPRESENTATIVE CONSENT	PROFESSIONAL LEGAL REPRESENTATIVE CONSENT	
19. Randomisation number [number on drug pack given to patient]	BOX		PACK		
20.A Date of randomisation	DD	MM	YYYY	NOTE: Randomisation is the start of administration of the trial drug.	
20.B Time of randomisation (24-hour)	HH	MM			
21. Full dose given? (circle one)	YES	NO			
22. Site of administration - for locations, see overleaf (complete for a second injection site if required)	22.A Injection 1 (circle one)	RIGHT RECTUS FEMORIS	RIGHT VASTUS LATERALIS	RIGHT GLUTEAL	RIGHT DELTOID
		LEFT RECTUS FEMORIS	LEFT VASTUS LATERALIS	LEFT GLUTEAL	LEFT DELTOID
	22.B Injection 2 (circle one)	RIGHT RECTUS FEMORIS	RIGHT VASTUS LATERALIS	RIGHT GLUTEAL	RIGHT DELTOID
		LEFT RECTUS FEMORIS	LEFT VASTUS LATERALIS	LEFT GLUTEAL	LEFT DELTOID
23. Name of person randomising (first/last)	24. Signature				
25. Hospital to which patient will be conveyed	Only needed where randomised pre-hospital				

- Complete as soon as possible
- Mostly routine clinical information
- Direct database entry or paper
- For direct database entry, have all information needed before logging in

RANDOMISATION

- The trial drug is packed according to a randomisation list
- Each drug box has 8 uniquely numbered treatment packs (number format xxxx/xxx)
- Select the lowest numbered treatment pack available and to randomise a patient
- Document who prescribed the treatment and when
- Time of randomisation is the start of the first injection
- Trial drug must be available where patients are recruited (with paramedics or Emergency Department)
- There is no need to restrict any clinically indicated treatments

INVESTIGATIONAL MEDICINAL PRODUCT (IMP) MANAGEMENT



CRASH-4 IMP Management Risk Assessment Form

This IMP Management Risk Assessment must be completed and returned to LSHTM-CTU before IMP will be released

Trial name	CRASH-4		
Site type	Ambulance Service	Hospital	Circle one
Hospital / Ambulance Service name			
Principal Investigator name			
Lead responsible Pharmacist / other responsible person for IMP	Name		
	Email / phone		
	Role in trial		
Lead Research Paramedic / Research Nurse / other responsible person for IMP	Name		
	Email / phone		
	Role in trial		

1 Number and location of IMP stores				
1a	Do you plan to store IMP at multiple locations?	YES	NO	<i>If yes, a Risk Assessment must be completed for each location to be used and each sent to LSHTM-CTU. If NO, skip 1b and 1c</i>
1b	Name and address of the location for which this Risk Assessment applies	Name of location		
		Address		
1c	Details of person who will be responsible for the IMP at this location	Name		
		Email / phone		
		Role in trial		
2 IMP receipt at Site and transfer to IMP store				
2a	Who should the IMP shipments from Sponsor to Site be addressed to?			
	Name			Address
	Phone			
	Email			
2b	Do you have a written procedure for transferring IMP from main receipt point e.g. main pharmacy to ambulance stations / Emergency Departments?	YES	NO	If no, please ensure a procedure is in place prior to receiving IMP
2c	Who is responsible for the transfer?			

Oversight of IMP and local procedures required for security and accountability

IMP management risk assessment to be completed before trial can be started at a site

Key points:

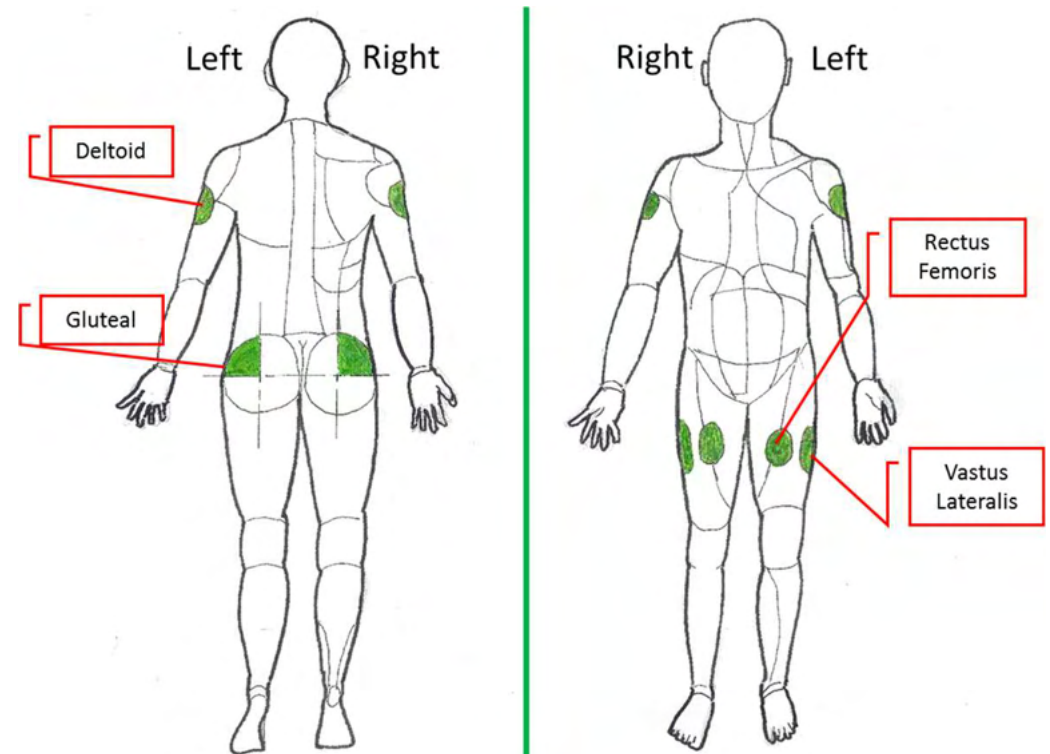
- How will drug be made available where it is needed (ambulance or Emergency Department)?
- How will drug be accounted for when given to paramedics?
- Who will be responsible for accountability at ambulance stations/Emergency Department?

HOW TO GIVE THE TRIAL TREATMENT

- Assess the patients muscle mass; the dose (500mg TXA or placebo) can be given as either:
 - a single 5 mL intramuscular (IM) injection of 100 mg/ml or
 - two 2.5mL intramuscular injections if the muscle mass cannot accommodate a 5mL injection
- Use the most appropriate needle size for IM administration from your stock (usually 1" between 19 - 25 G and from 1 ½ inches up to 3" for large adults)

- Select injection site(s): deltoid, thigh or buttocks depending on muscle mass

- Use the Z-track method to administer to seal the medication in the muscle



SAFE HANDOVER OF PATIENTS AT HOSPITAL

Hospital staff need to know the patient has been recruited to CRASH-4 and have all the information to care for the patient and complete follow up procedures:

- place a trial wristband on the patient immediately after giving the trial drug stating 'Randomised to the CRASH-4 trial', 'Randomisation number', 'Received tranexamic acid 500mg/placebo', 'Date', 'Time (24hrs)'
- record randomisation number, the fact that the CRASH-4 trial treatment was given, by who and what time it was given on the ambulance Patient Report Form
- handover a copy of ambulance Patient Report Form to be added to the patient's medical record to ensure this information is available to the hospital team
- verbally inform the receiving Emergency Department team of the patient's recruitment in the trial

OUTCOMES

Primary Outcome:

- Discharge from the emergency department within 24 hours of arrival

Secondary Outcomes:

- Intracranial bleeding on CT scan
- Death (intracranial bleeding-related, other causes)
- Disability (Barthel scale)
- Global assessment of ability to self-care
- Patient management (neurosurgery, days in ICU, days in hospital)
- Vascular occlusive events (pulmonary embolism, myocardial infarction, deep vein thrombosis, stroke)
- Seizures
- Pneumonia
- Injection site reaction
- Other adverse events
- Re-admission to hospital (within 28 days)
- Dementia diagnosis at 1 year

OUTCOMES

OUTCOME FORM

TO BE COMPLETED AT DISCHARGE, DEATH OR DAY 28, WHICHEVER COMES FIRST



SECTION A: HOSPITAL/PATIENT INFORMATION

1.A Hospital	1.B Site ID	2. Patient randomisation number
3. Date and time of arrival in Emergency Department	3.A Date	3.B Time (24 hour)
4. Was the patient discharged from the Emergency Department (ED)?	4.A If no, reason admitted? (circle one primary reason)	OTHER INJURY/MEDICAL CONDITION

SECTION B: PATIENT OUTCOME

5. Patient discharged		7.A. Primary cause of death (tick one)	
5.A Date of discharge	5.B Time of discharge	<input type="checkbox"/> Head injury (if head injury, specify type)	<input type="checkbox"/> Myocardial infarction
5.C Patient discharged to? (Circle one)	5.D Other (Specify below)	<input type="checkbox"/> Intracranial bleeding	<input type="checkbox"/> Stroke
6. Patient still in hospital at Day 28	6.A Date	<input type="checkbox"/> Intracranial infarction	<input type="checkbox"/> Multi organ failure
		<input type="checkbox"/> Other intracranial cause	<input type="checkbox"/> OTHER (Specify one)
		<input type="checkbox"/> Pneumonia	
		7.B Date of death	7.C Time of death

SECTION C: MANAGEMENT

8. Any intracranial bleeding on any post randomisation CT scan?	8.A Date of CT scan	8.B Time of CT scan	9. Location of intracranial bleed on CT scan (circle one for each)
10. Use of non-trial tranexamic acid?	10.A Date of TXA use	10.B Time of TXA use	11. Neurosurgical operation?
11.A If yes, type (circle one)	11.B Date of surgery	11.C Time of surgery	12. Days in Intensive Care Unit (ICU)

SECTION D: PRESPECIFIED ADVERSE EVENTS - For definitions, see overleaf

13. Prespecified adverse events (circle one for each event)	14. Global assessment of ability to self-care (circle one number)
A. Pulmonary embolism	1. As a result of the head injury, patient is completely dependent on care from others
B. Stroke	2. As a result of the head injury, patient is extremely dependent on care from others
C. Myocardial infarction	3. As a result of the head injury, patient is partially dependent on care from others
D. Seizure	4. As a result of the head injury, patient has only a limited dependence on care from others
E. Deep vein thrombosis	5. Patient is fully independent
F. Pneumonia	
G.I Injection site reaction	
G.II IF YES circle all that apply	
H. Other complications (If Yes, report as adverse event)	

SECTION E: DISABILITY/FUNCTION - immediately prior to discharge

15.A Feeding	15.B Bathing	15.C Grooming	15.D Dressing	15.E Bowels
15.F Bladder	15.G Toilet use	15.H Transfers (bed to chair and back)	15.I Mobility (on level surfaces)	15.J Stairs
16.A Name of person completing form	16.B Signature	16.C Date		

- **Primary Outcome:** Discharge from the emergency department within 24 hours of arrival
- Outcome form to be completed at discharge, death, or Day 28 (whichever is sooner)
- Complete electronically (via database) or paper (then upload)
- Complete from medical records (so all information on the form has to be recorded there)
- If patient discharged from ED, need local procedures in place to collect disability data Q14 and Q15

ADVERSE EVENT (AE) REPORTING

AEs to be reported (up to 28 days after randomisation):

Any untoward medical occurrence in a participant to whom a medicinal product has been administered, including occurrences which are not necessarily caused by or related to that product

Do not report:


Events already listed as outcomes, or those that relate to a pre-existing condition (including the patient's head injury) or any planned hospitalisations for elective treatment of a pre-existing condition

If a patient is discharged before 28 days:

AEs reported after discharge will include all pre-specified adverse outcome events

- See protocol page 21 for further information
- If you need advice on AE reporting, call emergency helpline
- Give patient an alert card if discharged before 28 days

HOW TO REPORT AN ADVERSE EVENT

SITE NAME		SITE ID	
RANDOMISATION NUMBER			
TRIAL TITLE: Clinical Randomisation of an Anti-fibrinolytic in Symptomatic mild Head injury in older adults			
ADVERSE EVENT REPORT FORM			
Please use this form to report any adverse event that occurs up to 28 days after randomisation Please refer to the Protocol/Study File for events which need to be reported			
Report type (circle)	Initial	Follow-up	1. Age
			years
2. Adverse Event in medical terms (diagnosis needed – avoid signs and symptoms if possible)			
3. Is the event due to progression of underlying illness? (circle)	YES	NO	4. Onset of first signs/symptoms of AE
			day month year
5. Seriousness criteria (tick all appropriate to the event)	<input type="checkbox"/> NONE OF THE FOLLOWING <input type="checkbox"/> Patient died <input type="checkbox"/> Involved or prolonged in-patient hospitalisation <input type="checkbox"/> Results in persistent or significant disability / incapacity <input type="checkbox"/> Life-threatening <input type="checkbox"/> Other, medically important		If NOT serious, complete Q6-Q8 and send this first page only. If ANY of the serious criteria is ticked, complete and send <u>all 3</u> pages of this form Upload all data to the trial database within 24 hours
6. Assessment of causality [Not Suspected or Suspected] (Relationship to study drug) (select one primary reason)		7. Outcome of the AE	
<input type="checkbox"/> NOT SUSPECTED TO BE RELATED TO TRIAL TREATMENT/PLACEBO BECAUSE OF: <input type="checkbox"/> Basic disease/pre-existing condition <input type="checkbox"/> Intercurrent disease <input type="checkbox"/> Concomitant medication <input type="checkbox"/> Non-drug therapy/intervention <input type="checkbox"/> Prior to randomisation <input type="checkbox"/> Other non-drug cause, specify: _____		<input type="checkbox"/> Recovered <input type="checkbox"/> Recovered with sequelae <input type="checkbox"/> Condition improving <input type="checkbox"/> Condition still present and unchanged <input type="checkbox"/> Condition deteriorated <input type="checkbox"/> Death	
<input type="checkbox"/> SUSPECTED TO BE RELATED TO TRIAL TREATMENT BECAUSE OF: Please give reason for this causality assessment: _____		8. INFORMATION SOURCE for NON-SERIOUS adverse event a) Investigator name: b) Signature: c) Date reported	
		day month year	

- Use Adverse Event Report Form
- Complete electronically (via database) or paper (and upload)
- If event is **serious**, report to LSHTM-CTU within 24 hours of becoming aware of the event
- Complete form as fully as possible
- Submit follow up report as soon as additional information known (but no later than five working days of becoming aware of the event)
- Event must be reported with assessment of seriousness, causality, and expectedness.

UNBLINDING

If an investigator wishes to give additional TXA, they can do so without the need to unblind (only receive ½ gram in the trial)

Can unblind a patient if clinical management depends importantly upon knowledge of whether the patients received TXA or placebo

Contact the emergency 24-hour unblinding service at:

+44(0)7768 707500

If some contraindication to TXA develops after randomisation, the usual standard care should be given


Complete unblinding request form within 24 hours

1 YEAR OUTCOME

- 1-year outcome data for incidence of dementia to be provided by NHS digital/NHS Wales Informatics Service
- Confidential Personal Information (CPI) needed to link to HES data
- Personal Information Form sent after:
 1. patient has consented OR
 2. confirming the patient is not part of the National Data Opt-Out scheme
- Personal Information Form can be uploaded directly onto the personal information database – no need to complete a paper form
- CPI will be held in a separate database to trial data

CONFIDENTIAL

PERSONAL INFORMATION FORM



TO BE COMPLETED AT PATIENT OUTCOME. WHERE THERE IS NO PATIENT CONSENT, COMPLETE AFTER CHECKING NATIONAL DATA OPT-OUT. YOU CAN ALSO ENTER THE INFORMATION DIRECTLY ON THE CRASH-4 CONFIDENTIAL PERSONAL INFORMATION DATABASE.

SECTION A: SITE INFORMATION

1. Site name		1.A Site Number	
2. Randomisation number			

SECTION B: CONSENT TO PROVIDE PERSONAL INFORMATION

3. Patient has given written consent (pre or post randomisation) and consent has not been withdrawn for data collection? (circle one)	YES	NO	<i>if YES skip 4. and go to Section C</i>
4. If no consent obtained from patient, have they registered for National Data Opt-Out? (circle one)	YES	NO	<i>if NO, complete section C if YES, SKIP Section C and complete section D ONLY</i>

SECTION C: PERSONAL INFORMATION

Only complete if patient consent has been obtained and if the patient is not part of the National Data Opt-Out

5. Patients full name			
6. Date of birth	DD	MM	YYYY
7. NHS Number			
8. Postcode			

SECTION D: PERSON COMPLETING FORM

9. Name (first/last)		10. Date	DD	MM	YYYY
11. Signature					

POST DISCHARGE REQUIREMENTS

- Give patient an alert card if discharged before 28 days
- **If a patient is discharged before 28 days and readmitted:** AEs include all pre-specified adverse outcome events
- Re-admission to hospital (within 28 days) is a secondary outcome: need local procedure in place to flag patients

TRIAL TRAINING

Paramedic

- Self-directed online training package online
- Local procedures training: contact Research Paramedic for access details
- Evidence of completion provided. End test pass rate of 90% needed.

Principal Investigator, Research Paramedics, Research Nurses, Pharmacists

- Training materials available online
- Site initiation training webinar held with LSHTM-CTU
- Once relevant training has been completed, staff must log training on the training log available in the investigator site file
- All staff must complete training relevant to their role in the trial
- Remote training using videoconference or teleconference can be provided by the LSHTM-CTU as needed

LOCAL PROCEDURES – AMBULANCE SERVICE

- How will the Principal Investigator and Research Paramedic know when a patient is randomised?
- Who will complete the Drug Accountability Log and Randomisation Log?
- How will you ensure the treatment packs get signed back in at the end of each shift and not left in kit bags (especially at Make Ready centres)
- Who will handle data queries?

How will the paramedics know:

- Where to collect and return drugs
- How and where to sign drugs in and out at each station i.e. paper or electronic documentation
- What to do with broken/damaged drug pack - do they return to the station or destroy
- What to do with a used pack – do they return the empty box to the station, or destroy
- Who to contact if they lose a pack
- What to do if their system goes off-line and so they can't enter data or they need urgent advice?

LOCAL PROCEDURES – IN-HOSPITAL

- How will everyone be informed of the trial?
- Where patient is recruited pre-hospital 'out of hours' who will be responsible for handover of patients to ED and ensuring follow up by research team?
- For those patients not recruited pre-hospital, how will potentially eligible patients be identified?
- Who will obtain consent and complete entry data? Will this be done electronically?
- What is the process for ensuring that the trial drug is secure but accessible in the emergency setting? Who will monitor the trial drug?
- How will you know if a patient is due for discharge or has died?
- How will you track randomised patients to make sure follow-up is done on time?
- How will you ensure that the QoL measure is routinely done for all patients?
- How will adverse events be monitored and reported as per the protocol?



CRASH⁴

Clinical Randomisation of an Anti-fibrinolytic
in Symptomatic mild Head injury in older adults

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