

### **RECAST-3:** A multicentre randomised controlled trial

**Chief Investigator:** Professor Tim England Professor of Stroke Medicine, University of Nottingham Honorary Consultant Stroke Physician, Royal Derby Hospital



Email: recast-3@nottingham.ac.uk



Website: <u>https://stroke.nottingham.ac.uk/recast-3/</u>

Twitter: @recast3trial

Telephone: 0115 823 1770



Protocol Version 5.0 (Investigator Training Slides Final V3.0 06/09/2024)



- Background
- Study design
- Inclusion and exclusion criteria
- Consent process
- Randomisation
- Intervention: Remote Ischaemic Conditioning Device
- RECAST-3 database
- Study flow
- NIHR Associate PI Scheme
- Safety
- Monitoring
- Contacts



# **BACKGROUND (1)**

### Stroke:

- Second leading cause of death worldwide
- Devastating to both patients and carers.
- In the UK, there are 100,000 strokes per year (85% of these ischaemic) which costs society ~£9billion/year<sup>1</sup>
- Reducing stroke severity and recurrence will improve functional dependency and the considerable social and financial burden to patients, carers and society.
- Recent research has failed to demonstrate efficacy of novel drug treatments<sup>2</sup>, therefore, new approaches to reduce the burden of stroke on society are required.

### Ischaemic Reperfusion Injury (IRI):

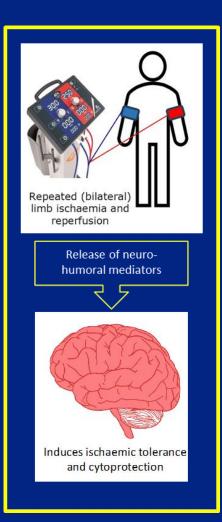
- IRI can occur after an ischaemic stroke
- Clinically manifests as early recurrent stroke, symptomatic intracranial haemorrhage, swelling of the original infarct and neurological deterioration, which are common causes of worsening outcomes<sup>3-5</sup>



# **BACKGROUND (2)**

**Remote Ischaemic Conditioning (RIC):** 

- Remote ischaemic per-conditioning (RIC) in experimental ischaemic stroke is neuroprotective and may reduce ischaemic reperfusion injury.
- It is simply achieved by repeated transient occlusion of the blood supply to a limb using a blood pressure cuff.
- RIC uses repeated cycles of transient limb ischaemia and reperfusion and helps protect the brain from ischaemic reperfusion injury (IRI) through the release of neuroprotective neuro-humoral chemical messengers from the limb, resulting in immediate (first 2-3 hours) and late (24-72 hours) windows of protection from ongoing and delayed cerebral IRI.<sup>6,7</sup>
- RIC is an attractive strategy since it bears minimal cost, should be safe and would be simple to administer by medics and allied health professionals





# **BACKGROUND (3)**

- Pre-clinical evidence: 8
  - → Meta-analysis: 54 publications, >1500 animals
  - → RIC reduces infarct size by 35% & improves neurological score.
- RECAST-1: <sup>9</sup>
  - → RIC after acute stroke is well tolerated and appears safe and feasible.
  - → RIC may improve neurological outcome and reduce vascular event rates.
- **RECAST-2:** <sup>10</sup>
  - → Verified feasibility of RIC within 6 hours of acute ischaemic stroke.
  - → RIC appears safe and well tolerated **including in those thrombolysed**
  - → Trend to reduction in recurrent cerebral events by day 90 in favour of RIC.
  - → Biochemical signals of efficacy were evidenced by increased plasma biomarkers of brain injury (S100ß) in the placebo group not seen in the RIC group.



# **BACKGROUND (4)**

### **Recent RIC findings**

• **RICAMIS<sup>1</sup>** (n=1776)



- → Bilateral RIC within 48 hours of ischaemic stroke
- → No sham (comparator standard care), excluded rtPA and MT
- → Treatment with RIC (10-14 days) increased the likelihood of excellent neurological function at day 90 (mRS score of 0-1).

### RESIST<sup>2</sup> (n=1500)

Neutral trial

- → Single limb RIC within 4 hours, pre-hospital setting (737 ischaemic, 165 ICH, remainder TIA or mimic)
- → 80% received 7 days of twice daily treatment (20% 1 day of treatment)
- → No differences between RIC and sham groups in the primary outcome (shift in mRS)



## **STUDY DESIGN & PURPOSE**

PURPOSE: To perform a multicentre randomised controlled trial assessing remote ischaemic conditioning (RIC) in patients with acute ischaemic stroke

- Prospective, randomised, sham-controlled, blinded-endpoint, parallel-group multicentre trial of RIC versus control.
- 1,300 patients with acute (within 24 hours) ischaemic stroke
- Randomised 1:1 across 60 UK based NHS Trusts
- Around 21 patients per site across 29 months of recruitment



## **HYPOTHESIS**

### Hypothesis:

 Remote ischaemic perconditioning (RIC) is safe and improves functional outcome in patients presenting with acute stroke

### **Primary research question**

• Does RIC improve functional outcome (ordinal shift in mRS) at day 90 in patients with acute ischaemic stroke?



# **SECONDARY RESEARCH QUESTIONS**

- Does RIC reduce early and recurrent cerebrovascular events by day 90 in patients with acute ischaemic stroke?
- Does RIC impact on other clinical outcomes at 3 months: major adverse cardiac and cerebral events (MACCE); acute kidney injury (AKI); cognition; mood; frailty; and quality of life?
- Is RIC safe when applied in patients with acute stroke?



# **INCLUSION CRITERIA**

- Acute ischaemic stroke (within 24 hours of onset)
- Spontaneous intracerebral haemorrhage ruled out on baseline clinical neuroimaging; Haemorrhagic transformation of infarction (HTI) HI1, HI2, PH1 is permitted
- NIHSS score 5 25
- Age 18 or over



## **EXCLUSION CRITERIA**

- Pre-morbid dependency (mRS greater than 3)
- Systolic blood pressure less than 80mmHg
- Spontaneous intracranial haemorrhage
- Haemorrhagic transformation of infarction PH2 (haematoma occupying 30% or more of the infarcted tissue)
- Pre-existing diagnosis of dementia
- Coma (GCS less than 8)
- Malignancy, and significant co-morbidity (life expectancy <6 months)</li>
- Capillary blood glucose <3.0mmol/L
- Seizure on presentation unless brain imaging identifies evidence of significant brain ischaemia
- Significant tissue injury of upper limbs, which in the opinion of the investigator, will be exacerbated by RIC
- Taking part in another interventional trial (unless co-enrolment agreed between CIs and Sponsors)
- Known pregnancy
- Expected repatriation of the participant to another hospital not participating in RECAST-3 where RIC or sham cannot continue.



## **ELIGIBILITY SIGN OFF**

- Eligibility can be confirmed and consent taken by members of the team who have local approval to do so and are authorised on the delegation log with the consent taking role. This may include:
  - Medics
  - **Research nurses**
  - **Research practitioners**
  - **Research coordinators** •
  - **Research** associates
- Confirmation of eligibility should be clearly documented in the participant's medical notes
- An 'Eligibility Checklist' is available

If the research team member has any queries about eligibility, they should discuss these with the medical team (who don't have to be on the delegation log)

Ľ	University of Nottingham
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IRAS: 277021 (England) 282606 (Scotland)

Remote Ischaemic Conditioning After Stroke 3 (RECAST-3): A multicentre randomised controlled trial Eligibility Checklist V1.1, 16 April 2024

	Inclusion Criteria		
	(All must be 'YES' for the patient to take part)	Yes	No
1	Acute ischaemic stroke (≤24 hours post onset)		+
2	Spontaneous intracerebral haemorrhage ruled out on baseline		
	clinical neuroimaging		
	*Haemorrhagic transformation of infarction (HTI) HI1, HI2, PH1 is permitted*		
3	NIHSS score 5-25 at randomisation		
4	Age ≥18 years		
	Exclusion Criteria		Τ
	(All must be 'NO' for the patient to take part)	Yes	No
1	Pre-morbid dependency (modified Rankin Scale, mRS>3)		
2	Spontaneous intracerebral haemorrhage		
3	Systolic blood pressure <80mmHg		
4	Haemorrhagic transformation of infarction PH2		
5	Pre-existing diagnosis of dementia		
6	Coma (GCS <8)		
7	Malignancy		
8	Significant co-morbidity (life expectancy <6 months)		+
9	BM <3.0mmol/L		
10	Known pregnancy		1
11	Taking part in another interventional trial, unless co-enrolment has		
	been approved by Chief Investigators and Sponsors		
12	Seizure on presentation unless brain imaging identifies evidence of		
	significant brain ischaemia		
13	Significant tissue injury of the upper limbs, which in the opinion of		
	the investigator, will be exacerbated by remote ischaemic		
	conditioning		
14	Expected repatriation of the participant to another hospital not		
	participating in RECAST-3 where RIC or sham cannot continue		
lt is	acceptable for a research nurse to sign off eligibility but a	ny que	ries
	t be discussed with a medic*	if que	100
nus	t be discussed with a medic		
Plea	se ensure that eligibility is also signed off in the medical note	s	
Nam	e) (Signature)		

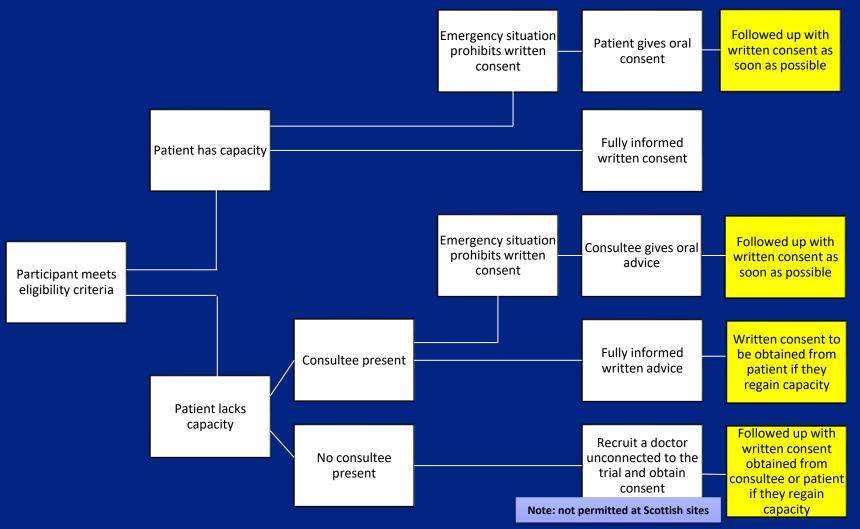
(Name) (Occupation)

RECAST-3 Eligibility Checklist V1.1 20240416

(Date)



## **CONSENT FLOW CHART**





## **CONSENT FORMS**

	RECAS	T 3	
(Form to be printed on	local headed paper)	Participant ID:	
(Fir Title of Study: Remote Conditi	CONSENT FOR nal version 3.0 date ioning After Stroke	: 05/09/23)	
IRAS Project ID: 277021	MHRA ref :	noz applicable	
Name of Researcher:			
Name of Participant:		Please initial bo	x
		nt Information Sheet version number ad the opportunity to ask questions.	
without giving any reason, and	without my medical c w then the information	t I am free to withdraw at any time, are or legal rights being affected. I n collected so far cannot be erased xt analysis.	
be looked at by authorised indi group and regulatory authorities permission for these individuals	viduals from the Univ where it is relevant to to have access to t obtained from my par	and data collected in the study may ersity of Nottingham, the research ony taking part in this study. I give hese records and to collect, store, ticipation in this study. I understand	
<ol> <li>I understand that the information Scotland) and other central UK I information about my health stat</li> </ol>	NHS bodies may be us	by NHS Digital, (EDRIS in sed to help contact me or provide	
5. I agree to you sending me a lette	r/email with a summa	ry of the results. Yes/No	
<ol> <li>If I lose the capacity to make de I'd be happy to continue in the s an objection to this.</li> </ol>			
<ol> <li>I agree to my GP being informed provide information on my status</li> </ol>			
8. I agree to take part in the RECA	ST-3 study.		
<ol> <li>I agree to take part in the thr perfusion brain scan (selected h)</li> </ol>		y which includes an additional CT N/A or initial box:	
		NA OF INITIAL DOX.	
Name of Participant	Date	Signature	
Name of Person taking consent	Date	Signature	
Name of Person witnessing*/taking* verb (delete as appropriate)	al consent Date	Signature	
<sup>†</sup> e.g. Use if participant cannot write but does * e.g. Use if time does not allow written urgen	have capacity to consent it consent. Must be followed	up by written concent as soon as is possible	
RECAST-3 Consent Form Final Versio	n 3.0 Date: 20230905		

- Local header required
- Record the PIS version and date in section 1
- Ensure that each box is initialed rather than ticked
- Ensure that all fields are complete
- Record the consent process in the medical records
  - 3 copies of the consent form 1 for patient, 1 for medical notes and original to be kept in the site file
  - Please ensure to have some localised copies prepared in advance but ensure that all copies can be retrieved in the event of an amendment



## **INFORMATION SHEETS**

### **Participant Information Sheet**



Participant Information Sheet (Final version 3.0: date: 05/09/23)

IRAS Project ID: 277021

Local Letterhead to be added

### Title of Study: Remote Conditioning After Stroke Trial-3 (RECAST-3)

Name of Chief Investigator: Professor Tim England Local Researcher(s):

### Introduction

As part of routine clinical care, research staff check if patients are eligible for research studies. You are eligible to take part in the RECAST-3 study which aims to assess whether Remote Ischaemic Conditioning improves disability at 90 days following your stroke.

We would like to invite you to take part in our research study. Before you decide, we would like you to understand why the research is being done and what it would involve for you. One of our team will go through the information sheet with you and answer any questions you have. Talk to others about the study if you wish. Ask us if there is anything that is not clear.

### What is the purpose of the study?

There are very few effective treatments for stroke and we are looking for new ways to treat and help prevent strokes from getting worse or new ones happening. 'Remote Ischaemic Conditioning' (RIC) may be one way of doing this. Evidence from experiments and other conditions suggests that interrupting the blood supply to the arms (for example, by inflating blood pressure cuffs) for brief episodes may help protect the brain from further damage. It is not clear exactly how this may work but it has been suggested that RIC may lead to the body releasing substances into the blood stream (such as 'anti-oxidants') that help protect the brain from injury caused by a stroke

We would like to see if this intervention is effective in people immediately after they have had a stroke We want to involve people like you in this multi-centre trial and investigate reasons how RIC might

### Why have I been invited?

You are being invited to take part because you have had a stroke and we feel that you fit the requirements for this research project. We are inviting 1300 participants like you to take part.

### Do I have to take part?

It is up to you to decide whether or not to take part. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a consent form. If you decide to take part, you are still free to withdraw at any time and without giving a reason. This would not affect your legal rights.

- You cannot take part in the trial if any of the following apply to you:
- Age less than 18 Dementia
- Participation in another study that involves taking a trial drug, unless co-enrolment in the two trials has been approved

RECAST-3 Participant Information Sheet Final Version 3.0 date: 20230905

### **Consultee Information Sheet**

(Form to be printed on local headed paper)

Participant Information Sheet – CONSULTEE (Final version 3.0 date: 05/09/23)

### IRAS Project ID: 277021

### Title of Study: Remote Conditioning After Stroke Trial-3 (RECAST-3)

Name of Chief Investigator: Professor Tim England Local Researcher(s):

### Introduction

As part of routine clinical care, research staff check if patients are eligible for research studies. Your relative is eligible to take part in the RECAST-3 study which aims to assess whether Remote Ischaemic Conditioning improves disability at 90 days following your stroke.

### Invitation

Your relative (it could also be a friend or someone you care for, but for brevity this document will use the term 'relative') is being invited to take part in a research study. Before you decide whether you agree to their participation, it is important for you to understand why the research is being done and what it will involve. One of our team will go through the information sheet with you and answer any questions you have. Talk to others about the study if you wish. Ask us if there is anything that is not clear or if you would like more information.

### What is the role of the consultee?

The consultee advises the researcher on what the participant's wishes and feelings would be if they were able to consent for themselves, and on whether they should take part. The consultee does not give consent, only advice. The responsibility to decide whether the participant should be entered into the research lies ultimately with the researcher. Consultees will be provided with information about the research project and will be given the opportunity to discuss it and their role as consultee. All consultees must be able to understand their role and be willing to undertake it.

### What is the purpose of the study?

There are very few effective treatments for stroke, and we are looking for new ways to treat and help prevent strokes from getting worse or new ones happening. 'Remote Ischaemic Conditioning' (RIC) may be one way of doing this. Evidence from experiments and other conditions suggests that interrupting the blood supply to the arms (for example, by inflating blood pressure cuffs) for brief episodes may help protect the brain from further damage. It is not clear exactly how this may work but it has been suggested that RIC may lead to the body releasing substances into the blood stream (such as 'anti-oxidants') that help protect the brain from injury caused by a stroke.

We would like to see if this intervention is effective in people immediately after they have had a stroke. We want to involve people like your relative in this multi-centre trial and investigate reasons how RIC might work.

### Why has my relative been chosen?

Your relative is being invited to take part because they have just had a stroke and we feel that they fit the requirements for this research project. We are inviting 1300 participants like your relative to take part.

RECAST-3 Consultee Information Sheet Final Version 3.0 date: 20230905 Page 1 of 6

### **Patient Re-Consent**



Local Letterhead to be added

Participant Information Sheet (re-consent) (Final version 3.0 date: 05/09/23)

### IRAS Project ID. 277021

### Title of Study: Remote Conditioning After Stroke Trial-3 (RECAST-3)

Name of Chief Investigator: Professor Tim England Local Researcher(s):

### Introduction

As part of routine clinical care, research staff check if patients are eligible for research studies. You were eligible to take part in the RECAST-3 study which aims to assess whether Remote Ischaemic Conditioning improves disability at 90 days following your stroke.

You have been taking part in a research study assessing new treatments for stroke. Your relative or consultee advised us that in their opinion you would have wanted to take part when you were unwell, soon after your stroke started. Before you decide if you want to continue, it is important for you to understand why the research is being done and what it involves. Please take time to read the following information carefully. Talk to others about the study if you wish. Ask us if there is anything that is not clear to you, or if you would like more information. Take time to decide whether or not you wish to continue to take part.

### What is the purpose of the study?

There are very few effective treatments for stroke, and we are looking for new ways to treat and help prevent strokes from getting worse or new ones happening. 'Remote Ischaemic Conditioning' (RIC) may be one way of doing this. Evidence from experiments and other conditions suggests that interrupting the blood supply to the arms (for example, by inflating blood pressure cuffs) for brief episodes may help protect the brain from further damage. It is not clear exactly how this may work but it has been suggested that RIC may lead to the body releasing substances into the blood stream (such as 'anti-oxidants') that help protect the brain.

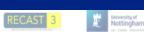
We would like to see if this intervention is effective in people immediately after they have had a stroke. We want to involve people like you in this multi-centre trial and investigate reasons how RIC might work.

### Why have I been invited?

You have been chosen because you have had a stroke, and we feel that you fit the requirements for this research project. It is up to you to decide whether or not to continue to take part. If you do decide to continue to take part, you will be given this information sheet to keep and be asked to sign a consent form. We are inviting 1300 participants like you to take part.

You cannot take part in the trial if any of the following apply to you:

- Age less than 18 Dementia
- - Participation in another study that involves taking a trial drug, unless co-enrolment in the two trials has been approved





## **TELEPHONE CONSENT RECORD**

	CACT O University of	
RE	CAST 3	PLEASE COMPLETE IF VERBAL CONSENT IS OBTAINED:
(Form to be printed on local headed paper)	Participant ID:	Has the relevant information sheet and consent form been sent to the Consultee / By post By Email Representative?
	E CONSENT RECORD on 2.0: date 05/09/23)	Email address / Postal address:
IRAS Project ID: 277021 (England, Wales 8	& NI), 282606 (Scotland)	Version no. of Information Sheet: V Date://
Principle Investigator:	]	Version no. of Consent Form: V Date://
Site Name:	Site Number:	
Patient name:		RECAST 3
DOB:	//	
Date and time of phone call/verbal consent:	//(Date):(Time)	PLEASE COMPLETE ONCE THE SIGNED CONSENT FORM IS RETURNED:
Consent obtained from:	Personal Consultee (England, Wales & NI)	PLEASE COMPLETE ONCE THE SIGNED CONSENT FORM IS RETURNED:
	Personal Legal Representative (Scotland)	Has the consent form been returned and
Name of consultee / representative:		signed by the above-named Consultee / Yes No Representative?
Contact number:		Date received:
Was verbal consent obtained for the patient to participate in RECAST-3?	Yes No	Has the consent form been counter-signed
		consent?
Name of person obtaining verbal consent:		Date counter-signed:
Signature:		Date copy of the fully signed consent form
Name/role of person witnessing phone call (If applicable):		was sent back to the Consultee /'' Representative:
Signature:	Not Applicable	



RECAST 3	University of Nottingha	
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Local letterhead to be added

RECAST-3 - Remote Conditioning After Stroke Trial 3

GP Address

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INFO	DR	MATION	FOR	THE (	GENER	AL PR	RACTI	TIONE	R
									_
-	-								

Dear Colleague,

Your patient:

and living at:

DOB:

has agreed to participate in the RECAST-3 trial, a randomised, placebo-controlled feasibility trial evaluating remote ischaemic conditioning (RIC) after acute ischaemic stroke. The trial is organised by researchers at the University of Nottingham.

Stroke has an enormous impact on both individual and society. Novel treatments are required to relieve this burden and remote ischaemic conditioning (RIC) is one such approach. RIC refers to applying brief ischaemia to an area (a limb/limbs) distant from an organ you are trying to protect (the brain). Pre-clinical animal studies have shown RIC to be neuroprotective and help restore functional outcome when compared to control. These outcomes are achieved simply by transiently ocoluding the blood supply to a limb/limbs very soon after the stroke occurs. The mechanisms of protection nay be due to enhancing the body's ability to protect itself from ischaemic reperfusion injury by favourably altering cerebral blood flow or reducing the detrimental effects of cerebrotoxins.

We are running a multi-centre randomised controlled trial across ~60 centres in the UK assessing the safety and efficacy of applying RIC (4 cycles of bilateral blood pressure cuff inflation for 5 minutes) in patients during and after an acute ischaemic stroke, whilst investigating the mechanisms by which it may work. The primary outcome is assessing improvement in functional outcome at 3 months. Secondary outcomes include safety, recurrence of cerebrovascular events, disability, acute kidney injury, cognition, mood, frailty and quality of life.

Our research team will follow up your patient over a period of three months, at which point we will call you to check their vital status. If problems arise in connection with this study, please do not hesitate to contact us on \_\_\_\_\_\_. A copy of the patient information sheet has been provided for you.

Yours sincerely, [Local PI signature]

## **GP LETTER**

- Always send a letter to the participant's general practitioner
- Local header required
- Send with a copy of the participant information sheet
- File a copy in the ISF and in the patient's medical notes
- Anonyomised/unanomymised documentation should be kept separate
- Please keep GP letter, consent form(s) and patient details together in the ISF



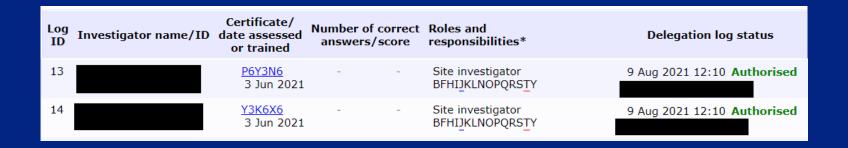
REMOTE ISCHAEMIC CONDITIONING AFTER STROKE TRIAL 3

https://stroke.nottingham.ac.uk/recast-3/live/recast-3\_login.php

• Sign off by the PI via the electronic delegation log will allow access to the trial database

RECAST

- Request access by emailing <u>recast-3@nottingham.ac.uk</u> along with:
- Signed CV and GCP (both within last 2 years)
- Signed training log (either live training or self-directed)
- Account details will then be sent via email
- Staff member will need to accept invitation to participate, which will send a notification to PI
- PI will need to log in and sign off each staff member, which adds the staff member to the online delegation log and database access is granted.
- Investigators may only work on the trial once signed off on the delegation log



ReCAST-3 investigator ID:	
Password:	



## **DEMO DATABASE**

- The demonstration database is available to be used by site investigators to get an understanding of the database functions and CRF completion, meaning that any potential queries can be resolved prior to opening.
- Log in using the credentials below, which can be found via the RECAST-3 website (<u>http://recast-3.ac.uk/</u>).

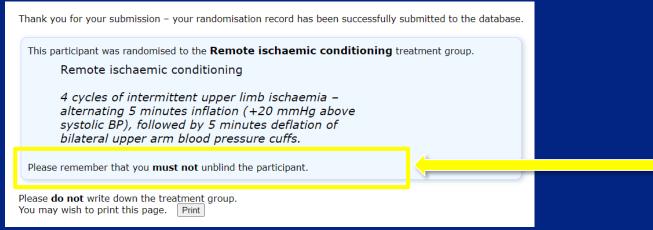
### Demonstration database

For practice, please go to <u>http://recast-3.ac.uk/demo/</u> and use the following credentials. User demoinv1 Password nottingham



## **ONLINE RANDOMISATION PROCESS**

- DAY 1: Patients will be randomised (1:1 to receive either RIC or sham)
- Randomisation will be performed locally using the trial's secure internet site
- Log into the RECAST-3 online database (<u>https://stroke.nottingham.ac.uk/recast-3\_login.php</u>)
- Click to randomise new patient
- Confirm the patient's eligibility and complete the randomisation form
- Once the form has been submitted, the database will display the allocated treatment



• An email will be sent to site staff as confirmation



Please see WPD 007 Manual Randomisation for further detail

## **EMERGENCY RANDOMISATION PROCEDURES**

**1.** Randomisation performed by the coordinating centre

The site investigator is unable to reach the RECAST-3 database from their location, but the RECAST-3 database itself is working. → The coordinating centre will randomise patient on behalf of the site

### 2. Manual randomisation

The RECAST-3 database is unavailable, which means that no one (including the team at the co-ordinating centre) can perform any online data entry at all. Manual randomisation means that a person chooses whether the active RIC or sham device is used, without the use of computerised randomisation. → The coordinating centre will perform manual randomisation and input the data when once database is working

As soon as the site discovers that they are unable to use the RECAST-3 database to randomise their eligible patient, they should contact the coordinating centre (0115 823 1770).



# **ENTRY OF MISSING DATA**

- Some questions on RECAST-3 CRFs may provide the following options:
  - Not applicable: should be used if a measure was not required for that participant
  - Not done: should be used if data are unavailable, either because a measure was not taken or a test was not performed (every effort should be made to complete the test if still within the time window)
  - Not known: should be used if the data are unknown, and every effort has been made to find the data
- For each question on a CRF, you should either enter a value in the central column(s) or use the drop-down lists in the right-hand column to indicate why the value is missing
- The 'Not done' and 'Not known' options relate to missing data. Some required data may be missing for legitimate reasons.
- To access the hidden 'Not done' and 'Not known' options on the CRFs, please go to the bottom of the page and set the missing data control to 'Yes'. Enter a full explanation and submit the form. After this, you can complete the CRF as usual.



# **INTERVENTION**

- Active: RIC group
  - 4 cycles of intermittent upper limb ischaemia alternating 5 minutes inflation (20mmHg above the systolic BP) followed by 5 minutes deflation of bilateral upper arm blood pressure cuffs.
- Control: Sham RIC
  - Blood pressure cuff inflated to 50 mmHg for 4 cycles of inflation and deflation
- Duration

•

First 'dose' (4 cycles) within ≤24 hours of onset. **immediately before** 

- Second dose 4 hours after the first dose.
- Twice a day (once in the morning, once in the afternoon) for 14 days
- Total 28 doses over 14 days

Heart rate and blood pressure readings should be recorded immediately before each dose



# **INTERVENTION**

### Additional Notes:

- Since the AneticAid device pressures increase in 5 mmHg increments, RIC treatment cuffs should be inflated to at least 20 mmHg above systolic BP, to the nearest 5 mmHg. For example, if systolic BP is 140 mmHg, the target is 160 mmHg; if systolic BP is 141-145mmHg, the target is 165mmHg.
- Some centres will be unable to administer RIC over a weekend due to absence of trained staff. In these
  cases we accept RIC/sham may be omitted over the weekend so long as they have already received a
  minimum of 48 hours of RIC/sham (i.e. 4 x 4 cycles).
- A minimum of 4 hours is required between twice daily dosing. If randomisation occurs late on day 1, not allowing a second dose on day 1, then dose 2 occurs on day 2.
- If a participant omits dosing due to a weekend, the total number of RIC doses should remain 28. For example, if 4 days (8 doses) are omitted over 2 weekends, then total treatment time may be over 18 days.
- If a participant is due to be discharged or transferred to another facility that cannot deliver the trial treatment (i.e. not a RECAST-3 participating site) prior to the full treatment course being completed, RIC/sham is discontinued.
- If a dose is omitted due to treatment intolerance, there is no need to extend the treatment period but further doses at the usual timepoints will be offered.



# INTERVENTION

### Additional notes:

- As long as patients meet all eligibility criteria, they can be recruited to the trial and the intervention should be delivered for as long as possible, up to a maximum of 14 days (28 doses).
- Sites that routinely discharge patients to a rehabilitation centre within the 14 days post stroke can join the trial and should aim to deliver the intervention to participants for as long as possible (up to a maximum of 14 days/28 doses) before they are moved.
- Patients that have an NIHSS score towards the lower end of the 5-25 inclusion range should still be approached to take part in the trial if all other eligibility criteria are met. Again, the intervention should be delivered for as long as possible up to 14 days/28 doses maximum.
- For the following exclusion criteria: 'expected repatriation of the participant to another hospital not participating in RECAST-3 where RIC or sham cannot continue', this will be applicable when it is known that a patient will be repatriated early on, for example in comprehensive centres that receive out of region patients who are due to be moved within ~72 hours.
- A patient admitted to a hospital outside of their locality (for example when they are on holiday) can still be recruited unless it is known that they are planned for repatriation to their local hospital within ~72 hours.



Please see the Product Training document for further detail

## **RIC & SHAM DEVICE**

- Anetic Aid Ltd. will supply one AT4 Electronic Tourniquet to each participating site.
- The same device will be used to deliver both RIC and sham protocols.
- When not in use, the devices should be held in a secure location, connected to the mains.
- Devices should be cleaned after each use.
- Those treating the participant will be unblinded, but efforts should be made to ensure as little staff as possible are unblinded to ensure the patient, family and the day 90 outcome assessor remain blinded.



- 1. Control Panel
- 2. Cuff Supply Hose Storage Connectors
- 3. Cuff Supply Hose Connectors
- 4. Cuff Supply Hose
- 5. Pulling Handle
- 6. Cuff Hooks
- 7. Storage Facility
- 8. Additional Storage Facility Locating Pins
- 9. IEC Socket



Please see the Product Training document for further detail

# **OPERATING THE DEVICE**

- 1. <u>Equipment check:</u> The battery indicator should be green (if not it must be connected to mains supply). Connect the red and blue cuff hoses to the front panel. Ensure you have a standalone timer ready.
- 2. <u>Participant check:</u> Inspect the participant's arms and skin condition and make a note of any skin changes or damage. Check the participant's blood pressure (twice). Record values on the <u>Treatment log</u>
- 3. <u>Switch the AT4 on:</u> Press the ON button. The LED will be lit green.
- 4. <u>Cuff attachment:</u> Apply appropriately sized cuffs to the participant's upper arms. At the end of the cuff supply hoses (attached in step 1), depress the metal connector clip before fully inserting the tourniquet cuff connector.
- 5. <u>Pressure selection:</u> Rotate the control on both channels clockwise to increase and anticlockwise to decrease (RIC +20 mmHg above systolic BP, sham 50 mmHg)
- 6. <u>Cuff inflation:</u> Depress the inflate buttons on both channels in turn. The applied pressure will be displayed. Cuffs remain inflated for 5 minutes.
- 7. <u>Cuff deflation:</u> Depress the deflate buttons on both channels in turn (single push = slow deflation, second push = fast deflation). The screen will flash during deflation. Cuffs remain deflated for 5 minutes prior to reinflation (until the 4th cycle has been completed).
- 8. <u>Treatment log:</u> Record all cycle details
- 9. <u>Switch the AT4 off:</u> When the intervention is finished, press the OFF button.



- 1. ON/OFF
- 2. Set Pressure display
- IVRA (Intravenous Regional Anaesthesia) Not applicable for RECAST-3
- 4. Applied Pressure Display
- 5. Elapsed Time H:MM
- Reminder control Not applicable for RECAST-3
- 7. Audible alarm, pause and indicator
- 8. Maintenance indicator
- 9. Battery level indicator
- 10. Pressure controller
- 11. Deflate button
- 12. Inflate button



### **TREATMENT LOG**

CAST-3 trial — DEVELOPMENT mote ischaemic Conditioning Al		Room S/D2108, Stroke Trials Unit School of Medicine, University of Notlingham	Cl	.c Cj	ycle 3	minute(s)	Not done Not know	
n 63231313		Queen's Medical Centre, Derby Road Nottingham NG7 2UH, United Kingdom IeCAST-3 trial office <recast-3@nottingham.ac.uk></recast-3@nottingham.ac.uk>	Cl	d Cj	ycle 4	minute(s)	Not done Not know	
atment log form v1.0  • Please complete for days where trea	tment was <u>expected</u> (giving details if	not completed).	C2		/hich arm was used to deliver the tervention?	Left Right Both	Not appli	
Only indicate one dose below where of treatment, and (b) when due to dis Since the AneticAid device pressures inflated to at least 20 mmHg above h	scharge/death or withdrawal during tr s increase in 5 mmHg increments, <u>R</u> lighest systolic BP, to the nearest 5 n	eatment period. <u>C</u> treatment cuffs should be mHg. For example, if systolic	C3	H	ow was the intervention given?	Automated trial device Manual BP cuff Both	Not appli	
3P is 140 mmHg, the target is 160 m	mHg; if systolic BP is 141-145 mmH	g, the target is 165 mmHg.	C4		ate/time intervention started Id-mmm-yyyy hh:mm 24hr)	D/M/Y H:M	Not appli Not know	
te of treatment I-mmm-yyyy)	D/M/Y		C4		ate/time intervention ended	D/M/Y	Not appli	
ow many doses were <u>expected</u> on is date?	One dose Two doses				This is when the last cuff deflation has ended	H: M	NOL KHOW	
			Do	not	unblind the participant			
on B: Pre-intervention haemodynamics - immediately before first intervention.	- first daily dose (1/2)		C5		cycles not completed, please dicate reason	Participant did not tolerate cuff pressure	Not appli Not know	
Blood pressure readings Systolic Reading - left arm	c / diastolic (mmHg)	Not done				Participant refused the intervention     Adverse event from the intervention     (complete SAE form)		
Reading - right arm	/	Not done Not known				Participant medically unwell (please check if SAE)     Recruited late on first day     Final dose already recorded		
art rate reading - left	bpm	Not done Not known				Participant discharged or died     Other		
Heart rate reading - right	bpm	Not done Not known	C5		cycles not completed, please give etails		Not appli	cable
cuffs. nam: Bilateral upper arm blood pressure	ved by 5 minutes deflation of bilateral e cuffs are inflated to 50 mmHg for 4	upper arm blood pressure cycles.	C6	fro	lease indicate any other deviation om the intended intervention – e.g. terruptions, delayed start	Interrupted - participant factors, e.g. sick, needed toilet     Device failure     Device failure     Device not available and treatment     delivered manually     Other	🗌 Not appli	cable
d the participant receive the following ease round numbers of minutes up (e		shamj?	C6		such a deviation occurred, please ve details		🗌 Not appli	cable
a Cycle 1	minute(s)	Not done						
		Not known	At l	east	4 hours should elapse from the e	d of the first dose until the second dos	e begins.	
Cycle 2	minute(s)	Not done Not known			ReCAST-3 ISRCTN 63231313	Treatment log v1.0 DRAFT (1 Feb 2024)		

- Please complete a separate Treatment log for each day when the treatment was expected
- Keep original in the site file
- File a copy in the patient's medical notes
- Enter the data onto the Training log eCRF

On the RECAST-3 database



# WARD STAFF TRAINING

- Training for ward staff who have the capacity to assist with the trial
- Training will consist of a shortened GCP slide set and device training, which must be completed before the intervention is delivered to any trial patients
- This would allow ward staff to deliver the intervention when research staff are not available i.e. over the weekend/out of hours, meaning patients could be recruited later in the afternoon or on a Friday, who might otherwise be missed
- Staff will need to complete the training and sign the ward staff training log
- Staff will need to be added to a paper delegation log, assigned codes <u>B</u>, <u>O</u> and <u>Q</u> and signed off by the PI

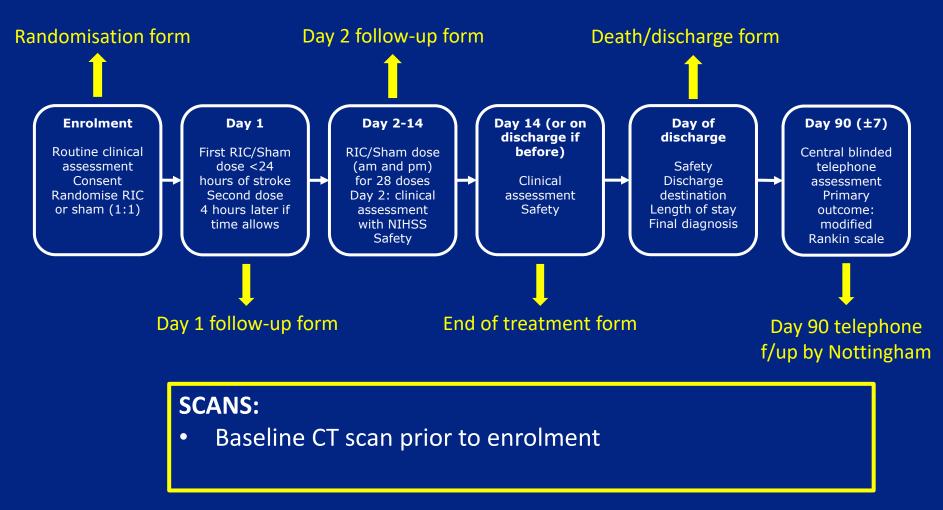


## WARD STAFF TRAINING

Ward staff will be permitted to deliver the intervention only, they should not consent or randomise patients



# **STUDY FLOW**





## REPATRIATION

- Please record all site-to-site transfers between RECAST-3 centres up to day 90 by completing the site-to-site transfer CRF.
- This must be to an existing RECAST-3 site. Please contact us to query whether the hospital the patient is moving to is a RECAST-3 site.
- If the patient is being transferred to a non-RECAST-3 site, the discharge form should be completed with details of where the patient has been transferred to.
- Please let us know if a patient is transferring to a non-RECAST-3 site before completing all 28 doses and before all data entry is complete.



# **PARTICIPANT FOLLOW-UP DAY 90**

- The coordinating centre follow-up coordinator will conduct the day 90 telephone follow-up
- Please ensure that the following information is uploaded to the secure vault:
  - Participant trial number
  - Name
  - Home address
  - Telephone number
  - NHS number
  - GP name and surgery address
  - NOK contact details
- If you have become aware that the patient's contact details have changed, please inform the trial coordinating centre
- Note: if the participant cannot be contacted or located, the site research staff will be requested to check the hospital system for changes in address or details



### NIHR ASSOCIATE PI SCHEME NIHR National Institute for Health Research

- The scheme is open to any healthcare professional willing to make a significant contribution to the conduct and delivery of a study at a local level over a period of at least six months
- The local PI acts as a mentor to the Associate PI, helping them to understand what it means to be a local PI on an NIHR portfolio study
- During their time on the Associate PI Scheme, the Associate PI must complete a checklist of study activities and a learning pathway on NIHR Learn. This checklist needs to be signed off by the Local PI and the National Study Coordinator at the end of an Associate PI's time on the scheme
- The NIHR Associate PI Scheme team will then issue a certificate confirming Associate PI Status which can be added to their training portfolio
- Find out more here: <u>https://www.nihr.ac.uk/health-and-care-professionals/career-development/associate-principal-investigator-scheme.htm</u>



# **SAFETY REPORTING (1)**

An adverse event (AE) is any unfavourable and unintended sign, symptom, syndrome or illness that develops or worsens during the period of observation in the study. Including:

- Exacerbation of a pre-existing illness.
- Increase in frequency or intensity of a pre-existing episodic event or condition.
- Condition detected or diagnosed after medicinal product administration even though it may have been present prior to the start of the study.
- Continuous persistent disease or symptoms present at baseline that worsen following the start of the study.

An **Adverse Device Effect (ADE)** is any untoward and unintended response to a medical device and includes any event resulting from insufficiencies or inadequacies in the instructions for use or the deployment, the installation, the operation, or any malfunction of the investigational medical device Includes any event that is a result of a user error or intentional abnormal use of the investigational medical device



# **SAFETY REPORTING (2)**

Serious Adverse Event (SAE) is any adverse event occurring following study mandated procedures, having received the intervention that results in any of the following outcomes:

- Death
- A life-threatening adverse event
- Inpatient hospitalisation or prolongation of existing hospitalisation
- A disability / incapacity
- A congenital anomaly in the offspring of a participant
- Important medical events that may jeopardize the patient and may require medical or surgical intervention to prevent one of the outcomes above.

**Serious Adverse Device Effect (SADE)** is an adverse device effect that resulted in any of the consequences characteristic of a serious adverse event or that might have led to any of these consequences if suitable action had not been taken or intervention had not been made or if circumstances had been less opportune. Note that this definition captures "near misses" as well as actual incidents. Further categorised into either of the below:

→ Unanticipated, serious adverse device effect (USADE) is a serious adverse device effect which by its nature, severity or outcome has not been identified in the current version of the risk analysis report

→ Anticipated, serious adverse device effect (ASADE) has been identified in the current version of the risk analysis report

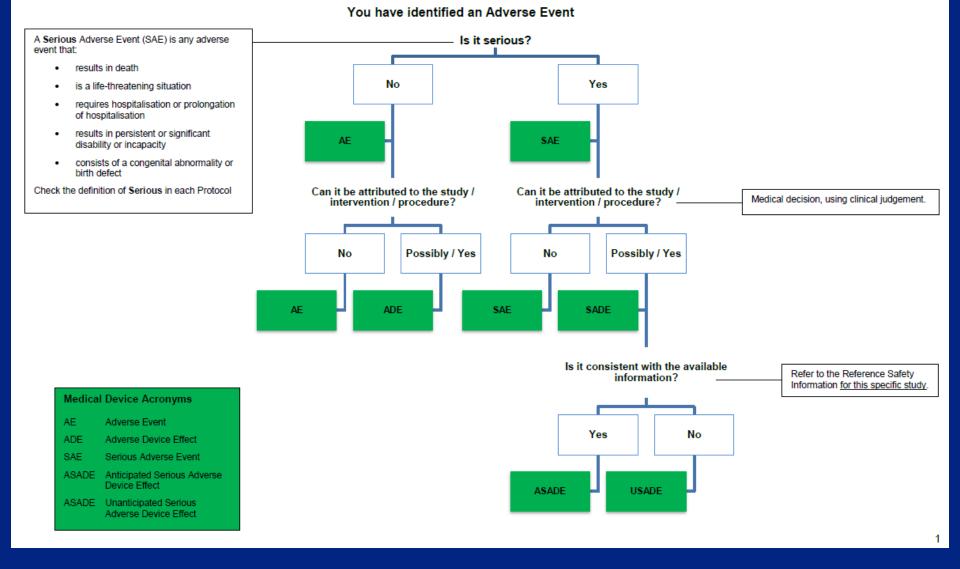


# **SAFETY REPORTING (3)**

- All SAEs/SADEs/USADEs/ASADEs during the RIC/Sham period (up to 20 days post randomisation) will be collected
- SAEs after the RIC/Sham treatment period will not be collected; thereafter, only fatal SAEs and outcomes will be recorded and blindly adjudicated.
- Discuss with clinicians and PI
- All SAEs/SADEs/USADEs/ASADEs are reported electronically on the website
- Participants will be asked to contact the study site immediately in the event of any SAEs/SADEs/USADEs/ASADEs
- Sites must report SAEs/SADEs/USADEs/ASADEs to the coordinating centre within 24 hours upon knowledge of the event
- Must be signed off by the PI
- The Chief Investigator shall determine seriousness and relationship in conjunction with any treating medical practitioners.
- Sites should record and monitor all SAEs/SADEs until resolution, stabilisation or until the AE has been found to not be caused by study treatment



#### **Decision Tree for Adverse Event Reporting – MEDICAL DEVICES**





# **SAFETY OUTCOMES**

- The following events are considered as safety or secondary end points:
- Major adverse cardiac and cerebral events (MACCE):
- → Recurrent ischaemic stroke
- → Symptomatic Intracranial haemorrhage
- → Symptomatic swelling of the original infarct
- → Extension of ischaemic stroke
- → Neurological deterioration (increase in NIHSS score by 4 points or more)
- → Systemic embolism
- → Neurovascular limb compromise
- Myocardial infarction
- → Acute Kidney Injury

Report safety outcomes **(up to Day 90)** by completing the SAE eCRF. For definitions, refer to the RECAST-3 protocol (Appendix B: Outcome event definitions)



### **PROTOCOL VIOLATIONS**

 Major deviation from the trial protocol where a participant is enrolled in spite of not fulfilling all the inclusion and exclusion criteria, or where deviations from the protocol could affect the trial delivery or interpretation significantly.

#### **Examples:**

Failure to obtain appropriate consent prior to randomisation
Randomising/treating a patient who does not meet inclusion criteria
Patient not receiving the randomised treatment
Failure to complete SAEs where appropriate

- Complete the protocol violation CRF on the RECAST-3 database.
- The CI will review the protocol violation and will advise on the appropriate measures to address the violation.
- Violations are reviewed annually by the DMC (unblinded) and TSC (blinded)
- If in doubt contact the trial office



# **PROTOCOL DEVIATIONS**

- **Minor** deviation from the protocol that affects the conduct of the trial in a minor way.
- This includes any deviation from the trial protocol that is not listed as a protocol violation.

### **Examples:**

Follow-up assessments are performed (as opposed to submitted) outside the specified time as shown below:
2-day follow-up: >1day past the due date
Discharge/death in hospital: >7days past the due date

 Submitted in the same way as protocol violations but will be downgraded by the CI on review



### MONITORING

- The trial manager will carry out the site monitoring visit remotely. A face-to-face visit may be triggered if there are ongoing concerns about a site despite remedies being suggested to resolve issues.
- The expectation is that sites will complete the monitoring documents, which will be signed off by the PI and returned to the trial's office. These documents include an ISF checklist and patient file checklists
- Sites will be notified of a sub-set of patients that have been randomly selected from the trial database to be monitored
- The completed monitoring documents will be reviewed by the trial coordinator and followed up with a report and action list



Please see WPD 004 Uploading Images, WPD 005 Secure Vault Uploads WPD and WPD 009 Site Monitoring for further detail

# **ONGOING MONITORING**

As part of the ongoing monitoring process, sites will be required to upload documentation to the secure vault for each recruited patient. Please upload as soon as possible after enrolment.

- Consent form
- Participant contact details (for the day 90 follow-up)
- Any clinical neuroimaging reports for all clinical brain scans done during 90-day follow-up period (anonymised)
- Participant-specific file notes if applicable (anonymised)
- Scan data for the baseline CT should be uploaded via the database (encrypted DICOM data). If scans cannot be uploaded, please post to us on a CD <u>(anonymised)</u>.

NB:- It is not necessary to 'prescribe' the intervention on the drug chart. Delivery of each treatment 'dose' must be recorded (i) in the medical notes and (ii) on the Treatment Log CRF (entered onto the database).

#### Please note:

Any documentation with patient details should **not** be sent to the generic RECAST-3 email address

To anonymise please block out the patient's name and any other identifiable information and add their participant ID to the document. Consent forms should not be anonymised but the participant ID should be added.



Please see WPD 009 Site Monitoring and WPD 001 Screening and Enrolment Log for further detail

### **ONGOING MONITORING**

To be sent to <u>recast-3@nottingham.ac.uk</u> on a monthly basis (anonymised):

- Screening logs
- Please include all patients presenting within 24 hours of their stroke, including:
- Eligible patients who are recruited
- Eligible patients who did not want to take part
- Totals for ineligible patients (i.e., they do not meet the inclusion criteria, or they fulfil one of more of the exclusion criteria)
- The cumulative totals must be recorded and sent across to the coordinating centre monthly For example, 10 patients were ineligible in March 2024 because they had an NIHSS score of 4 or below.

#### Please note:

Patient details should **not** be sent to the generic RECAST-3 email address – the log should be anonymised prior to sending.

	The University of Nottingham			Re F V			
	Title: PARTICIPANT SCREENING AND ENROLMENT LOG						
	Reference SOP:			TA011			
STRICTLY CONFIDENTIAL							
Trial Name:				Trial Reference:			
Site: Page Number:				Date Trial Opened at Site:			
number o			Entered into trial Y/N	If N give reason**	If Y date consent obtained	Allocated trial number	Investigator Signature and Date *



Please refer to 'Coenrolment log for Sites' on the RECAST-3 documents page for an up-to-date list

# **CO-ENROLMENT**

- ▲ Enrolment into observational studies does not require sponsor approval.
- Co-enrolment between certain interventional trials is permitted:

MAPS-2

ENOS-2

#### PhEAST (PhEAST to recruit after day 14)

- ▲ This has been agreed between Chief Investigators as the trials have the same Sponsor.
- For any other interventional trial, co-enrolment would need to be discussed on a trial by trial basis and a decision taken by sponsors of both trials, with permission from the relevant safety committees. Contracts will also need to be in place.
- ▲ Please always consider the burden on the patient
- Record on the discharge or death in hospital CRF









# SITE FILE

- Please see the RECAST-3 documents page where you can download the contents of the investigator site file (<u>https://stroke.nottingham.ac.uk/recast-</u> <u>3/docs/public.php</u>)
- The coordinating centre will not send hardcopy site files in the post for reasons of sustainability and version control
- Must be stored in a secure location and only accessible by the research team Includes:
- Coordinating centre contact sheet
- •Trial staff details CVs, GCP certificates, training logs
- •Current protocol
- Localised information sheets, consent forms and GP letter
- Screening logs
- Regulatory approvals (inc. NCA, OID, local R&D approvals, sponsor greenlight)

- Working Practice documents
- •Monitoring documents
- •Safety file SAE forms here after sign off by PI
- •All 'wet-ink' signed informed consent forms
- •File notes/correspondence



### WHAT NEXT?

Before we issue green light and you can start recruiting...

- Signed training log after today's session
- ✓ CVs and GCPs for trial staff
- ✓ Signed contract
- ✓ Confirmation of C&C from R&D
- ✓ Staff to be authorised by PI on online delegation log
- Confirmation that the device has been received and is ready for use

Please can we remind you to add <u>recast-3@nottingham.ac.uk</u> to your contacts list – not doing so may mean you miss important automated emails from our database (including randomisation and SAE alerts).



### WHAT NEXT?

Please ensure to read through the following sponsor SOPs which can be found on our trial documents page and in your ISF: (<u>https://stroke.nottingham.ac.uk/recast-3/docs/public.php</u>)

SOP TA008 Trial InitiationSOP TA010 TMF TSFSOP TA016 Serious GCP Breach Reporting



### **RECAST-3 CONTACTS**

- Email: recast-3@nottingham.ac.uk
- Website: https://stroke.nottingham.ac.uk/recast-3/
  - 7 Twitter: @recast3trial
- Telephone: **0115 823 1770**





Professor Tim England





Di Havard Senior Trial Manager 0115 823 1775



Dr Jen Craig **Trial Manager** 0115 823 1770



Joanne Del Buono Follow Up Coordinator 0115 823 1770

**RANDOMISATION QUERIES:** 0115 823 1770 **OUT OF HOURS EMERGENCY CONTACT DETAILS:** Please log in to the RECAST-3 database to access



# Remote Ischaemic Conditioning After Stroke (RECAST-3)

### **Questions?**

Please complete and return a copy of the Investigator Training Log (RF1 TA008) for all those who have attended today's training!



# Audit trail of updates to training slides:

- V1.0 (20240202)
- First version
- V2.0 (20240216)
- Slide 41: updated to indicate that it is not necessary to 'prescribe' the intervention on the drug chart
- V2.1 (20249416)
- Slide 27: removed reference to ward staff needing to complete a GCP assessment
- Slide 33: reference to reporting AEs and ADEs on the database removed
- Slide 41: comment indicating that RIC or sham should not be specified in the medical notes has been removed
- Slide 47: Joanne Del Buono photo and contact details added
- V2.2 (20240611)
- Slide 35: Clarified that all SAEs and SADEs to be reported for 20 days post randomisation
- Slide 42: Clarified which patients need to be listed on the screening logs only those eligible that were approached and recruited or declined
- V3.0 (20240906)
- Slide 12: New slide (eligibility sign off)
- Slide 18 & 19: Reference to database account 'PIN' removed
- Slide 22: New slide (entry of missing data)