

Cerebral CT Angiography in support of Diagnosis of Death using Neurological Criteria Policy

V1.0

September 2026

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Data Protection Legislation

The Trust must comply with the UK GDPR, Data Protection Act 2018, and Data (Use and Access) Act 2025 by ensuring all personal data is processed lawfully, fairly, transparently, and for a defined purpose.

Before processing personal data, an appropriate Article 6 UK GDPR lawful basis must be identified and recorded. Where special category data is involved, a relevant Article 9 condition must also be documented.

All staff, contractors, students, volunteers, agency workers, and third parties working on behalf of the Trust are responsible for complying with data protection legislation.

Further guidance is available in the Trust's Information Use Framework and Information Governance policies. Advice can also be obtained from the Information Governance Team.

1. Introduction

- 1.1. “The use of Cerebral CT Angiography as an Ancillary Investigation to support a clinical Diagnosis of Death using Neurological Criteria” 2023 Consensus Guideline recognises CT angiography as the investigation of choice in the support of a clinical diagnosis of death using neurological criteria.
- 1.2. These guidelines require that “in centres that do not have an available in-house neuroradiologist, a consultant neuroradiology review of the images should be sought from the regional neurosciences centre, and the opinion (along with the name of the neuroradiologist) should be documented in the formal report of the CTA”.
- 1.3. The Academy of Medical Royal Colleges “Code of Practice for the diagnosis and confirmation of death 2025 Update” recognises that:
“The ancillary investigation undertaken for any patient depends on any national guidance, **local availability of that investigation and access to expertise to interpret the result.**”
- 1.4. This policy describes local arrangements for implementation of the 2023 Consensus Guidelines.
- 1.5. This version supersedes any previous versions of this document.

2. Purpose of this Policy

This policy covers the use of CT angiography as an ancillary investigation to support clinical diagnosis of death using neurological criteria in adults.

3. Scope

- 3.1. The paediatric population is specifically excluded from the 2023 Consensus guidelines and this policy therefore excludes the use of CTA in children. In clinical situations where ancillary investigations are considered necessary in children there should be a local case-by-case discussion, in accordance with the 2023 Consensus Guidelines.
- 3.2. The 2023 Consensus guidelines do not make recommendations in patients receiving extracorporeal membrane oxygenation [ECMO]. In clinical situations where ancillary investigations are considered necessary in these patients there should be a local case-by-case discussion in accordance with the 2023 Consensus Guidelines.

4. Definitions/Glossary

N/A.

5. Ownership and Responsibilities

This policy has been agreed by and is jointly owned by the Intensive Care and Clinical Imaging departments. It has been produced with the agreement of the Neuroradiology Department of University of Plymouth Hospitals NHS Trust [UHPNT].

5.1. Role of the Groups

The following groups are responsible for the content and oversight of this policy:

- Clinical Imaging Clinical Governance Group.
- Intensive Care Unit Governance meeting.
- UHPNT Diagnostic Neuroradiology Department [DNR] meeting.

5.2. Role of the Managers

Line managers are responsible for:

- Disseminating these guidelines.
- Facilitating implementation of these guidelines.

5.3. Role of Individual Staff

Individual responsibilities of clinical staff members are described in the following section.

6. Standards and Practice

6.1. Referrals must be made by direct discussion between the **treating intensive care consultant** and a **local clinical imaging consultant with a subspecialty interest in neuroimaging**. Available clinical imaging consultants may be identified with the help of the Clinical Imaging Department Directorate Office (2348/2285). Once a referral has been accepted verbally, the request should be submitted on OrderComms and **must** specifically state that the clinical indication is **as an ancillary investigation to support the clinical diagnosis of death using neurological criteria [DNC]** to ensure the correct CTA technique is employed.

6.2. Referrals must be made as early in the day as possible during normal working hours (Monday-Friday), with a cutoff of 12:00 noon for vetting, to allow imaging

to be performed the same day. In order to ensure appropriate skill mix is present to perform and report the study (including the availability of a regional neuroradiological opinion), CTA for this indication will only be acquired between 8am and 2pm Monday to Friday. In practice, this may mean that in some circumstances the investigation is performed on the next working day.

- 6.3. Upon accepting a referral, the local clinical imaging consultant will inform the Clinical Imaging Directorate Office. The Directorate Office will coordinate (Appendix 1.1):
- Arranging for a second opinion from a Regional Neuroradiologist to be provided.
 - Liaising with CT Radiographers to arrange scan time. CT Radiographers will contact ICU. Directorate Office will liaise with Consultant Radiologist and UHPNT Neuroradiologist to confirm intended timing of imaging acquisition.
 - A scan appointment will only be arranged once it is confirmed that a local radiologist and a regional neuroradiologist are available to report the scan on the same day.
- 6.4. Scans will be performed in accordance with the CT protocol defined in the 2023 Consensus Guideline (Appendix 1.2) by a qualified, registered CT Radiographer.
- 6.5. It is the responsibility of the CT Radiographer to ensure that scan series are labelled in accordance with the CT protocol described in the National Guidelines, to facilitate correct reporting of the examination.
- 6.6. It is the responsibility of the ICU team to ensure that an 18G (or larger) peripheral cannula has been sited in a large vein prior to the patient's attendance in the imaging department. This is to enable contrast to be administered rapidly (a central line is not adequate). It is also the responsibility of the ICU team to ensure a mean arterial pressure above 60mmHg is confirmed and documented prior to scan acquisition.
- 6.7. A local clinical imaging consultant with a subspecialty interest in neuroimaging will provide a primary, draft written evaluation in accordance with the evaluation criteria and report template provided in the 2023 Consensus Guideline (Appendices 9.3 and 9.4). This draft report will be left unverified and a final verified report will not be released for clinical review until a second opinion from a regional neuroradiologist has been provided.
- 6.8. A verified report will only be made available following agreement between the local radiologist and the regional neuroradiologist regarding the content of the scan report. Provisional verified reports will not be issued.

7. Dissemination and Implementation

This policy should be implemented and disseminated through the department immediately following approval and will be made available on Imaging Department quality Management System and the Trust Intranet.

8. Monitoring compliance and effectiveness

Information Category	Detail of process and methodology for monitoring compliance
Element to be monitored	Number of CTAs performed for this indication. Audit of compliance with: • CTA protocol. • Reporting arrangements.
Lead	Dr Benjamin Rock, Clinical Imaging Department.
Tool	Audit of compliance via CRIS search of CTAs performed by ICU.
Frequency	Annually for the first 2 years. Thereafter at a frequency determined at the Clinical Imaging Audit Meeting.
Reporting arrangements	Audits will be reported to: • Clinical Imaging Audit Meeting. • ICU Governance Meeting. • UHPNT Neuroradiology Department.
Acting on recommendations and Lead(s)	Clinical Imaging Department will act on audit recommendations.
Change in practice and lessons to be shared	Learning will be disseminated via the: • Clinical Imaging Audit Meeting. • ICU Governance Meeting.

9. Updating and Review

- 9.1. This document is required to have a mandatory review every 3 years as a V0.0 update.
- 9.2. This document may have an incremental review as practice dictates as a V0.0 update.

10. References

- 10.1. A consensus guideline for the use of cerebral CT Angiography as an Ancillary Investigation to support a clinical Diagnosis of Death using Neurological Criteria – *Faculty of Intensive Care Medicine, 2023.*
- 10.2. A Code of Practice for the diagnosis and confirmation of death 2025 Update – *Academy of Medical Royal Colleges, 2025.*
- 10.3. Permissions granted for use of copyrighted material above 8.1 and 8.2 by *Faculty of Intensive Care Medicine and Academy of Medical Royal Colleges, respectively.*

11. Equality and Diversity

- 11.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the [Equality Diversity and Inclusion Policy](#) or the [Equality and Diversity website](#).
- 11.2. Quality and Equality Impact Assessment [QEIA].

The QEIA process allows RCHT to monitor the impact of changes to its policies and services, ensuring that nobody is unduly disadvantaged. The QEIA Form is available via the link in [Appendix 2](#).

Appendix 1. Governance Information

Information Category	Detailed Information
Document Title:	Cerebral CT Angiography (Ancillary Investigation to support a clinical Diagnosis of Death using Neurological Criteria) Policy V1.0.
This document replaces (exact title of previous version):	New Document.
Date Issued/Approved:	August 2026.
Date Valid From:	September 2026.
Date Valid To:	September 2029.
Author/Owner:	Dr Benjamin Rock, Consultant Radiologist, Clinical Imaging.
Contact details:	01872 252285.
Brief summary of contents:	A policy covering the use of CT angiography as an ancillary investigation to support a clinical diagnosis of death using neurological criteria in adults.
Suggested Keywords:	Cerebral CT Angiography Ancillary diagnosis Death Neurological DNC neuroscience CI.GEN.PPG.80
Target Audience:	RCHT: Yes CFT: No CIOB ICB: No
Executive Director responsible for Policy:	Chief Medical Officer.
Approval route for consultation and ratification:	Clinical Imaging Governance Group. Intensive Care Unit Governance meeting. UHPNT Diagnostic Neuroradiology Department [DNR] meeting.
Manager confirming approval processes:	Richard Andrzejuk, Care Group General Manager Clinical Support.

Information Category	Detailed Information
Name of Governance Lead confirming consultation and ratification:	Jemma Moore.
Links to key external standards:	Cerebral CT Angiography as an Ancillary Investigation to support a clinical Diagnosis of Death using Neurological Criteria 2023 Consensus Guideline.
Related Documents:	Cerebral CT Angiography as an Ancillary Investigation to support a clinical Diagnosis of Death using Neurological Criteria 2023 Consensus Guideline. The Academy of Medical Royal Colleges Code of Practice for the diagnosis and confirmation of death 2025 Update.
Training Need Identified:	No.
Publication Location (refer to Policy on Policies – Approvals and Ratification):	Intranet Only
Document Library Folder/Sub Folder:	Clinical/Clinical Imaging.

Version Control Table

Date	Version Number	Summary of Changes	Changes Made by
August 2026.	V1.0.	Initial issue.	Dr Benjamin Rock, Consultant Radiologist.

All or part of this document can be released under the Freedom of Information Act 2000.

All Policies, Strategies and Operating Procedures, including Business Plans, are to be kept for the lifetime of the organisation plus six years.

This document is only valid on the day of printing.

Controlled Document.

This document has been created following the Royal Cornwall Hospitals NHS Trust [The Policy on Policies \(Development and Management of Knowledge Procedural and Web Documents Policy\)](#). It should not be altered in any way without the express permission of the author or their Line Manager.

Appendix 2. Quality and Equality Impact Assessment [QEIA] Form

The QEIA process allows RCHT to monitor the impact of changes to its policies and services, ensuring that nobody is unduly disadvantaged.

Please ensure you have completed a Quality and Equality Impact Assessment [QEIA] using this link to complete the form:

[E11 QEIA Policy](#).

For guidance, please see the [QEIA Essentials – Quick Reference Guide](#) or contact as required below:

Equality, Diversity and Inclusion guidance, please contact: rcht.inclusion@nhs.net.

Quality Governance guidance, please contact Jillian Tozer: jillian.tozer3@nhs.net

Appendix 3. Pathway Guidance

1.1. Pathway for organisation of CT Angiography in support of Diagnosis of Death using Neurological Criteria.

ICU patient requires CTA in support of Diagnosis of Death using Neurological Criteria.

ICU Consultant contacts Directorate Office (2348/2285) during working hours (9am-5pm Monday-Friday).

Directorate Office Team identify available local radiologist with subspecialty neuro interest to discuss referral (*this may be the following day*).

PA team then liaise with CT radiographers to confirm time of scan;
CT radiographers will contact ICU.

PA team to notify both local Consultant Radiologist and regional neuroradiologist (identified during initial contact by PA team) of intended time for scan acquisition.

CTA for this indication will only be acquired between 8am and 2pm
Monday to Friday.

Cutoff for vetting for imaging to be performed same day = 12:00 noon.

If vetting takes place after cut-off time (12:00 noon), and request is accepted by a local neuroradiologist, the imaging (performed the following day) may be reported by a different local neuroradiologist if the individual who originally vetted the request is not available.

Local Consultant Radiologist and Regional Neuroradiologist liaise to issue final report the same day as scan is acquired.

PA contact details phone ext. 2285 or 2348.

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1.2. CT protocol for Cerebral CT Angiography as an Ancillary Investigation to support a clinical Diagnosis of Death using Neurological Criteria.

- The patient must have an 18-g (or larger) canula sited in a large vein.
- Immediately prior to scanning, a mean arterial pressure above 60mmHg (or age-appropriate parameters in paediatrics) should be confirmed and documented.
- Three similar acquisitions are performed starting at the C2 level to the convexity.
- The first scan is acquired before the injection of contrast.
- Non-ionic contrast medium (120 ml; minimum iodine concentration of 340 mg/ml) is injected at a rate of 3 ml/s using a power injector.
- The second scan is acquired at 20 seconds after commencing the contrast injection.
- The third scan is acquired at 60 seconds after commencing the contrast injection.
- Images are acquired with a section thickness of ≤ 1.25 mm or less at 120 kV, 250 mm field of view, and 512 x 512 matrix.
- Images must be clearly labelled as to whether they are the pre-injection, 20 second or 60 second runs.
- The localisation images (including the scanned range) should be saved and included in the image.

1.3. CTA criteria for supporting a clinical diagnosis of Death using Neurological Criteria.

- The pre-injection acquisition is inspected for any pre-existing vascular density which could confound interpretation, such as intravenous contrast from a recent previous contrast-enhanced imaging study, hyperdense intravascular thrombus or vascular calcifications.
- Opacification of superficial temporal arteries is assessed on the second acquisition at 20 seconds to confirm the correct injection of contrast medium.
- The third acquisition at 60 seconds is used to evaluate opacification of intracranial vessels at 4 anatomical locations:
 1. cortical segments (M4) of the left middle cerebral artery.
 2. cortical segments (M4) of the right middle cerebral artery.
 3. left internal cerebral vein; and
 4. right internal cerebral vein.
- A clinical diagnosis of DNC cannot be supported if the CTA demonstrates contrast opacification in any one of the 4 vessels specified above.
- Provisional reports should not be issued. The final typed and verified report should be issued by the consultant radiologist at the earliest opportunity, and the intensive care.

1.4. Example template for consultant radiologist reporting

The paragraphs below provide suggested wording for consultant radiologists reporting the scans. The radiologist should adapt these according to the specific situation, adding other relevant findings as appropriate as per normal practice.

“Scan performed and reported according to the UK consensus protocol for the use of CT Angiography as an Ancillary Investigation to support a clinical Diagnosis of Death using Neurological Criteria.”

“The pre-contrast acquisition shows [radiologist to comment on presence/absence of hyperdensity in the intracranial arteries and veins which could confound interpretation, for example due to thrombus or intravascular contrast from recent radiological studies, as well as other relevant imaging features as per normal practice].”

“The early arterial (20-second) phase scan shows opacification of the superficial temporal arteries confirming adequate arterial delivery of contrast.”

OR

“The early arterial (20-second) phase scan does not show opacification of the superficial temporal arteries indicating inadequate arterial delivery of contrast, and hence the late arterial (60-second) phase scan is not reliable for interpretation of intracranial arterial opacification.”

If superficial temporal artery opacification is confirmed on the 20-second scan, the radiologist should describe the intracranial vessels showing opacification on the 60-second scan and comment specifically on opacification of the cortical segments (M4) of the middle cerebral arteries bilaterally and the internal cerebral veins bilaterally.

“Conclusion: In a patient fulfilling all other criteria for the diagnosis of Death using Neurological Criteria, the angiographic findings support this diagnosis.”

OR

“Conclusion: The presence of contrast in [mention target vessels] means that the CT angiographic criteria supporting the diagnosis of Death using Neurological Criteria are not met.”