

# **Hypertension Following Intracerebral Haemorrhage Clinical Guideline**

**V4.0**

**December 2023**

## Summary

This guidance allows safe management of raised blood pressure in patients with a haemorrhagic stroke who do not have exclusion criteria listed below and who:

- Present within 24 hours of symptoms onset **and**
- Have a systolic blood pressure of between 150-220 mmHg.

Consider rapid blood pressure lowering on a case-to-case basis in patients who do not have exclusion criteria listed below and who:

- Present beyond 6 hours of symptom onset or
- Have a systolic blood pressure greater than 220 mmHg.

### **BP Target**

When rapidly lowering blood pressure aim to reach a systolic blood pressure of **140 mmHg** or lower while ensuring that the magnitude drop does not exceed 60 mmHg within 1 hour of starting treatment.

### **Treatment Duration**

For at least 24 hours and up to 7 days.

Do **not** offer rapid blood pressure lowering to people who:

- Have an underlying structural cause (e.g., Tumour, AV malformation, aneurysm).
- Have a GCS < 6.
- Are going to have early neurosurgery for evacuation of haematoma.
- Have a massive haematoma with a poor expected prognosis.
- Patients younger than 18 liaise with paediatric specialist.

# 1. Aim/Purpose of this Guideline

- 1.1. To enable safe and effective BP lowering following intracerebral haemorrhage.
- 1.2. This version supersedes any previous versions of this document.

## Data Protection Act 2018 (UK General Data Protection Regulation – GDPR) Legislation.

The Trust has a duty under the Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 to ensure that there is a valid legal basis to process personal and sensitive data. The legal basis for processing must be identified and documented before the processing begins. In many cases we may need consent; this must be explicit, informed, and documented. We cannot rely on opt out, it must be opt in.

Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 is applicable to all staff; this includes those working as contractors and providers of services.

For more information about your obligations under the Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 please see the Information Use Framework Policy or contact the Information Governance Team.

Royal Cornwall Hospital Trust [rch-tr.infogov@nhs.net](mailto:rch-tr.infogov@nhs.net)

# 2. The Guidance

When rapidly lowering blood pressure aim to reach a systolic blood pressure of 140 mmHg or lower.

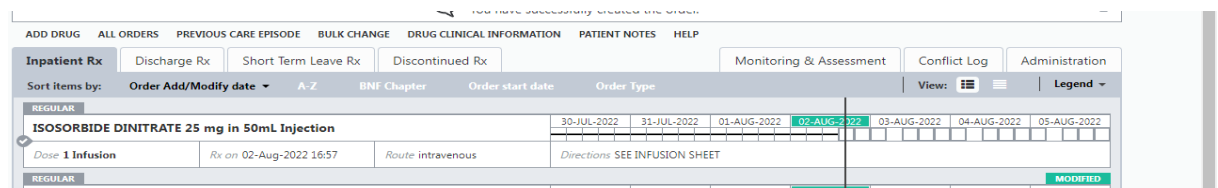
- 2.1. When rapid lowering blood pressure aim to reach systolic of 140mmHg while ensuring that the magnitude drop does not exceed 60 mmHg within 1 hour of starting treatment.

### 1<sup>st</sup> line treatment: Isosorbide dinitrate (ISDN) 0.5mg/ml Infusion.

- Draw up 50mls Isosorbide dinitrate 0.5mg/ml injection into a syringe to administer via an Alaris pump.
- Prescribe on EPMA Supplementary IV therapy prescription sheet. An example is set out below:

EPMA SUPPLEMENTARY INTRAVENOUS THERAPY PRESCRIPTION SHEET								SURNAME
All infusions, infusion fluids, blood and plasma must also be prescribed in EPMA								PT NUMBER
Date	Infusion Solution	Name and Dose of Additive	Infusion Volume	Duration of infusion	Infusion rate	Proposed Start time	Prescriber Signature	Inf bag
02/08/2022	Undiluted	2.5mg Isosorbide dinitrate 0.5mg/ml injection	50mls	As per protocol	2mg/hr to 12mg/hr as per protocol		Doctor (Bleep)	

- Additionally prescribe on EPMA. An example is set out below:



- Start infusion at 2mg/hr (4ml/hour) and increase by 1mg/hour (2ml/hr) every 5 minutes up to 12mg/hr (24ml/hour) every 5 minutes until target is achieved.
- Nurse to record monitoring and administration on the ISDN record sheet.
- If target achieved continue iv ISDN and start oral BP meds.
- Aim to wean within 24-48 hours.
- If target not achieved within 45 minutes proceed to 2nd line agent.

**2<sup>nd</sup> line treatment: Labetalol infusion.**

- Contraindicated in asthma, heart failure, bradycardia, phaeochromocytoma, caution in COPD.
- Give iv bolus of 10mg every 2 minutes.
- Consider iv infusion if target blood pressure is not achieved after 3 boluses or if blood pressure settles but rebounds after 3 boluses.
- Maximum recommended cumulative dose (IV bolus and infusion) is 300mg in 24 hours.
- Infusion set up: Remove 90mls from a 250mls bag of glucose 5%. Afterwards draw up and add 200mg (40mls) labetalol 5mg/ml injection to the bag to make up 200mls labetalol 1mg/ml (sodium chloride 0.9% may be used as an alternative but glucose 5% is the preferred diluent). Start infusion rate at 50mg (50 ml)/hour, titrate every 15 minutes to maximum of 100mg/hr.
- If infusion is required prescribe on EPMA Supplementary IV therapy prescription sheet. An example is set out below:

EPMA SUPPLEMENTARY INTRAVENOUS THERAPY PRESCRIPTION SHEET								SURNAME
All infusions, infusion fluids, blood and plasma must also be prescribed in EPMA								PT NUMBER
Date	Infusion Solution	Name and Dose of Additive	Infusion Volume	Duration of infusion	Infusion rate	Proposed Start time	Prescriber Signature	
10/08/2022	Glucose 5%	200mg Labetalol Injection	200mls	As per protocol	50mg/hr to 100mg/hr as per protocol		Doctor (Bleep)	

- Additionally prescribe on EPMA. An example is set out below:

ADD DRUG ALL ORDERS PREVIOUS CARE EPISODE BULK CHANGE DRUG CLINICAL INFORMATION PATIENT NOTES HELP											
Inpatient Rx		Discharge Rx		Short Term Leave Rx		Discontinued Rx		Monitoring & Assessment		Conflict Log	Administration
Sort items by: Order Add/Modify date A-Z BNF Chapter Order start date Order Type View: Legend											
REGULAR											
LABETALOL HYDROCHLORIDE 100 mg in 20mL Injection											
07-AUG-2022	08-AUG-2022	09-AUG-2022	10-AUG-2022	11-AUG-2022	12-AUG-2022	13-AUG-2022					
Dose 200 mg	Rx on 10-Aug-2022 10:13	Route intravenous	Directions SEE INFUSION SHEET								
REGULAR											

- Nurse to record monitoring and administration on the labetalol record sheet.

### 3<sup>rd</sup> line treatment: Glyceryl trinitrate (GTN) patch.

- Can be useful in patients in whom iv access is difficult. It is slower to act and less easy to titrate.
- Available in the trust as 5mg/24hr and 10mg/24hr patches.

### Monitoring of blood pressure:

- Every 5 minutes during rapid iv titration, then hourly thereafter.
- If stable every hour for 24 hours, then monitor 4-6 hourly.
- Commence patients usual blood pressure medication as soon as able.
- Place nasogastric tube if swallow impaired.
- Start new oral blood pressure medication as soon as able.
- IV treatment is usually weaned within 48-72 hours.

## 2.2. Background

2.2.1. Intracerebral haemorrhage was the cause of 15% of all strokes presenting to Royal Cornwall Hospital in 2022 and was associated with poor outcome. 30-day mortality was 36 %. Early high BP after this type of stroke is common and is itself associated with poorer outcome. There is now clear evidence to support early lowering of BP after cerebral haemorrhage (Haemorrhagic Stroke audit 2022 RCHT).

2.2.2. Timely blood pressure control, reversal of anticoagulation, discussion with the neurosurgical team and transfer to the acute stroke unit can reduce stroke mortality by 10% (1).

2.2.3. The INTERACT II (2) trial assigned 2839 patients within 6h of acute intracerebral haemorrhage to intensive BP lowering (target <140 systolic within 1h of treatment) or guideline BP management (target <180). At 90 days follow up there was a significant shift towards improved functional outcomes with no change in mortality or adverse events.

2.2.4. The ATACH II trial (3) randomised patients within 4.5h of intracerebral haemorrhage to rapid lowering within an hour (target 110-139 systolic) or standard care using iv nicardipine and found no change in the primary outcome death or major disability and a slightly higher rate of adverse events in the intensive lowering group.

- 2.2.5. The RCP guideline 2023 advises a systolic BP 140mmHg for patients with intracerebral haemorrhage within 6 hours of stroke and to maintain this for 7 days (4).
- 2.2.6. Due to the geography of Cornwall stroke patient admission can be delayed and we have therefore taken the pragmatic decision to widen the window for acute BP management for haemorrhagic strokes arriving in the hospital within 24 hours of onset.

### 3. Monitoring compliance and effectiveness

Information Category	Detail of process and methodology for monitoring compliance
Element to be monitored	Blood pressure lowering after intracerebral hemorrhage.
Lead	Stroke Team.
Tool	Sentinel Stroke National Audit Programme.
Frequency	Daily.
Reporting arrangements	Bimonthly review at Stroke Operational Group Meeting.
Acting on recommendations and Lead(s)	Stroke Operational Group Meeting led by manager Rebecca Drage.
Change in practice and lessons to be shared	Stroke Operational Group Meeting led by manager Rebecca Drage.

### 4. Equality and Diversity

4.1. 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](#).

4.2. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.

## Appendix 1. Governance Information

Information Category	Detailed Information
<b>Document Title:</b>	Hypertension Following Intracerebral Haemorrhage Clinical Guideline V4.0
<b>This document replaces (exact title of previous version):</b>	Hypertension Following Intracerebral Haemorrhage Clinical Guideline V3.0
<b>Date Issued/Approved:</b>	August 2023
<b>Date Valid From:</b>	December 2023
<b>Date Valid To:</b>	December 2026
<b>Directorate / Department responsible (author/owner):</b>	Dr M Maddula, Stroke and Care of the Elderly Department.
<b>Contact details:</b>	01872 252447
<b>Brief summary of contents:</b>	Management of hypertension following intracerebral haemorrhage.
<b>Suggested Keywords:</b>	Intracerebral Haemorrhage, Haemorrhagic Stroke.
<b>Target Audience:</b>	<b>RCHT:</b> Yes <b>CFT:</b> No <b>CIOS ICB:</b> No
<b>Executive Director responsible for Policy:</b>	Chief Medical Officer.
<b>Approval route for consultation and ratification:</b>	Eldercare Governance Group. Stroke Operational Group.
<b>Manager confirming approval processes:</b>	Nigel D'Arcy- Interim.
<b>Name of Governance Lead confirming consultation and ratification:</b>	Paul Evangelista.
<b>Links to key external standards:</b>	<ul style="list-style-type: none"> <li>• Parry-Jones et al (2019) An Intracerebral Hemorrhage Care Bundle Is Associated with Lower Case Fatality - Parry-Jones - 2019 - Annals of Neurology - Wiley Online Library.</li> <li>• INTERACT II Anderson et al N Engl J Med 2013;368:2355-65.</li> </ul>

Information Category	Detailed Information
	<ul style="list-style-type: none"> <li>ATTACH II Qureshi et al N Engl J Med 2016; 375:1033-1043.</li> <li>National Clinical Guideline for Stroke (strokeguideline.org) 2023.</li> </ul>
<b>Related Documents:</b>	Secondary Prevention Guidelines Stroke and TIA.
<b>Training Need Identified?</b>	Yes- ED, AMU, ICU, Ambulance and Stroke staff to be updated.
<b>Publication Location (refer to Policy on Policies – Approvals and Ratification):</b>	Internet and Intranet
<b>Document Library Folder/Sub Folder:</b>	Clinical/Stroke.

### Version Control Table

Date	Version Number	Summary of Changes	Changes Made by
February 2017	V1.0	Initial issue.	F Harrington, Consultant Physician.
November 2018	V2.0	Full review. Change of first line drug to isoket. Addition of BP lowering after intracerebral.	F Harrington, Consultant Physician.
August 2022	V3.0	Full update	K Adie, Consultant Physician
August 2023	V4.0	Full update and ensued this matches latest trust template.	K Adie, Consultant Physician

**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 6 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.

Hypertension Following Intracerebral Haemorrhage Clinical Guideline V4.0

## Appendix 2. Equality Impact Assessment

### Section 1: Equality Impact Assessment (EIA) Form

The EIA process allows the Trust to identify where a policy or service may have a negative impact on an individual or particular group of people.

For guidance please refer to the Equality Impact Assessment Policy (available from the document library) or contact the Equality, Diversity, and Inclusion Team  
[rcht.inclusion@nhs.net](mailto:rcht.inclusion@nhs.net)

Information Category	Detailed Information
<b>Name of the strategy / policy / proposal / service function to be assessed:</b>	Hypertension Following Intracerebral Haemorrhage Clinical Guideline V4.0.
<b>Directorate and service area:</b>	Urgent, Emergency and Eldercare/Stroke.
<b>Is this a new or existing Policy?</b>	Existing.
<b>Name of individual completing EIA</b> (Should be completed by an individual with a good understanding of the Service/Policy):	Dr M Maddula- Stroke Consultant
<b>Contact details:</b>	07857 833626

Information Category	Detailed Information
<b>1. Policy Aim - Who is the Policy aimed at?</b> (The Policy is the Strategy, Policy, Proposal or Service Change to be assessed)	The aim of this document to inform clinicians on acute blood pressure management of patients presenting with intracranial haemorrhage in Cornwall.
<b>2. Policy Objectives</b>	The guidance enables clinical staff to improve functional outcomes for patients with intracranial haemorrhage.
<b>3. Policy Intended Outcomes</b>	Gold standard stroke care.
<b>4. How will you measure each outcome?</b>	Sentinel Stroke National Audit Programme. Monthly Board Report.
<b>5. Who is intended to benefit from the policy?</b>	Patients with intracranial haemorrhage in Cornwall.

Information Category	Detailed Information
<b>6a. Who did you consult with?</b> (Please select Yes or No for each category)	<ul style="list-style-type: none"> <li>• Workforce: Yes</li> <li>• Patients/ visitors: No</li> <li>• Local groups/ system partners: No</li> <li>• External organisations: No</li> <li>• Other: No</li> </ul>
<b>6b. Please list the individuals/groups who have been consulted about this policy.</b>	<b>Please record specific names of individuals/ groups:</b> Clinicians in ED and stroke team at RCHT. Eldercare governance group. Stroke operational group.
<b>6c. What was the outcome of the consultation?</b>	Ratified.
<b>6d. Have you used any of the following to assist your assessment?</b>	<b>National or local statistics, audits, activity reports, process maps, complaints, staff, or patient surveys:</b> No.

**7. The Impact**

Following consultation with key groups, has a negative impact been identified for any protected characteristic? Please note that a rationale is required for each one.

Where a negative impact is identified without rationale, the key groups will need to be consulted again.

Protected Characteristic	(Yes or No)	Rationale
<b>Age</b>	No	
<b>Sex</b> (male or female)	No	
<b>Gender reassignment</b> (Transgender, non-binary, gender fluid etc.)	No	
<b>Race</b>	No	
<b>Disability</b> (e.g. physical or cognitive impairment, mental health, long term conditions etc.)	No	
<b>Religion or belief</b>	No	

Protected Characteristic	(Yes or No)	Rationale
Marriage and civil partnership	No	
Pregnancy and maternity	No	
Sexual orientation (e.g. gay, straight, bisexual, lesbian etc.)	No	

**A robust rationale must be in place for all protected characteristics. If a negative impact has been identified, please complete section 2. If no negative impact has been identified and if this is not a major service change, you can end the assessment here.**

I am confident that section 2 of this EIA does not need completing as there are no highlighted risks of negative impact occurring because of this policy.

Name of person confirming result of initial impact assessment: Dr M Maddula- Stroke Consultant.

**If a negative impact has been identified above OR this is a major service change, you will need to complete section 2 of the EIA form available here:**

[Section 2. Full Equality Analysis](#)