

# Raised Intracranial Pressure due to Traumatic Brain Injury Clinical Guideline V1.0

**November 2018** 

## **Summary**

Signs of acutely raised intracranial pressure in traumatic brain injury: 1. Cushing's response: Reduced GCS Increased blood pressure Bradycardia 2.Newly dilated pupil 1. Neuroprotective 1. Loosen any **Isolated Traumatic** anaesthetic induction constrictions around the **Brain Injury:** neck, thorax and abdomen 2ml/Kg 5% NaCl to encourage cerebral 2. Intubation and venous drainage ventilation 2ml/kg 20% Mannitol 3. Achieve a low-normal 2. Head up tilt 30 degrees Polytrauma: PaCO2 2ml/Kg 5% NaCl 3. Decompress stomach

## 1. Aim/Purpose of this Guideline

Ensure that patients with acutely raised intracranial pressure due to traumatic brain injury are given appropriate temporizing measures.

### 2. The Guidance

- 2.1. Signs of acutely raised intracranial pressure in traumatic brain injury:
  - Cushing's response:
  - Reduced GCS
  - Increased blood pressure
  - Bradycardia
  - Newly dilated pupil
- 2.2. Proceed to reduce intracranial pressure by the following measures whilst organizing emergency transfer for evacuation of intracranial haematoma or other surgical pressure relief:
  - Loosen any constrictions around the neck, thorax and abdomen to encourage cerebral venous drainage
  - Head up tilt 30 degrees
  - Decompress stomach
  - Neuroprotective induction, Intubation and ventilation to achieve a low-normal PaCO2
  - Give osmotically-active fluids:
    - Isolated Traumatic Brain Injury : 2ml/Kg of either 5% NaCl or 20% Mannitol
    - Polytrauma 2ml/Kg 5% NaCl
- 2.3. Facilitate transfer for Emergency surgery
- 2.4. 5% NaCl is kept in the ED corridor cupboards
- 2.5. 20% mannitol is kept in ED Resus

## 3. Monitoring Compliance and Effectiveness

| Element to be   | Not required |
|-----------------|--------------|
| monitored       |              |
| Lead            | n/a          |
|                 |              |
| Tool            | n/a          |
| Frequency       | n/a          |
| Reporting       | n/a          |
| arrangements    |              |
| Acting on       | n/a          |
| recommendations |              |
| and Lead(s)     |              |
| Change in       | n/a          |
| practice and    |              |
| lessons to be   |              |
| shared          |              |

## 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 <u>'Equality, Diversity & Human Rights Policy'</u> or the <u>Equality and Diversity website</u>.

## 4.2. Equality Impact Assessment

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

## **Appendix 1. Governance Information**

| Document Title   | Raised Intracranial Pressure due to<br>Traumatic Brain Injury Clinical Guideline<br>V1.0     |  |  |
|--|--|--|--|
| Date Issued/Approved:  | 7 February 2018  |  |  |
| Date Valid From:   | November 2018  |  |  |
| Date Valid To:   | November 2021  |  |  |
| Directorate / Department responsible (author/owner):                     | Mark Jadav, Consultant in Emergency<br>Medicine  |  |  |
| Contact details:   | 01872 252452   |  |  |
| Brief summary of contents  | Clinical management of acutely raised intracranial pressure in traumatic brain injury        |  |  |
| Suggested Keywords:  | Traumatic brain injury, head injury, ICP, intracranial pressure, mannitol, hypertonic saline |  |  |
| Target Audience  | RCHT CFT KCCG  |  |  |
| Executive Director responsible for Policy:                               | Medical Director   |  |  |
| Date revised:  | N/A  |  |  |
| This document replaces (exact title of previous version):                | New Document   |  |  |
| Approval route (names of committees)/consultation:                       | ED Consultants, ED Governance Meeting, Major Trauma Review Group                             |  |  |
| Divisional Manager confirming approval processes                         | Debra Shields  |  |  |
| Name and Post Title of additional signatories                            | Not required   |  |  |
| Name and Signature of Divisional/Directorate Governance                  | {Original Copy Signed}   |  |  |
| Lead confirming approval by specialty and divisional management meetings | Name: Owen McCormack   |  |  |
| Signature of Executive Director giving approval                          | {Original Copy Signed}   |  |  |

| Publication Location (refer to Policy on Policies – Approvals and Ratification): | Internet & Intranet                       | <b>✓</b> | Intranet Only      |    |
|--|---|----------|--------------------|----|
| Document Library Folder/Sub Folder   | Major Trauma                              |          |                    |    |
| Links to key external standards  | None                                      |          |                    |    |
| Related Documents:   | n/a                                       |          |                    |    |
| Training Need Identified?  | No – this guideline reference information |          | vides point-of-car | re |

### **Version Control Table**

| Date     | Version<br>No | Summary of Changes | Changes Made by<br>(Name and Job Title)            |
|----------|---------------|--------------------|--|
| 7/2/2018 | V1.0          | Initial Issue      | Mark Jadav,<br>Consultant in<br>Emergency Medicine |

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

# This document is to be retained for 10 years from the date of expiry. This document is only valid on the day of printing

#### **Controlled Document**

This document has been created following the Royal Cornwall Hospitals NHS Trust Policy on Document Production. It should not be altered in any way without the express permission of the author or their Line Manager.

## **Appendix 2. Initial Equality Impact Assessment Form**

This assessment will need to be completed in stages to allow for adequate consultation with the relevant groups.

Name of the strategy / policy / proposal / service function to be assessed: Raised Intracranial Pressure due to Traumatic Brain Injury Clinical Guideline V1.0 Directorate and service area: Is this a new or existing *Policy?* New **Emergency Department** Name of individual completing assessment: Telephone: Mark Jadav 01872252452 1. Policy Aim\* Ensure that patients with acutely raised intracranial pressure due to traumatic brain injury are given appropriate temporizing measures. Aimed at treating clinicians in major trauma specialties, primarily Who is the strategy / policy / proposal / ED. service function aimed at? 2. Policy Objectives\* Ensure that clinicians treating patients with severe TBI can access appropriate reference information. 3. *Policy* – intended Appropriate clinical care for raised ICP in TBI. Outcomes\* 4. \*How will you Not intended to be audited measure the outcome? 5. Who is intended to Patients with raised ICP due to TBI benefit from the policy? 6a Who did you Workforce **Patients** External Other Local consult with organisations groups Yes Yes Please record specific names of groups b). Please identify the Consultant Neurosurgeon, ED consultants, ED Governance groups who have meeting, Major Trauma Review Group, been consulted about this procedure. What was the This guideline outcome of the consultation?

| Are there concerns that the policy <b>could</b> have differential impact on:   |     |    |        |                   |               |            |        |
|--|-----|----|--------|-------------------|---------------|------------|--------|
| Equality Strands:  | Yes | No | Unsure | Rationale for Ass | sessment / Ex | xisting Ev | idence |
| Age  |     | X  |        |                   |               |            |        |
| Sex (male, female, trans-gender / gender reassignment)   |     | Х  |        |                   |               |            |        |
| Race / Ethnic<br>communities<br>/groups  |     | Х  |        |                   |               |            |        |
| Disability - Learning disability, physical impairment, sensory impairment, mental health conditions and some long term health conditions.  |     | Х  |        |                   |               |            |        |
| Religion / other beliefs   |     | X  |        |                   |               |            |        |
| Marriage and<br>Civil partnership  |     | X  |        |                   |               |            |        |
| Pregnancy and maternity  |     | Х  |        |                   |               |            |        |
| Sexual Orientation, Bisexual, Gay, heterosexual, Lesbian   |     | Х  |        |                   |               |            |        |
| <ul> <li>You will need to continue to a full Equality Impact Assessment if the following have been highlighted:         <ul> <li>You have ticked "Yes" in any column above and</li> </ul> </li> <li>No consultation or evidence of there being consultation- this excludes any policies which have been identified as not requiring consultation. or</li> <li>Major this relates to service redesign or development</li> </ul> |     |    |        |                   |               |            |        |
| 8. Please indicate if a full equality analysis is recommended.  Yes  No X  |     |    |        |                   |               |            |        |
| 9. If you are <b>not</b> recommending a Full Impact assessment please explain why.   |     |    |        |                   |               |            |        |
| No reason for this guideline to impact equality  |     |    |        |                   |               |            |        |

Please complete the following table. If you are unsure/don't know if there is a negative

impact you need to repeat the consultation step.

7. The Impact

| Signature of policy developer / lea<br>Mark Jadav                     | Date of com<br>03/07/2018                  | pletion and submission |  |  |
|---|--|------------------------|--|--|
| Names and signatures of members carrying out the Screening Assessment | Mark Jadav     Human Rights, Equality & In | clusion Lead           |  |  |

Keep one copy and send a copy to the Human Rights, Equality and Inclusion Lead c/o Royal Cornwall Hospitals NHS Trust, Human Resources Department, Knowledge Spa, Truro, Cornwall, TR1 3HD

This EIA will not be uploaded to the Trust website without the signature of the Human Rights, Equality & Inclusion Lead.

A summary of the results will be published on the Trust's web site.

| Signed _ | _ Mark Jadav |
|----------|--------------|
| Date     | _03/07/2018  |