



MANAGEMENT OF BLUNT THORACIC INJURY – INCORPORATING THE – CHEST INJURY PAGER (ChIP)

1. Purpose	- Protocol for management of blunt chest wall injury incorporating early interdisciplinary notification for isolated thoracic trauma. - Thoracic trauma is common either in isolation, or associated with other injuries, and increases mortality and morbidity. Patients with at least three rib fractures have a significantly increased risk of in-hospital mortality^{1,2}. This risk is higher in older patients³ in whom each additional rib fracture increases the risk of mortality by 19% and of pneumonia by 27%⁴. Even isolated rib or sternal fractures are associated with significant morbidity. - If initial triage has not prompted a Trauma Call (e.g. a mechanical fall from standing), and a patient has thoracic pain not controlled by simple analgesia, then ChIP should be activated. It is not essential to have a radiological diagnosis of rib fractures. - ChIP should also be activated in patients with co-morbidities or risk factors which increase the risk of respiratory compromise.
2. Risk Rating	Medium
3. National Standards	1 – Clinical Governance 2 – Partnering with Consumers 4 – Medication Safety 5 – Comprehensive Care 6 – Communicating for Safety 8 – Recognising and Responding to Acute Deterioration
4. Employees it Applies to	Emergency Department (ED) medical & nursing staff Trauma registrars (in hours) & General Surgical registrar (after hours) Physiotherapists Trauma Service Switch board Acute Pain Service (APS) Anaesthetics ICU Liaison Nurse

5. PROCESS

This Clinical Business Rule (CIBR) details the management of blunt thoracic trauma both in the setting of polytrauma, and as an isolated injury. Recommended treatment is detailed, and instructions for activating the ChIP call to facilitate interdisciplinary management of isolated chest wall injury.

- The ED doctor and / or nurse assessing patients with thoracic injury should initiate analgesia and respiratory support (O2 – Oxygen, HFNP- High Flow Nasal Prongs) as required.
- If a trauma call is activated (required/standby), designated team members will attend to assist with resuscitation and management of the patient.
- If the patient has isolated thoracic trauma and does not meet triage criteria for activation of a Trauma Call then activate a ChIP call if admission is indicated (see Appendix 1).



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- To activate ChIP call 2222, state “ChIP call” and provide the patient’s Medical Record Number (MRN).
- In hours: The ChIP page will alert the Trauma Team, Surgical Registrar, Anaesthetics, Physiotherapist (PT), Acute Pain Service (APS) and ICU Case Manager.
- Out of hours: the General Surgical Registrar, Anaesthetics, will receive the page. The Trauma Team, PT & APS, will review the patient the following day
- ChIP patients should be reviewed by the Trauma / Surgical registrar within 60 minutes where possible. Patients with pain from chest wall injury can deteriorate rapidly if timely optimal management is not initiated, especially for elderly patients or those with pre-existing respiratory co-morbidities.
- Patients with isolated thoracic trauma / chest wall injury who require parenteral narcotic analgesia should be admitted under the Trauma Service (General Surgical Service out of hours).

5.1 REGIMEN OF CARE FOR PATIENTS ADMITTED WITH BLUNT THORACIC INJURY INCLUDES:

5.1.1 Analgesia:

- Appropriate and adequate commencing with oral narcotics
- Chart both slow release narcotics regularly and immediate release prn – consider targin, tapentadol or oxycodone
- Chart paracetamol 1g qid
- Add a Non-Steroidal Anti Inflammatory Drug if there are no contraindications (e.g. Asthma, previous GU/DU, CKI, allergy)
- Commence Patient Controlled Analgesia (PCA) if above regimen is not controlling pain as per [SGH-TSH CLIN 127 Pain Management – Patient Controlled Analgesia \(PCA\) in Adults](#)
- Options are – oxycodone, fentanyl or morphine
- In hours: consult the APS for advice
- Out of hours: discuss with the ED Staff Specialist or Senior Registrar or contact the on call anaesthetics registrar (Page 999 or phone *8009)

5.1.2 Regional Anaesthesia:

Paravertebral, serratus anterior or erector spinae plane blocks are an important part of the analgesic armamentarium for management of thoracic pain. Early discussion with the Acute Pain Service or Anaesthetics Registrar is recommended to assess which patients are suitable. Benefits of regional blocks include reduced narcotic requirements with reduced nausea or opioid induced constipation, and earlier onset of analgesia.

5.1.3 Supplemental Oxygen

- If patient SpO₂ < 95% commence 2l/min O₂ via nasal prongs.
- ED MO to commence 2L/min O₂ / HFNP O₂ if there is a clinical concern i.e. WOB / abnormality in chest auscultation that warrants supplemental oxygen.
- If patient requires > 2L/min O₂, start High Flow Nasal Prong O₂ with initial settings of flow at 30 L/min and 30% oxygen – please chart these settings before the patient leaves ED.
- Titrate flow and % oxygen aiming for SpO₂ > 95%
- Notify the ICU Outreach Registrar if a patient is requiring an FiO₂ > 50%



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- If patient has pre-existing respiratory co-morbidities the SaO₂ should be adjusted accordingly and new Clinical Review calling criteria must be documented. Discuss with the Respiratory registrar (in hours) or Medical Officer In Charge (MOIC) out of hours.
- The presence of a pneumothorax is not a contraindication to the use of HFNP O₂. If there is clinical concern, discuss with the Trauma/ General Surgery Fellow on call.

5.1.4 Physiotherapy

- Incentive spirometry – provide education on effective use
- Encouragement to cough and deep breathe, with use of a “cough pillow” to support chest wall (E.g. Rolled towel)
- Early mobilization and encouragement to sit out of bed

6. Cross References	SGH CLIN Trauma / Aged Care Service Level Agreement SGH CLIN372 Trauma Triage Activation Criteria – St George Hospital SGH-TSH CLIN 127 Pain Management – Patient Controlled Analgesia (PCA) in Adults
7. Keywords	Chest injury, analgesia, rib
8. Document Location	Trauma Page, C
9. External References	1. Testerman GM. Adverse outcomes in younger rib fracture patients. South Med J. 2006;99(4):335-339. 2. Holcomb JB, McMullin NR, Kozar RA, Lygas MH, Moore FA. Morbidity from rib fractures increases after age 45. Journal of the American College of Surgeons. 2003;196(4):549-555. 3. Barnea Y, Kashtan H, Skornick Y, Werbin N. Isolated rib fractures in elderly patients: Mortality and morbidity. Canadian Journal of Surgery. 2002;45(1):43-46. 4. Elmistekawy E, Hammad AA. Isolated rib fractures in geriatric patients. Annals of Thoracic Medicine. 2007;2(4):166-168. 5. Battle CE, Hutchings H, Evans PA. Risk factors that predict mortality in patients with blunt chest wall trauma: a systematic review and meta- analysis. Injury. 2012;43(1):8-17. 6. Unsworth A, Curtis K, Asha S. Treatments for blunt chest trauma and their impact on patient outcomes and health service delivery. Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine. 2015;23(1):17.
10. Consumer Advisory Group (CAG) approval	Not Applicable
11. Implementation and Evaluation Plan	Implementation: The document will be published on the SGH-TSH business rule webpage and distributed via the monthly SGH-TSH CGD report. Evaluation: Assessment of patient's pain scores and respiratory function.
12. Knowledge Evaluation	Q1: What is the process to activate ChIP? A: Call 2222, state “ChIP call” and provide the patient's MRN. Q2: At what HFNP FiO₂ threshold must the ICU Outreach



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	Registrar be notified? A2: >50% Q3: What is the simplest way to assess if the patient with blunt chest injury has adequate analgesia? A3: Assess for pain and ability to deep breath/cough
13. Who is Responsible	A/ Operations Manager Surgery, Critical care & Women's & Children's Health.

Approval for: MANAGEMENT OF BLUNT THORACIC INJURY – INCORPORATING THE – CHEST INJURY PAGER (ChIP)-	
Specialty/Department Committee	Committee: Network Trauma Committee Meeting Chairperson: Sarah O'Hare, SESLHD CNC Trauma & P.A.R.T.Y. Date: 08.11.2021
Nurse Manager (SGH)	Andrew Bridgeman, Nurse Manager Surgery Date: 10.11.2021
Medical Head of Department (SGH)	Dr Mary Langcake, Trauma Director Date: 09.11.2021
Executive Sponsor	Andrewina Piazza-Davies, A/ Operations Manager Surgery, Critical care & Women's & Children's Health Date: 15.11.2021
Contributors to CIBR	Contribution: Alex Tzannes, ED Staff Specialist Sarah O'Hare, SESLHD CNC Trauma & P.A.R.T.Y. SGH Trauma Case Managers
	Consultation: Network Trauma Committee Meeting SGH members

Revision and Approval History				
Revision Date	Revision number	Reason	Coordinator/Author (Position)	Revision Due
Feb 2022	0	New CIBR - re management of blunt thoracic trauma- replacing ChIP	Dr Mary Langcake, Trauma Director	Feb 2025

General Manager's Ratification	
Paul Darcy (SGH)	Date: 13.01.2022

Appendix 1

**MANAGEMENT OF BLUNT THORACIC INJURY –
INCORPORATING THE Chest Injury Pager (ChIP)**

ED Doctor/Nurse assess patient with blunt thoracic trauma

Analgesia Oral narcotics
Slow Release (SR): Tapentadol (SR) or Targin
Immediate Release (IR): Oxycodone or Tapentadol IR
AND Paracetamol 1g QID

Add NSAIDs
(If not contraindicated)

Respiratory Support
Target SpO₂ > 95% (for patients with COPD – adjust target SpO₂)
If SpO₂ < 95% commence 2L/min O₂ via nasal prongs
If patient requires > 2L/min O₂, start High Flow Nasal Prong O₂
(Initial settings - Air flow 30 L/min, and 30% oxygen - titrate to SpO₂)

If mechanism of injury has not triggered a **Trauma Standby**
Call 2222
State “ChIP Call” & provide MRN

Patient to be reviewed by **Trauma Team** (in hours) or **Surgical Registrar**
(after hours) within **60 minutes where possible**
Acute Pain Service (in hours) or **On Call Anaesthetics Registrar** should
be notified to assist with analgesia regimen

Indications for admission: Analgesia requirements are not met with
oral analgesia, or who require **supplemental oxygen**, or those for
whom other **clinical concerns exist** should be admitted under the
Trauma Service (General Surgical Service out of hours).