Title of Guideline	Fractured Ribs: Acute Pain Management for Adult Patients
Contact Name and Job Title (Author)	Acute Pain Team
Division & Specialty	Surgical Division
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Approving Committee(s)	Medicine DQEC
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Explicit definition of patient group to which it applies	Surgical/Medical patients
Abstract	5
Statement of evidence base of the guideline Evidence Base (1-5)	

1a	Meta analysis of RCT
1b	At least 1 RCT
2a	At least 1 well designed controlled study without randomisation
2b	At least 1 other well designed quasi experimental study
3	Well –designed non-experimental descriptive studies (ie comparative / correlation and case studies)
4	Expert committee reports or opinions and / or clinical experiences of respected authorities
5	Recommended best practise based on the clinical experience of the guideline developer

Consultation Process	DQEC
Target Audience	
This guideline has been registered with the trust. However, clinical guidelines are guidelines only. The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician. If in doubt contact a senior colleague or expert. Caution is advised when using guidelines after the review date.	

Background

Chest wall injury is common as a result of major blunt trauma (motor vehicle accidents, falls etc). It varies in severity from minor bruising or an isolated rib fracture, to severe crush injuries leading to respiratory compromise.

A flail chest occurs when a segment of the thoracic cage moves independently from the rest of the chest wall. A flail chest causes paradoxical movement of this segment of the chest wall, in-drawing on inspiration and moving outwards on expiration and this segment of chest wall fails to contribute to lung expansion. Flail chest has been defined in a variety of ways, but at least 2 fractures per rib in at least 2 ribs are needed to produce a flail segment. Large flail segments may extend bilaterally or involve the sternum, and may compromise respiration sufficiently to require mechanical ventilation.

Management of chest wall injury is directed towards protecting the underlying lung, achieving adequate ventilation and oxygenation, and preventing infection. Analgesia sufficient to allow normal respiration and coughing may be adequate for mild cases, however in severe cases epidural analgesia may be required. More severe cases require ventilator support, and suction to remove mucus or secretions from the airways to prevent atelectasis

In general patients with chest wall trauma may show little or no respiratory compromise on admission however pulmonary complications often become evident 48-72 hours after injury. The associated pain is notoriously difficult to manage, but effective analgesia started promptly prevents hypoventilation, enables deep breathing, adequate coughing with clearance of pulmonary secretions and compliance with chest physiotherapy.

These care outcomes call for an early intervention and multidisciplinary decisions to be made prior to transfer to the ward and deterioration of the patient. It is vital that this group of patients are treated with the most effective care (mainly analgesia) from admission in A&E to appropriate bed allocation and to minimise the risk of deterioration following transfer to the ward area.

1. Guidance

It is imperative that the patients who sustained multiple fractured ribs, with or without any complications (flail chest or pneumothorax or haemo-pneumothorax, other respiratory co-morbidities) are referred to the appropriate team depending on the **Rib fracture score (see pathway):**

- Rib fracture fixation does not take place at RAEI, however as per NICE guidance, patients with three or more fractured ribs and flail chest should be immediately referred by A&E to Specialist Centres, e. g Salford or Preston for rib fixation
- If not suitable for rib fixation, refer to Surgical team from A&E admission, as the Pain management with PCA/Epidurals can only be addressed on specially trained wards
- Close monitoring and acute pain management **must** be escalated to the Anaesthetist on call/ Acute Pain Services within one hour of confirmation of diagnosis.
- Wards authorised/trained to look after epidurals are: Swinley, Langtree, Aspull ward and ICU/HDU only, **NOT** medical wards.
- When managing patients with fractured ribs we should be aiming for dynamic pain score of 1 (mild) or less and ensure patients can move, take deep breaths or cough to clear up secretions and comply with aggressive chest physiotherapy to minimise the risk of pulmonary complications. Elderly patients should take priority due to high risk of mortality.
- Every patient with fractured ribs should have chest physiotherapy / spirometry within 24h of diagnosis, please refer to the ward physiotherapist as soon as possible
- Thoracic epidural analgesia is a fundamental element of anaesthesia based acute pain services and used in thoracic surgery, abdominal surgery and rib fractures

The proposed Rib Fracture Pathway is a tool for all clinical and nursing staff to use on admission to A&E assisting in the appropriate referral to a specialist centre and in selecting the appropriate bed allocation and analgesia based on the patient's score whilst taking into account a holistic assessment of the patient 's presentation, history and expressed needs.

The above treatment plan and recommendations follows **NICE guidelines** for best patient practice. **(https://www.nice.org.uk/guidance/ng38)**

Multiple Fractured Ribs Pathway

Rib Fracture Score = **Breaks** (number of fractures) **X** **Sides** – unilateral (scores 1) or bilateral (scores x2)

+

Age Factor – between 50-60 = 1 61 – 70 = 2 above 71 = 3

= Total Score

Can add up to 3 to the total score for any respiratory and/or cardiac co-morbidity

Score 3-6

If admitted contact Acute Pain Service/CCOT/On Call Anaesthetist

Regular oral/sub cut analgesia as per WHO Pain Ladder

If pain not controlled please consider PCA (surgical wards only)

Score 7-10

Admit to Surgical Wards

Contact Acute Pain Service/ CCOT/On Call Anaesthetist

Morphine or Fentanyl PCA +/- adjuvant analgesia

If pain not controlled/unable to take deep breaths and cough consider epidural

Score 11-15

Consider current health condition and anticoagulant status.

Contact Acute Pain Service/ CCOT/On Call Anaesthetist

Involve critical care (consider HDU/ICU admission)

Epidural for pain control

Score 15+

For Epidural or surgical management (if indicated)

Involve critical care (consider HDU/ICU admission)

Contact Acute Pain Service/ CCOT/On Call Anaesthetist

- Rib fracture score higher than 15, 3 displaced rib fractures or a flail chest – Must contact the Major Trauma Centre to discuss suitability for rib fixation by A+E department
- If patient requires PCA/Epidural, then MUST be nursed on appropriate surgical ward
- Acute Pain Team can by bleeped on 2088 Mon-Fri 08:00-16:00hrs.
- Contact On Call Anaesthetist on bleep 5791.
- CCOT bleep on 6240
- Please refer patient to physiotherapy for review
- Monitor observations and Pain scores as per Trust Policies