MKUH
Guideline for the Management of Rib Fractures in Adults

Classification:	Management Guideline for Adult Patients
Authors Name:	
Authors Job Title:	Acute Pain ANP Lead Pain Nurse
Authors Division:	Surgery
Departments/Groups This Document Applies to: Trust wide	
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Unique Identifier: TBC	**Status:** DRAFT	**Version No:** 1.0
Scope: All Acute Pain MDT members, All Anaesthetists, All Surgical staff, All ED staff, Operational Team, Physiotherapy Team, Theatre Department, All In-patient Clinical Staff		
To be read in conjunction with the following documents: Management of Rib Fracture Flow Chart & Chest Injury Severity Form.		
CQC Fundamental Standard: Required CQC evidence:		

Disclaimer –

Since every patient's history is different, and even the most exhaustive sources of information cannot cover every possible eventuality, you should be aware that all information is provided in this document on the basis that the healthcare professionals responsible for patient care will retain full and sole responsibility for decisions relating to patient care; the document is intended to supplement, not substitute for, the expertise and judgment of physicians, pharmacists or other healthcare professionals and should not be taken as an indication of suitability of a particular treatment for a particular individual.

The ultimate responsibility for the use of the guideline and correct following of instructions as well as the interpretation of the published material **lies solely with you** as the medical practitioner.

Index

Policy Statement and aim

This policy has been developed to ensure a standardized analgesic pathway for adult patients presenting to MKUH with rib fracture injuries is considered and to provide guidance on treatment and escalation of treatment depending on severity of rib fractures.

Executive Summary

The Policy applies to all adult patients presenting with rib fractures to Milton Keynes University Hospital.

Abbreviations used

Introduction and Definitions

Rib fractures are a common consequence of an impact and/or blunt trauma to the thoracic cage. Primary causes are road traffic accidents, and simple falls in the older person. They are associated with significant morbidity and mortality, especially when sustained alongside other serious injuries.

Complications may be increased if adequate pain relief is not provided. May et al (2016) recognizes three main complications from rib fractures: hypoventilation due to pain, impaired gaseous exchange due to lung damage around the fracture site, and a change in breathing mechanics.

As pain from rib fractures can lead to an identified increase in respiratory complications, including pneumonia in 31% of patients (May et al, 2016), prompt administration of multimodal analgesia will assist the patient to breathe effectively and cough more normally, helping prevent the severe complication associated with respiratory failure.

Supplementary oxygen, nebulisers, referral for chest physiotherapy and careful management of fluid balance, minimizing a positive fluid balance, should all be considered by the patient's admitting team. This is to optimize recovery, breathing exercises and mobility as soon as possible.

Assessment of injury severity and guideline for management.

Clinicians are to give primary consideration to the Rib fracture flow chart (see appendix 1) as this provides detailed analgesic optimization regime to ensure multi-modal approach of pain relief is utilized.

Documentation of patient's pain score and analgesia required, using the Assessment/Fluid Balance and Drug Chart tabs on E-care as appropriate.

As with any medication/prescription, consideration must be given to the patient's age, weight, and pharmacodynamics, with dose adjustments accordingly (please note Rib Fracture Flow chart also provides examples of what this can look like) (see appendix 1).

**** Please Note**: all usual prescribing cautions, contraindications, and/or drug interactions are to be considered when prescribing any of the following medications, referring to the most relevant and up to date BNF for guidance.
** For invasive procedures, contraindications and complications must also be considered, and discussed with the patient as soon as possible. Include special consideration for anticoagulation.

Management of analgesia and treatment following admission

Ideally admission to Surgical Ward if clinically indicated to be under Surgical Team

Oral analgesia and Topical 5% Lidocaine Plaster	Any Ward
PCA	Ideally patient to be cared for on a surgical ward. However, this can be facilitated in medical areas, if necessary.
Thoracic Regional Blocks	Ideally Surgical Ward.

Use of Topical 5% Lidocaine Plasters

Lidocaine is a local anesthetic. Local anesthetics work by stopping pain signals from reaching the brain. The Lidocaine plaster works mainly by providing neuropathic (nerve) pain, particularly in areas where it is sensitive to touch. At Milton Keynes University Hospital we allow adult patients with rib fractures to utilize 5% Lidocaine plasters daily for pain relief. A patient can utilize up to a maximum of 3 plasters (depending on fracture site & number of rib fractures) per day for a maximum of 30 days (from date of 1st application).

Plasters will need to be requested on TTO's for discharge and supplied by hospital pharmacy for the 30 days continuous treatment into the community following discharge from hospital. GP & community prescription services will not allow the re-prescribing or continuation of topical 5% Lidocaine plasters for the treatment of pain following rib fracture injury.

Please note: 5% Lidocaine plasters are applied once day (12 hours on, 12 hours off). To be applied at the same time of day. Plasters must be applied directly to rib fracture site to be effective and most beneficial to patient.

Plasters must be ordered from pharmacy as soon as prescribed.

1.0 Roles and Responsibilities:

1.1 For all departments involved in patient care

1.1.1 Clinical Surgical/Medical staff (including ED)

- If patient has confirmed rib fractures, ensure Chest Injury Severity Score (Battles score) is completed and documented on e-care.
- Please utilize Rib fracture analgesic bundle for optimal pain relief.

1.1.2. Anaesthetic Team

- Anaesthetist to be informed of patients presenting with a Battle Score >15
- Arrange & organize regional block if indicated

1.1.3 Acute Pain Nurses

- Informed of patient's admission
- Ensure appropriate analgesia is prescribed
- Review & assess patients on a regular basis
- Support Anaesthetic Team & Ward Staff

1.1.4. Operational manager

- To ensure that if admission is clinically indicated, a bed is available in the most appropriate area/ward for patient.

1.1.5 Nursing Staff

- Records Pain score on a regular basis (particularly for effectiveness of analgesia administered – 30 mins after administration).
- Observations if thoracic regional block administered or PCA commenced – every 15 minutes for 1st hour, then 30 minutes for 1 hour, hourly for 2 hours and then 4 hourly for 24 hours.
- Give analgesia as prescribed
- Ensure topical 5% Lidocaine Plaster is applied directly to rib fracture site at appropriate & prescribed time for 12 hours and then is removed for 12 hours

2.0 Implementation and dissemination of document

This document will be published on the Trust Intranet.
The overall responsibility for coordinating the development, implementation review and update of the document will be taken by ANP – Acute Pain Team.

3.0 Processes and procedures

3.1. Criteria for inclusion

To be utilized for all adult patients presenting with/confirmed diagnosis of rib fracture.

3.2. Precautions

Clinical caution to be applied to those patients with pre-existing health co-morbidities – especially those patients receiving anticoagulation therapy.

4.0 Statement of evidence/references

Adhikary et al (2019) The effect of erector spinae plane block on respiratory and analgesic outcomes in multiple rib fractures: a retrospective cohort study. *Anaesthesia doi: 10.111/anae 14575*
Battle, C et al (2014) Predicting outcomes after blunt chest wall trauma *Critical Care* May
Battle, C et al (2015) Rib fracture management *BJA education* June
El-Boghdadly, K & Wiles, MD (2019) Regional analgesia for rib fractures: too many choices, too little evidence. *Anaesthesia doi: 10.1111/anae. 14634*
May, L. Hilliermann, C & Patil, S. (2016) Rib fracture management. *BJA Education*, 16(1): 26-32
Mills, D., O'Brien, P. & Ashwell, M (2015) Analgesia for fractured ribs guidelines for patients > 16 years. West Hertfordshire Hospitals NHS Trust

5.0 Governance

5.1 Record of changes to document

Version number: **DRAFT 1.0**		**Date: 10/01/2023**			
Section Number	**Amendment**	**Deletion**	**Addition**	**Reason**	**Amended by**
	Creation of document				

5.2 Consultation History

Stakeholders Name/Board	**Area of Expertise**	**Date Sent**	**Date Received**	**Comments**	**Endorsed Yes/No**
	Pain management				
	Pain management				
	Pain management				
	Lead Nurse for Surgery				
	Senior Sister Ward 20				
	General Surgeon				

	Emergency General Surgeon				
	Anaesthetics				
	Anaesthetics				
	Chief Principal Pharmacist				
	Lead Pharmacist for Surgery				
	CSU Lead for ED				

5.3 Audit and monitoring

This Policy outlines the process for document development will be monitored on an ongoing basis. The centralization of the process for development of documents will enable the Trust to audit more effectively. The centralization in recording documents onto a Quality Management database will ensure the process is robust.

Audit/Monitoring Criteria	Tool	Audit Lead	Frequency of Audit	Responsible Committee/Board
MKUH Rib Fracture Audit	Review of documentation		Monthly	Anaesthetics CSU

5.4 Equality Impact Assessment

This document has been assessed using the Trust's Equality Impact Assessment Screening Tool. No detailed action plan is required. Any ad-hoc incident which highlights a potential problem will be addressed by the monitoring committee.

Impact	Age	Disability	Sex (gender)	Gender Reassignment	Race	Religion or Belief	Sexual orientation	Marital Status	Pregnancy & Maternity
Do different groups have different needs, experiences, issues and priorities in relation to the proposed policy?	N	N	N	N	N	N	N	N	N
Is there potential for or evidence that the proposed policy will not promote equality of opportunity for all and promote good relations between different groups?	N	N	N	N	N	N	N	N	N
Is there potential for or evidence that the proposed policy will affect different	N	N	N	N	N	N	N	N	N

population groups differently (including possibly discriminating against certain groups)?									
Is there public concern (including media, academic, voluntary or sector specific interest) in potential discrimination against a particular population group or groups?	N	N	N	N	N	N	N	N	N

Attachments

APPENDIX 1

Management of Rib Fractures

Patient referred by Emergency Department with Rib fractures

In-patient admission for acute fractured rib/s ideally under the care of the admitting **Surgical** team if clinically indicated.

Ensure patient has had CT scan

Calculate Chest Injury Severity Score (see overleaf)

0-10	**11- 15**	**16-30**	**31+**
• Simple oral analgesia – Paracetamol 1g QDS, Ibuprofen <70 yrs – 400mg TDS >70 yrs– 200mg TDS for 14 days • 5% Lidocaine plasters for 30 days • Stable Oxygen saturations • Stable in view of age & co-morbidities • Clinically stable for safe discharge home **>65 CONSIDER CARE OF THE ELDERLY REVIEW**	• Initiate analgesia bundle • 5% Lidocaine plasters for 30 days • Pain team referral • Chest physio If unable to cough or deep breath, consider PCA **>65 CONSIDER CARE OF THE ELDERLY REVIEW**	• Initiate analgesia bundle • 5% Lidocaine plasters for 30 days • Consider PCA if pain not controlled with oral analgesia • Pain team referral • Chest physio • Refer to **Anaesthetics** for regional anaesthesia, epidural or paravertebral catheter (pain buster) Consider withholding anti-platelets or reversing anti-coagulants in case regional block is required; consider H**aematology** advice. **>65 CONSIDER CARE OF THE ELDERLY REVIEW**	• Refer for **ITU** review • Initiate analgesia bundle • 5% Lidocaine plasters for 30 days • PCA / Epidural • Regional block • Pain team referral • Chest physio Complex fractures/chest drains not resolving symptoms – consider contacting Cardio-Thoracic Team at OUH Consider withholding anti-platelets or reversing anti-coagulants in case regional block is required; consider **Haematology** advice **>65 CONSIDER CARE OF THE ELDERLY REVIEW**

Analgesic Bundle

- 1g Paracetamol QDS
- 400mg Ibuprofen TDS (> 70 YRS – 200 MG TDS)
- 50-100mg Tramadol QDS
- PRN 5 - 10mg Oramorph 4 HRLY
- PRN Naloxone
- Antiemetics / Gastric Protection/ Laxatives

Useful Contacts

Anaesthetic 1st on-call bleep 1626
Rapid Response - bleep 1950
Acute Pain Team – bleep 1345
Chest Physiotherapy bleep 1338
MRI dept ext. - 85659
OUH - # 612

Chest Injury Severity Score

RISK FACTOR	PATIENT	RANGE	SCORE
AGE	11-20	1	
	21-30	2	
	31-40	3	
	41-50	4	
	51-60	5	
	61-70	6	
	71-80	7	
	81-90	8	
	91-100	9	
NUMBER OF RIB FRACTURES	3 Points per rib fracture		
CHRONIC LUNG DISEASE	YES	5	
PRE-INJURY ANTICOAGULANT USE	YES	4	
OXYGEN SATURATION LEVELS (Room air)	95 – 100%	0	
	90 – 94%	2	
	85 – 89%	4	
	80 – 84%	6	
	75 – 79%	8	
	70 – 74%	10	

TOTAL =	

References
Battle, C et al (2014) Predicting outcomes after blunt chest wall trauma *Critical care* May
Battle, C et al (2015) Rib fracture management *BJA education* June