Emergency Department Chest Injury Pathway

Examine and resuscitate

Primary survey
Activate ED or Hospital Trauma Team if criteria met
Insert chest drain if appropriate

Secondary survey
Look for other injuries

IF ANY OF FOLLOWING:

### High energy mechanism
- Penetrating trauma
- MVC > 65km/h
- Motor/cyclist or pedestrian impact > 30 km/h
- Fall > 2 m

### Abnormal physiology
- SpO2 < 90%
- RR > 30 or < 10 bpm
- HR < 50 or > 120 bpm
- SBP < 90mmHg

### Abnormal Xray
- > 2 rib fractures
- Lung contusion
- Haemothorax OR Pneumothorax

### Age > 65 with fall from any height

AND one of following:
- Anticoagulation/DAPT
- Pain not relieved with PO analgesia
- Injury >2 body regions e.g. head + chest
- SBP < 110 or HR < 90

CT Thorax with contrast

Risk Stratification

Calculate Chest injury score

https://emed.ie/Trauma/Chest/Rib_Fractures.php

Analgesia

Score 0 - 10 “Conservative”
- Paracetamol 1g ODS
- +/- NSAID*
- +/- PO Oxynorm 5-10mg 2hly

Score 11 - 20 “Progressive”
- As previous +/- IV PCA
- SAP & ESP Block

Score 21 - 30 “Aggressive”
- As previous
- Consider CPAP if hypoxia

Score > 31 “Emergent”
- As previous
- +/- Regional technique + catheter
- +/- Epidural

Discharge criteria:
Chest injury score ≤ 10
If Chest injury score ≤ 20
Discharge once pain controlled

Admission criteria:
Chest injury score > 20
Pain not controlled
Requiring admission for other reasons
Flail chest
Respiratory compromise

*see MMUH NSAID guidance in Maternet for contraindications

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# Analgesic Bundle for patients with chest injuries

Patients with thoracic trauma should have adequate analgesia depending on their chest injury score:

- All patients should have oral analgesia unless contraindicated. Use opioids *early* and *regularly* if pain is severe.
- Patients with score > 11 ("Urgent") should be considered for regional block in ED and/or Patient Controlled Analgesia (PCA). Regional block is done in a single shot planar injection in ED and does not involve insertion of a catheter. Expected analgesia with regional block is up to 8 hours if dexamethasone is added.
- Patients with score > 31 should be discussed with an anaesthetist on call for consideration of epidural catheter insertion or regional anaesthetic blockade with catheter insertion.

## "All patients"

**PRN Opioids if severe pain**
- Oxynorm 5-10mg (2hly)
  - If no contraindications
  - Prescribe laxatives
    - Lactulose 15ml
    - Senna 1 sachet nocte
  - Maximum of 7 days

**Regular Paracetamol**
- Paracetamol 1g QDS
- Paracetamol and codeine
  - Solpadiol 500mg/30mg
  - Total of 1 week

**PRN NSAIDs**
- Ibuprofen 400mg TDS OR
  - Keral 50mg TDS
  - If no contraindications
  - Consider PPI
  - Total of 5 days

## "Urgent"

**Score > 11**

- **Erector Spinae Plane Block**
  - Posterior rib fractures

- **Serratus Anterior Plane Block**
  - Anterior rib fractures

Perform ultrasound-guided block.

Patient needs to be on monitor during and 30 minutes after block performed.

On patient center Track activity as "nerve block performed".

**OR**

- **Levobupivacaine 0.25% or 0.5%**
  - MAX dose 100mg
- **Dexamethasone 8mg**

## "Emergent"

**Score > 31**

Ensure all previous measures are employed.

**CONSIDER**

- **Regional Plane block with catheter insertion**
  - Contact Pain nurse (bleep 2360) or Pain Registrar (bleep 2158)
  - Monday – Friday
  - Anesthetist on call (bleep 2281)
  - Out of hours, weekends, bank holiday

**OR**

- **Epidural catheter insertion**
  - Contact Pain nurse (bleep 2360) or Pain Registrar (bleep 2158)
  - Monday – Friday
  - Anesthetist on call (bleep 2281)
  - Out of hours, weekends, bank holiday

**CONSIDER**

- **Gabapentin 200mg TDS**
  - (100mg TDS in elderly)
  - Total of 7 days
**Admission**

**Discuss with Thoracic Registrar**
- Patients with Chest injury score > 31
- Patients with clinical flail chest
- Patients that required chest drain insertion
- Penetrating thoracic injuries

**Discuss with HDU/ICU**
- Patients requiring Non invasive ventilation
- Patients requiring intubation
Patient information leaflet