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**Abstract Title**

Flailing to Succeed – improving patient outcomes post blunt chest wall trauma.

**Background**

Trauma is a significant cause of morbidity and mortality worldwide and is the primary cause of death in those aged under forty (May *et al* 2016) with blunt chest wall trauma accounting for over 15% of all trauma admissions (Battle *et al* 2014). Management of this patient group is challenging as a result of the delayed on-set of complications (respiratory complications frequently occur 48-72 hours after admission) with patients frequently requiring admission to Critical Care Units and a mortality rate as high as 33% has been reported (Pressley *et al* 2012). Furthermore there are no current national guidelines to assist in the management of this specific patient group.

A prospective audit in 2014 within our Health Board demonstrated that those presenting to the EU with blunt chest wall trauma often received suboptimal care with delayed referrals to the Acute Pain Service (APS) and inappropriate analgesia frequently being prescribed. The audit also identified that there was a general failure amongst both healthcare staff to recognise the potential for rapid deterioration in these patients and that there was significant discord amongst clinical specialties with no dedicated area of care within the hospital. As a consequence we implemented a validated scoring tool (Battle et al 2014) to identify those patients most likely to develop serious respiratory complications post blunt chest wall trauma. This tool was adapted to include analgesic recommendations and was introduced hospital wide in an attempt to improve patient outcomes and reduce morbidity and mortality.

**Aim and Objectives**

* To commence early and aggressive pain management techniques to those patients who were identified as being most at risk of developing respiratory complications post blunt chest wall trauma.
* To reduce the incidence of patient clinical deterioration within the ward environment necessitating an emergency critical care admission.
* To introduce a Rib Fracture Pathway to streamline the patients flow within the hospital whereby their clinical inpatient ward was determined by their presenting Rib Fracture Score.

**Methods**

Initial prospective audit of all patients referred to the Acute Pain Service within a 12 month period. Following the introduction of the scoring tool the same prospective audit of patient outcomes was conducted over the subsequent 12 months.

**Main results**

In the 12 months following introduction of the Rib Fracture Scoring Tool:

* Amount of referrals to the APS more than doubled (104 referrals compared to 49).
* Mortality rate of patients referred to APS reduced from 4% to 2%.
* Double the amount of thoracic epidurals sited (26% compared to previous 14%).
* Majority of patients now sent to Cardiothoracic Ward (52%) where length of stay was reduced from 12.08 days to 7.58 days.
* 18% of patients with confirmed flail segments went to Critical Care (previously 44%) and only 12% of required invasive ventilation (previously 33%).
* Reduction in amount of patients requiring Critical Care admission (13% of all referrals, 31% previously).
* Reduction in the amount of cases requiring emergency admission to critical care following development of respiratory complications (2% of all APS referrals, 12% previously).

**Conclusions**

Introducing the Rib Fracture Scoring Tool and the Rib Pathway has increased awareness and recognition amongst healthcare professional of the potential for these patients to deteriorate. This has led to early and increased referrals to the Acute Pain Service and the instigation of prompt analgesic interventions. There has been a subsequent reduction in mortality rate, reduction in critical care admissions and reduced hospital length of stay.

**References**

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