pneumothorax was related to the block since there was not a no-block group. This factor needs to be explored before considering the possibility of a multi-center study.

REB approval 2021.06

ePoster session 6 – Station 1

**EP181** IMPLEMENTATION OF A CHEST INJURY PATHWAY IN THE EMERGENCY DEPARTMENT

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Background and Aims Rib fractures represent a substantial health burden. Chest injuries contribute to 25% of deaths after trauma and survivors can experience long standing consequences, such as reduced functional capabilities and loss of work. Over recent years there has been an increase in awareness of the importance of early identification, aggressive pain management and adequate safety-netting for these patients. Poor management leads to increased rates of morbidity and mortality. Aim: Development of an evidence based, multidisciplinary chest injury pathway for the management of patients presenting with rib injuries in the Emergency Department

Methods We used Plan Do study Act cycles as a framework for our quality improvement project. Patients’ notes presenting with torso trauma were reviewed from March to June 2021. Our five Specific, Measurable Actionable Realistic and Timely (SMART) measures were: analgesia on arrival, time to analgesia, fascial block performed, discharge leaflet given and compliance with the pathway.

Results Implementation of the pathway increased rates of documented analgesia received from 39% to 70%. The number of regional blocks performed went from 0% to 60% and the number of patients receiving discharge advice went from 7% to 70%. The use of the pathway by doctors and nurses was 63%.

Conclusions This quality improvement project involved the development of a multidisciplinary pathway for patients presenting to the Emergency Department with rib fractures in order to drive a change from previous practice. The quality of care provided to patients attending with rib fractures showed improvement with increases in analgesia received, blocks performed, and discharge advice given.

**EP182** REDUCING LOCAL ANAESTHETIC CATHETER DISPLACEMENTS: A BENCH TOP STUDY OF OPTIMUM MEANS OF CATHETER FIXATION

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Background and Aims Local anaesthesia (LA) nerve infusions are increasingly used in our institution for rib fracture analgesia; they provide not only excellent analgesia but reduce morbidity, mortality and improve economic outcomes [1]. Data from a local audit demonstrated 33% of rib fracture LA infusions were prematurely removed due to accidental disconnection. Currently there is no consensus on the optimum method of securing LA catheters in place [2]. Accordingly, we aimed to reduce rates of catheter disconnection through a benchtop experiment to determine the optimal LA catheter fixation method.

Methods We used a porcine abdominal wall model (figure 1) to determine the force required to displace catheters secured using seven methods (table 1). We used our in-service wingless catheter-through-needle system (Pajunk), except when examining suturing strength, where a Vygon arterial line with suturing wings was used. The force required to displace the catheter by 1 cm from the skin was measured. Each method was repeated 5 times. Data was analysed using parametric tests.

Results Catheters secured using Tegaderm and Dermabond (13.04 N, p=0.0004), Epifix and Dermabond (11.18 N, p=0.007) and Tegaderm and suturing (42.18 N, p=0.001) required significantly more force to displace than those using Tegaderm alone (5.94 N) (figure 2).

Abstract EP182 Table 1 A table demonstrating different methods used to secure local anaesthetic catheters in situ, using a porcine abdominal wall model

<table>
<thead>
<tr>
<th>Device type</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tegaderm alone</td>
<td>Tegaderm</td>
</tr>
<tr>
<td>Tegaderm and polypropylene glue</td>
<td>Polypropylene glue + Tegaderm</td>
</tr>
<tr>
<td>Tegaderm and catheter tunneling</td>
<td>Tegaderm + suturing (Tegaderm, 2-0)</td>
</tr>
<tr>
<td>Tegaderm and suture (Sutok, 2-0)</td>
<td>Suture + Tegaderm</td>
</tr>
<tr>
<td>Tegaderm and suture device 1</td>
<td>Suture device 1 + Tegaderm</td>
</tr>
<tr>
<td>Tegaderm and suture device 2</td>
<td>Suture device 2 + Tegaderm</td>
</tr>
</tbody>
</table>

Abstract EP182 Figure 1 Photographs depicting local anaesthetic catheter fixation methods, in situ, on a porcine abdominal wall model

Abstract EP182 Figure 2 A bar chart illustrating the mean force (newtons) required to displace local anaesthetic catheters secured on a porcine abdominal wall model using different methods of fixation. Error bars represent +/- 1 standard deviation. Statistical significance was analysed with ANOVA and post hoc t-tests (*P<0.01)
Conclusions Tegaderm with suturing was the most effective method of catheter fixation, requiring a force several times that required to displace catheters secured using other means. However, Tegaderm and Dermabond provide effective fixation while also being both more cost-effective and patient/operator friendly. Consequently, we changed our department’s catheter fixation policy to advocate routine use of skin glue.

### EP183 OVERCOMING BARRIERS TO IMPLEMENT GUIDELINES FOR THE INSERTION OF ERECTOR SPINAES ANALGESIC CATHETERS IN THE EMERGENCY DEPARTMENT OF A MAJOR TRAUMA CENTRE

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Background and Aims In high risk patients, pain arising from rib fractures can lead to pulmonary complications with associated morbidity, mortality and cost implications. Optimising pain relief is vital and regional analgesia (RA) is viewed as the gold standard. In a major trauma centre, referrals for analgesia in patients with chest wall trauma continue to rise (figure 1), and where regional analgesia has traditionally been limited to the operating theatre complex, delays in performing RA for this at-risk group impact patient outcomes.

Methods A multidisciplinary working party scoped opportunities for performance of RA for rib fractures in the emergency department (ED). Detailed stakeholder analysis identified numerous barriers to be overcome.

Results Barriers included:
1. Capacity required to train ED staff on catheter placement and management
2. Governance of non-anaesthetic staff performing catheter techniques
3. Concerns of potential drug errors with in situ catheters
4. Speciality prioritisation of patients with rib fractures
5. Reduced availability of anaesthesia providers during out of hour periods.

An infographic of the resultant guideline highlights how key barriers were addressed by the working group (figure 2).

Conclusions Effective interdepartmental working can lead to service innovation and improvement. Minimising delays in performing RA will positively impact patients admitted to our centre with major chest trauma, and helps to embed RA within service provision.

### EP184 REGIONAL ANAESTHESIA TECHNIQUES FOR MANAGEMENT OF CHEST WALL TRAUMA IN A SCOTTISH TERTIARY MAJOR TRAUMA CENTRE: A RETROSPECTIVE SERVICE EVALUATION AND OUTCOME ANALYSIS

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Background and Aims Chest wall trauma is a notorious anaesthetic challenge and high opioid analgesia requirements, hyperventilation, hypostatic pneumonia and respiratory failure are common complications. Regional anaesthesia (RA) techniques have emerged as good adjuncts to reduce opioid consumption. In this study we describe the demographic and outcome data of patients that have received RA for analgesic management of chest wall trauma.

Methods We retrospectively collected data from electronic health records on all patients with chest wall trauma who received RA techniques following acute pain team referral from October 2018 to August 2022.

Results We reviewed data from 187 patients. Mean age was 64.25 years, median fracture burden of 7 per patient, with 47...