Reducing Time to Analgesia for Patients with Musculoskeletal Pain in the ED

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Disclosures

I do not have an affiliation (financial or otherwise) with a pharmaceutical, medical device or communications organization.

Je n’ai aucune affiliation (financière ou autre) avec une entreprise pharmaceutique, un fabricant d’appareils médicaux ou un cabinet de communication.
Urban tertiary care, academic Emergency Department

Pain is the leading symptom for patient presentation to the ED

Accounts for 80% of all visits (~38,000/year)

Delays lead to perceived worse care, satisfaction, and increase patient complaints.

Lower acuity and often wait longer to be assessed

3,300 are for musculoskeletal injuries/pain
Aim

Reduce the time-to-analgesia (TTA) by 55% (under 60 minutes) in 9 months’ time (May 2018).
Measures

1. Outcome:
   - TTA (min)
   - Length of stay (LOS, min)

2. Process:
   - Medical directive use (%)
   - Rate of analgesia admin (%)

3. Balancing:
   - Patient adverse events (#)
   - Time spent triaging (min)
Improvement Process

Stakeholder engagement → Root cause analysis with Pareto Chart → Process Mapping
PDSA Cycles

1. Nurse initiated analgesia (NIA) at triage
2. New triage documentation aid for med admin
3. Medical directive badge tag
4. Targeted feedback to staff
### Project Tools

**Medication administered as per medical directive**

Admin time: _______

- □ Acetaminophen 1g/PO
- □ Ibuprofen 400mg/PO

RN name: ____________________ RN initials: __________

<table>
<thead>
<tr>
<th>ED Medical Directive Medication</th>
<th>Administration Criteria</th>
<th>Contraindications and Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASA 160mg PO to chew x1</td>
<td>Acute coronary syndrome type chest pain</td>
<td>Renal or liver disease, ulcer, asthma, GI bleed, pregnancy, vomiting, NSAID in last 6hr</td>
</tr>
<tr>
<td>Dextrose 50% (D50W) 25mg (50mL)/IV x1</td>
<td>Glucose less than 2.8mmol</td>
<td>None</td>
</tr>
<tr>
<td>Dimenhydrinate 50mg PO/IV/IM x1</td>
<td>Nausea/vomiting, dizzy, age 16 to 64</td>
<td>Dementia/delirium, bradycardia, decreased LOC</td>
</tr>
<tr>
<td>Ondansetron 4mg IV/IM x1</td>
<td>Nausea/vomiting</td>
<td>Pregnancy, QT prolongation</td>
</tr>
<tr>
<td>Salbutamol 4 puff/q15-30min x 3</td>
<td>Short of breath; history of asthma or COPD</td>
<td>Allergy/sensitivity to medication</td>
</tr>
<tr>
<td>TD Vaccine 0.5mL/IM x1</td>
<td>Skin injury or eye injury</td>
<td>Td booster within 10 years</td>
</tr>
</tbody>
</table>

### Assess Pain Score + Vital Signs (VS) + Medical History (Hx) + Allergies

Any: Abnormal VS, Pain meds in last 4-6 hrs, Complex Medical Hx?

**Pain Score**

<table>
<thead>
<tr>
<th>Pain Score</th>
<th>Acetaminophen 650-1000mg/PO x1</th>
<th>Ketorolac 15mg/IV or IM x1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>Contraindication: liver disease, vomiting, intoxication, allergy to acetaminophen and Ibuprofen 400mg/PO x1</td>
<td>Consider antiemetic Contraindication: Renal or liver disease, ulcer, asthma, GI bleed, pregnancy, vomiting, allergy to NSAID</td>
</tr>
<tr>
<td>3-7</td>
<td><strong>Unable to Tolerate PO</strong></td>
<td>Escalate to MD/NP/PA</td>
</tr>
<tr>
<td>8-10</td>
<td><strong>Escalate to MD/NP/PA</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TTA</td>
<td>LOS</td>
</tr>
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<tr>
<td><strong>Results</strong></td>
<td>129 minutes to 100 minutes (22.5% reduction, ( p&lt;0.05 ))</td>
<td>580 minutes to 519 minutes (10.5% reduction, ( p=0.77 ))</td>
</tr>
</tbody>
</table>
Time to Analgesia

NIA Trial - Single RN

Directed Feedback

Project Implementation

NIA Triage Initiated

Badge Tag

Average TTA (hh:mm)

00:00 01:12 02:24 03:36 04:48

Week

CL 0.08260

LCL 0.02121

UCL 0.14399
Discussion

- We reduced mean TTA and increased the use of medical directives through front-line focused improvements.
- With continued success and sustainable processes, we are planning to spread our project to other EDs and broaden our initiative to all appropriate pain-related concerns.
Thank you

Questions?

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