**Appendix 1 – ICD Codes Searched**

|  |  |
| --- | --- |
| **ICD Diagnosis Category** | **Main Diagnosis** |
| S22 | Fracture of rib(s), sternum, and thoracic spine |
| S32 | Fracture of lumbar spine and pelvis |
| S42 | Fracture of shoulder and upper arm |
| S52 | Fracture of forearm |
| S62 | Fracture at wrist and hand level |
| S72 | Fracture of femur |
| S82 | Fracture of lower leg, including ankle |
| S92 | Fracture of foot, except ankle |
| T02 | Fracture involving multiple body regions |
| T08 | Fracture of spine, level unspecified |
| T12 | Fracture of lower limb, level unspecified  |

**Appendix 2 - Univariate Correlates of Opioids Prescribed at Discharge**

|  |  |  |  |
| --- | --- | --- | --- |
| **Characteristic** | **No Opioid**  | **Received Opioid1**  | **P Value** |
|  | N = 556 | N = 260 |  |
| **Female gender (%)** | 299 (53.8) | 143 (55.0) | 0.74 |
| **Past history (%)** |  |  |  |
| Substance abuse | 11 (2.0) | 7 (2.7) | 0.52 |
| Chronic pain | 18 (3.2) | 6 (2.3) | 0.46 |
| **Pain medication prior to ED visit (%)** |  |  |  |
| Acetaminophen | 43 (7.7) | 27 (10.4) | 0.21 |
| **Medications given during ED stay (%)** |  |  |  |
| Acetaminophen  | 131 (23.6) | 149 (57.3) | 0.83 |
| Ibuprofen  | 18 (3.2) | 21 (8.1) | 0.61 |
| Naproxen  | 66 (11.9) | 78 (30.0) | 0.76 |
| Ketorolac  | 5 (0.9) | 15 (5.8) | 0.33 |
| Morphine  | 5 (0.9) | 12 (4.6) | 0.79 |
| Codeine  | 0 (0.0) | 1 (0.4) |  |
| Oxycodone  | 2 (0.4) | 4 (1.5) | 0.71 |
| Hydromorphone  | 12 (2.2) | 72 (27.7) | 0.26 |
| Tramadol  | 61 (11.0) | 112 (43.1) | 0.06 |
| **Fracture type (%)** |  |  |  |
| Forearm | 44 (7.9) | 16 (6.2) | 0.37 |
| Femur | 2 (0.4) | 2 (0.8) | 0.44 |
| Involving multiple body regions | 6 (1.1) | 5 (1.9) | 0.33 |
| Lower limb, level unspecified | 13 (2.3) | 5 (1.9) | 0.71 |

**Appendix 3 - Multivariable Logistic Regression Analysis of Factors Associated With Patient’s Prescribed Opioids at Discharge (N=803)**

|  |  |  |
| --- | --- | --- |
| **Characteristic** | **Odds Ratio (95% CI)** | **p-value** |
| Age | 1.00 (0.99 ; 1.01) | 0.66 |
| Gender | 1.07 (0.71 ; 1.61) | 0.75 |
| **Past medical history** |  |  |
| Substance Use | 0.75 (0.22 ; 2.57) | 0.64 |
| Psychiatric illness | 1.12 (0.65 ; 1.94) | 0.68 |
| **Pain medication prior to ED visit** |   |  |
| Acetaminophen | 0.73 (0.34 ; 1.58) | 0.43 |
| NSAIDs | 1.02 (0.58 ; 1.80) | 0.94 |
| Opioids1 | 1.21 (0.54 ; 2.72) | 0.65 |
| Anticonvulsants2 | 2.65 (0.63 ; 11.08) | 0.18 |
| **Triage Assessments** |  |  |
| CTAS scores3  |  |  |
| *CTAS score 3 vs. 5* | 3.88 (0.84 ; 18.00) | 0.13 |
| *CTAS score 4 vs. 5* | 2.82 (0.60 ; 13.23) | 0.91 |
| Pain directive | 0.58 (0.28 ; 1.18) | 0.13 |
| **Medications given during ED stay** |   |  |
| Acetaminophen | 1.65 (0.93 ; 2.92) | 0.09 |
| Ibuprofen | 2.25 (0.88 ; 5.76) | 0.09 |
| Naproxen | 1.04 (0.52 ; 2.11) | 0.91 |
| Ketorolac | 1.05 (0.30 ; 3.69) | 0.94 |
| Morphine | 2.70 (0.79 ; 9.28) | 0.11 |
| **Fracture type vs. wrist and hand** |  |  |
| Femur | 4.82 (0.51 ; 45.58) | 0.45 |
| Forearm | 1.66 (0.81 ; 3.41) | 0.39 |
| Lower leg, including ankle | 1.18 (0.57 ; 2.42) | 0.06 |
| Lower limb, level unspecified | 1.18 (0.31 ; 4.46) | 0.30 |
| Multiple body regions | 2.57 (0.62 ; 10.62) | 0.82 |
| Shoulder and upper arm | 3.85 (2.00 ; 7.44) | 0.06 |

1 Opioids included: hydromorphone, morphine, oxycodone, codeine

2 Anticonvulsants included: pregabalin, gabapentin

3 CTAS score 1 – 5 (1 = highest acuity, 5 = lowest acuity)

**Appendix 4 – Data Collection Tool**

**Project title:** Analgesia prescription patterns amongst emergency physicians at The Ottawa Hospital for patients with acute fractures

Date of Visit: \_\_\_\_\_\_\_\_ Case Number: \_\_\_\_\_\_\_

Campus: ****General ****Civic Gender: ****Female, ****Male Age: \_\_\_\_\_

Meets inclusion criteria (>18yo, presenting complaint/discharge diagnosis of fracture): ****Yes ****No

Meets ANY exclusion criteria: ****Yes ****No If yes please see below:

**** exclusion #1: fracture above level of C7 **** exclusion #3: discharged from ED by another service

**** exclusion #2: admission to hospital

***Stop here if exclusion criteria met -------------------------------------------------------------------------------------------***

**CTAS score at triage: \_\_\_\_\_ Pain score at triage: \_\_\_\_\_**

**Discharge diagnosis:**

\_\_\_ fracture of rib(S), sternum and thoracic spine \_\_\_ fracture of lumbar spine and pelvis

\_\_\_ fracture of shoulder and upper arm \_\_\_ fracture of forearm

\_\_\_ fracture of wrist and hand level \_\_\_ fracture of femur

\_\_\_ fracture of lower leg, including ankle \_\_\_ fracture of foot, except ankle

\_\_\_ fracture involving multiple body regions \_\_\_ fracture of lower limb, level unspecified

**Past Medical History: yes no. if yes**

substance abuse yes no psychiatric illness yes no chronic pain yes no

**Current Pain Medications: \_\_**No \_\_Yes *(if yes, check all that apply)*

\_\_ Acetaminophen

\_\_ NSAID’s (ketorolac, naproxen, ibuprofen, celecoxib, ASA)

\_\_ Opioids (morphine, codeine, fentanyl, hydrocodone, hydromorphone, oxycodone, tramadol, suboxone, methadone)

\_\_ Anti-convulsants (Gabapentin, Pregabalin)

**Was an ED pain directive utilized at triage:** \_\_\_yes \_\_\_no

**Amount (mg) of Medications Given During ED Stay**

\_\_\_ Acetaminophen

NSAID’s:\_\_\_ ibuprofen \_\_\_naproxen \_\_\_ketorolac \_\_\_other

Opioids (please specify if PO or SC route; mg in morphine equivalent)

\_\_\_ morphine \_\_\_ codeine \_\_\_ oxycodone \_\_\_hydromorphone \_\_\_ tramadol

**Amount (mg) of Prescription Medication at Discharge**

\_\_\_ Acetaminophen

NSAID’s:\_\_\_ ibuprofen \_\_\_naproxen \_\_\_ketorolac \_\_\_other

Opioids:

\_\_\_ morphine \_\_\_ codeine \_\_\_ oxycodone \_\_\_hydromorphone \_\_\_ tramadol

\_\_\_ Anti-convulsants (Gabapentin, Pregabalin)

\_\_\_ Skeletal muscle relaxants

**Discharge Instructions for Foundational Analgesia**  \_\_\_ Acetaminophen \_\_\_NSAIDs

**Pain Related Return Visit to the ED 1 month after discharge**

\_\_ No \_\_ Yes \_\_ Opioid prescription given at discharge (*if yes, # morphine equivalents in mg)*