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May 13th, 12:00 PM - 12:15 PM

### More of Less: Optimizing Opioid Prescriptions for Acute Fractures in the Emergency Department at a Children's Hospital

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# More of Less: Optimizing Opioid Prescriptions for Acute Fractures in the Emergency Department

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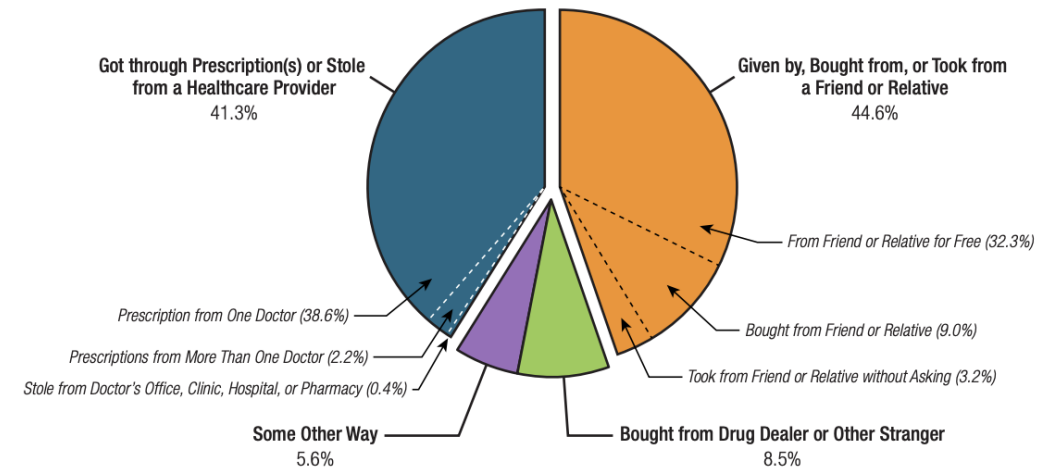
Mentor: Nicholas Clark, MD



# The Problem

- >110,000 drug overdose-related deaths from May 2022-2023.<sup>1</sup>
  - 75% = opioids
- 406,000 American teens reporting illicit opioid use in 2022.<sup>2</sup>
- Increased prescription opioids in circulation = increased opportunity for ingestion and overdoses in the pediatric population

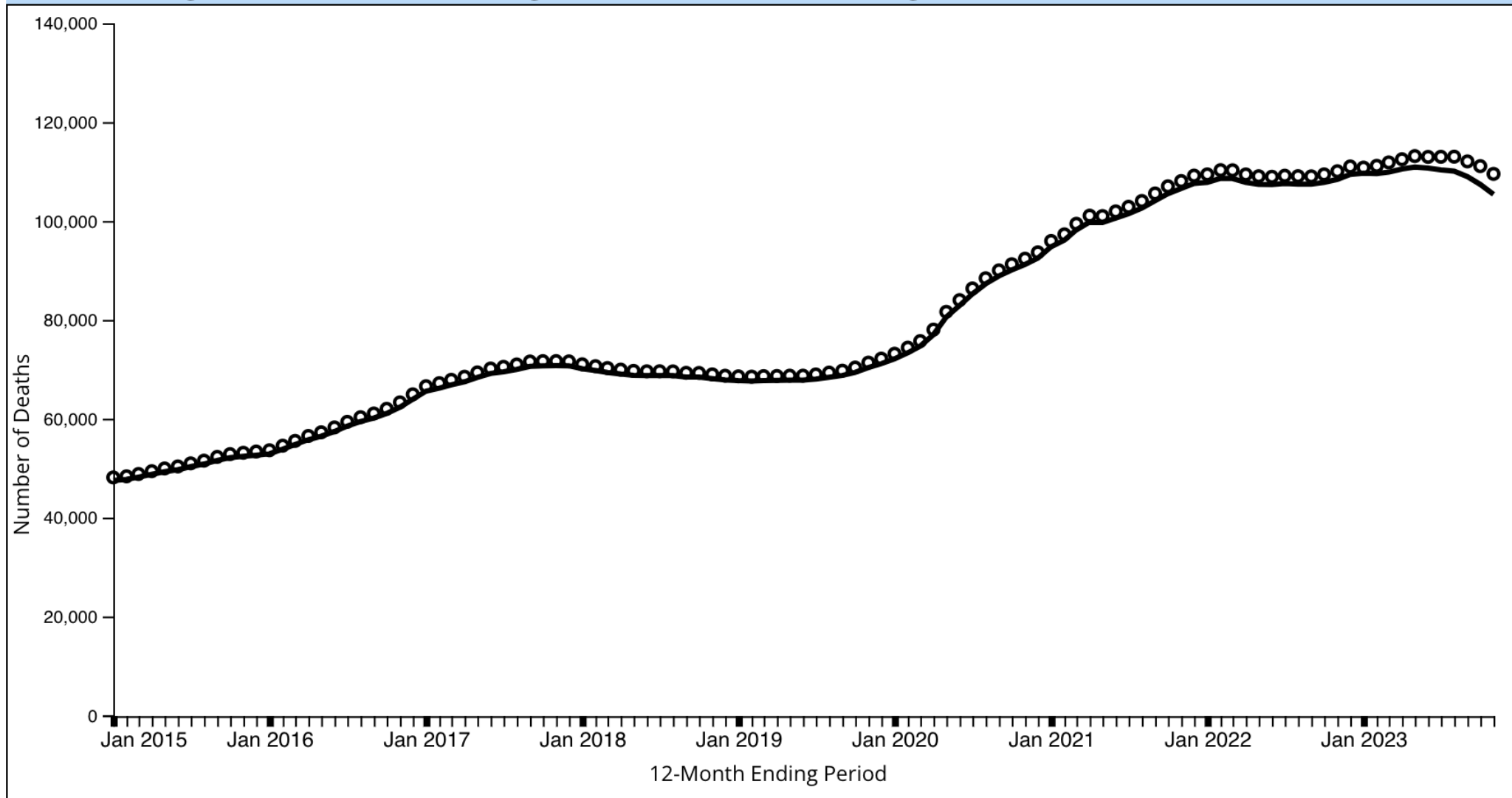
**Figure 23. Source where Prescription Pain Relievers Were Obtained for Most Recent Misuse: Among People Aged 12 or Older Who Misused Prescription Pain Relievers in the Past Year; 2022**



**8.5 Million People Aged 12 or Older Who Misused Prescription Pain Relievers in the Past Year**

Figure 23: Courtesy of the CDC

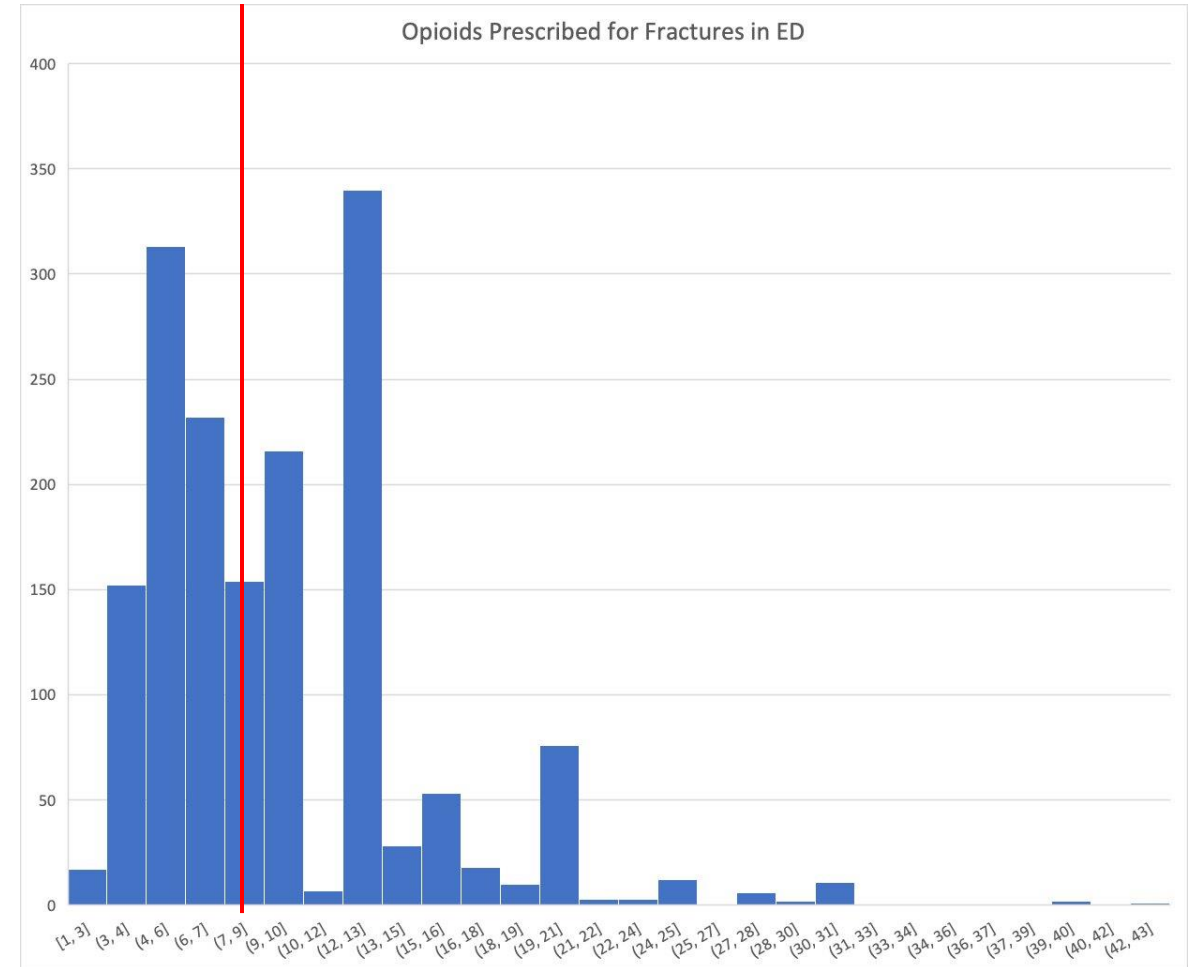
Figure 1a. 12 Month-ending Provisional Counts of Drug Overdose Deaths: United States



# The Problem

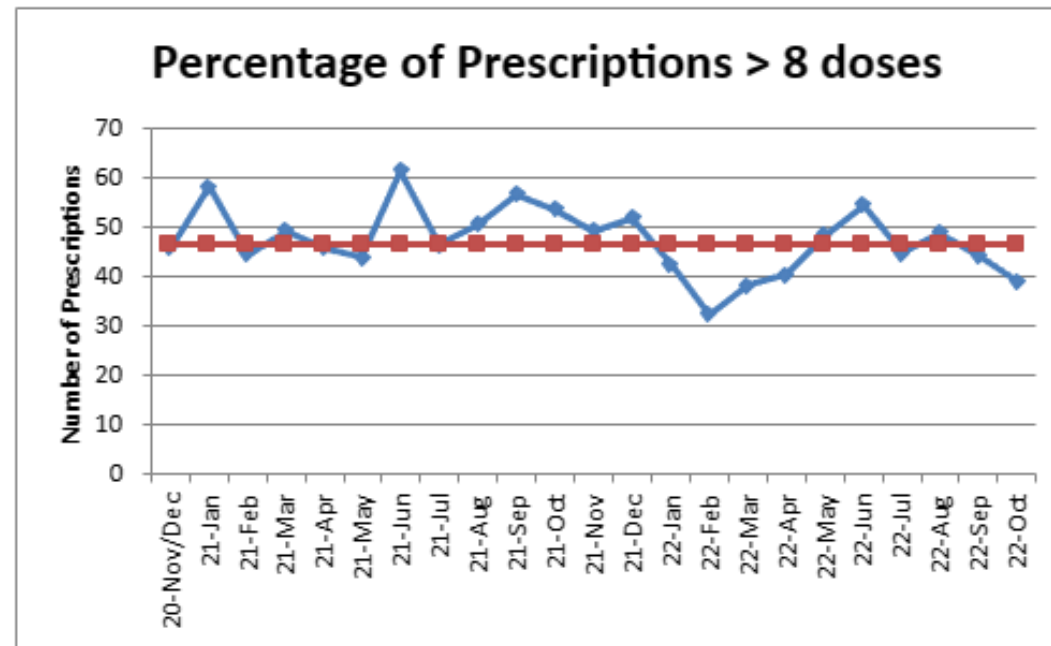
- 4-8 doses of opioids are often enough for pain control in acute fractures.<sup>3</sup>
- One child received >40 doses

46%



# Aim Statement

We aim to reduce the percentage of opioid prescriptions for fractures that **exceed 8 doses** in pediatric patients (age: 0 to 18 years) discharged from the Children’s Mercy Emergency Department from **46%** to **36%**, with a **stretch goal of 26%** by June 2024.



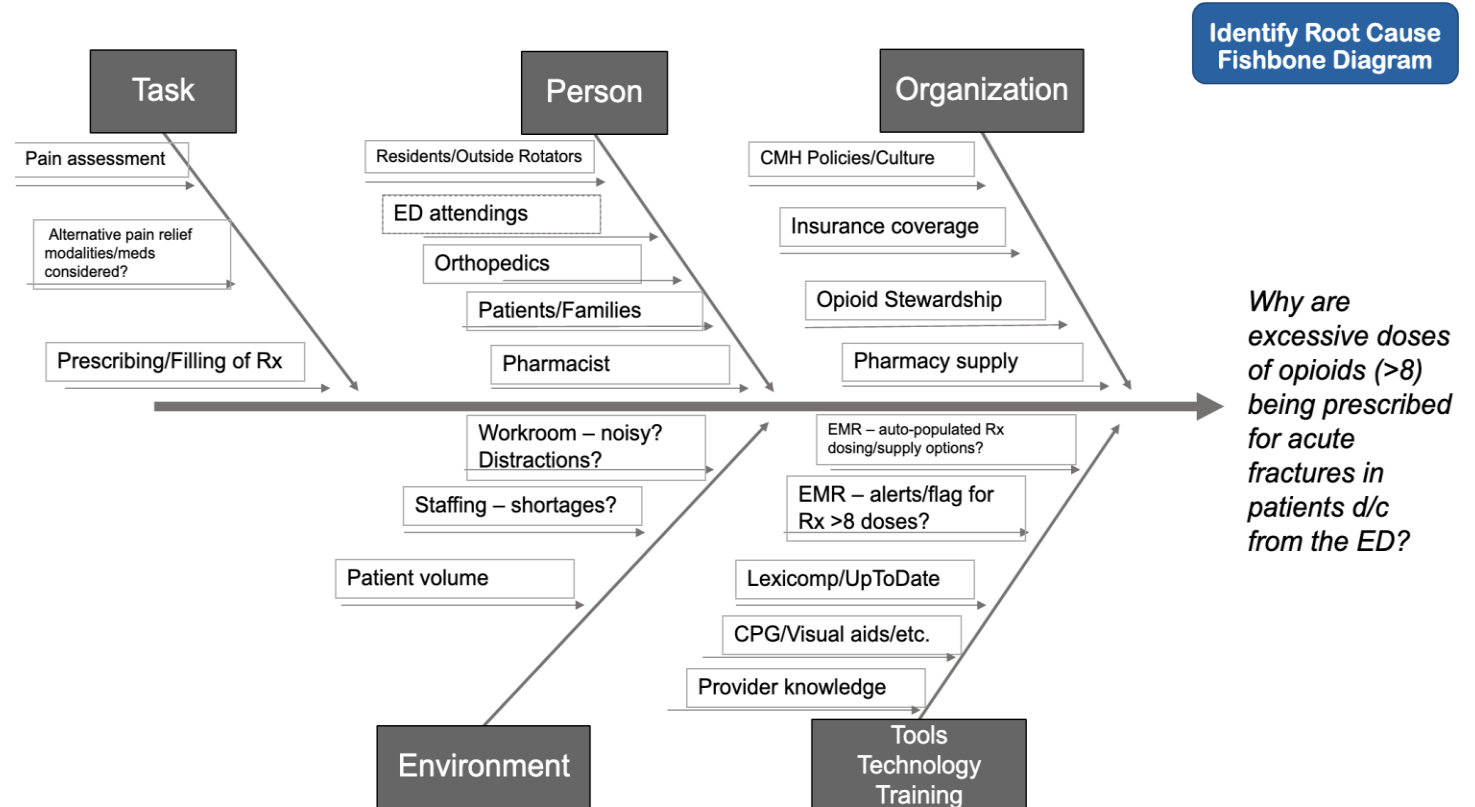
# Methods

## A3 improvement methodology

### Multidisciplinary team of key stakeholders

- General pediatric residents
- QI expert/mentor
- ED physician
- Physician medical informaticist
- Opioid stewardship representative

### Identify root cause → Key Driver Diagram





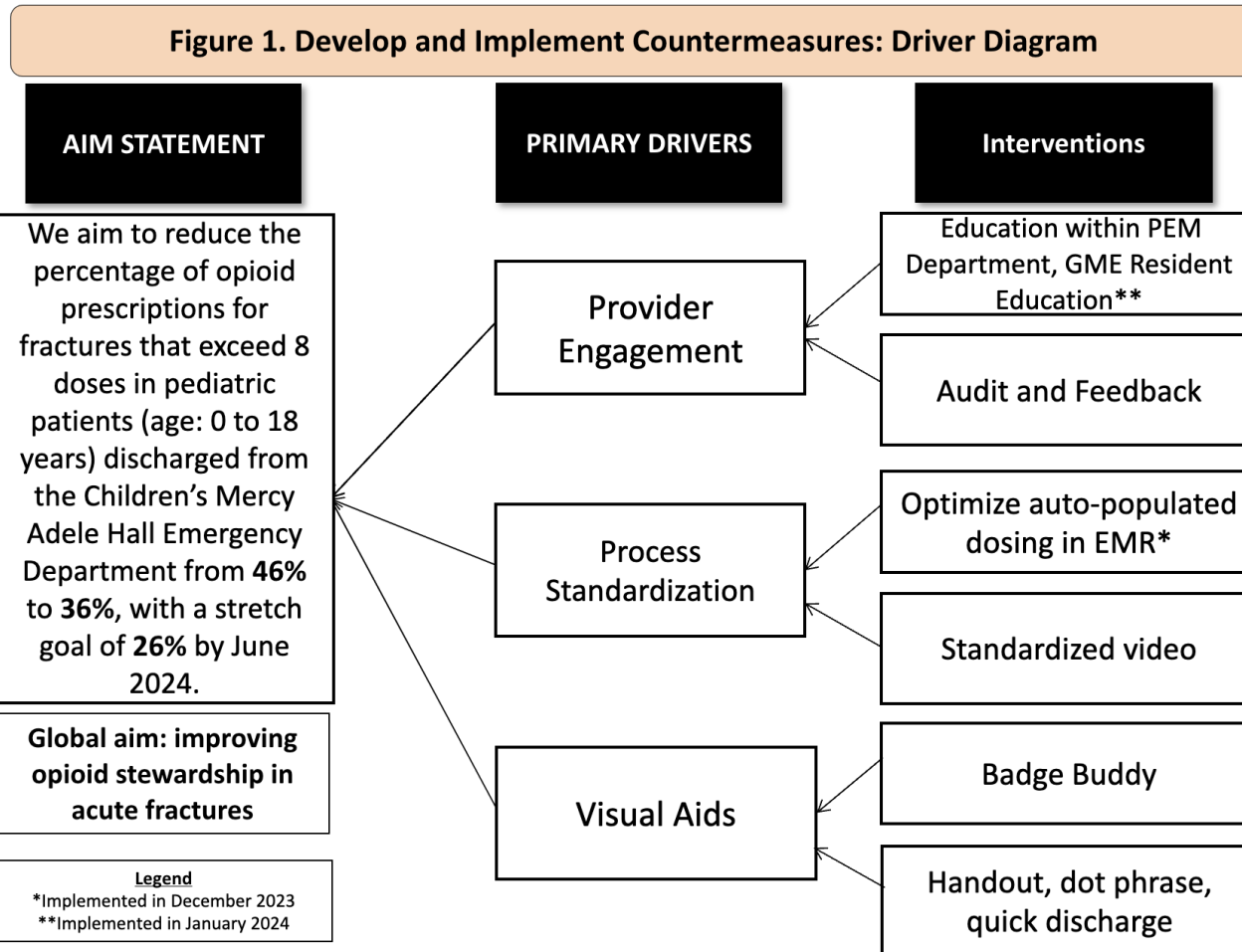
# Methods

## Interventions:

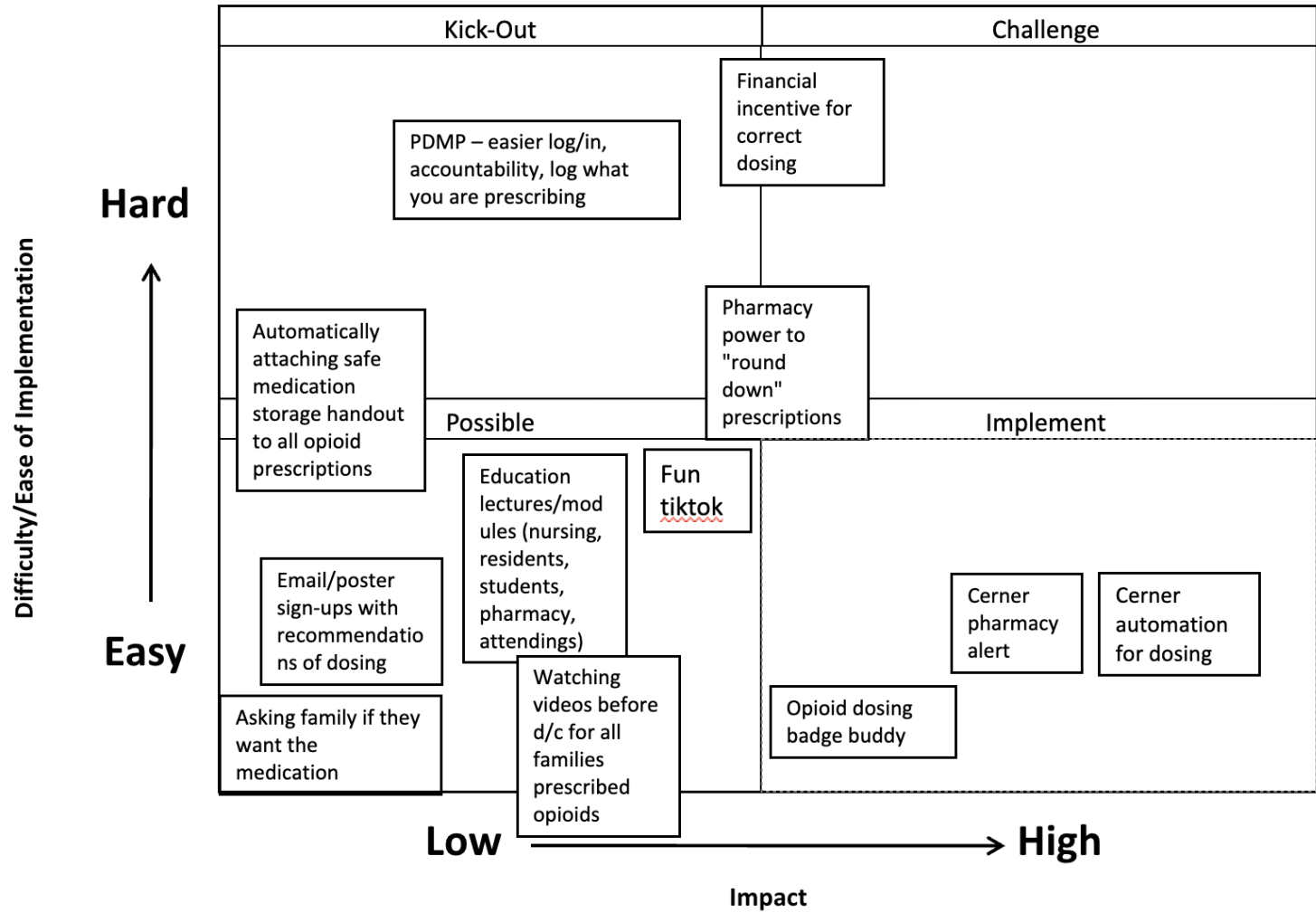
1. EMR optimization
2. Provider Education

## Outcome measure:

% opioid Rx > 8 doses



## Develop and Implement Countermeasures: PICK Chart



# Standardized Dosing

Order sentences for: oxyCODONE (oxyCODONE 5 mg/5 mL oral solution)

(None)
OPIOID PRESCRIBING REQUIRES CHECKING STATE PDMP SITES
**ACUTE PAIN suggestions**
< 7 days of treatment
< 50 morphine milligram equivalents (MME) per day
**Note: 1 mg of oxycodone equals 1.5 MME**
0.05 mg/kg, PO, q6hr, PRN Pain, throw away unused liquid, mL
0.1 mg/kg, PO, q6hr, PRN Pain, throw away unused liquid, mL
0.15 mg/kg, PO, q6hr, PRN Pain, throw away unused liquid, mL
0.5 mg = 0.5 mL, PO, q6hr, PRN Pain, throw away unused liquid, # 10 mL
1 mg = 1 mL, PO, q6hr, PRN Pain, throw away unused liquid, # 10 mL
2 mg = 2 mL, PO, q6hr, PRN Pain, throw away unused liquid, # 10 mL
2.5 mg = 2.5 mL, PO, q6hr, PRN Pain, throw away unused liquid, # 20 mL
5 mg = 5 mL, PO, q6hr, PRN Pain, throw away unused liquid
10 mg = 10 mL, PO, q6hr, PRN Pain, throw away unused liquid



Order sentences for: oxyCODONE (oxyCODONE 5 mg/5 mL oral solution)

(None)
OPIOID PRESCRIBING REQUIRES CHECKING STATE PDMP SITES
**ACUTE PAIN suggestions**
< 7 days of treatment
< 90 morphine milligram equivalents (MME) per day
**Note: 1 mg of oxycodone equals 1.5 MME**
**For acute FRACTURES, consider prescribing 8 doses or less**
0.05 mg/kg, PO, q6hr, PRN Pain, Severe, throw away unused liquid, x 2 day(s)
0.1 mg/kg, PO, q6hr, PRN Pain, Severe, throw away unused liquid, x 2 day(s)
0.15 mg/kg, PO, q6hr, PRN Pain, Severe, throw away unused liquid, x 2 day(s)
Below script = 30 MME per day
5 mg = 5 mL, PO, q6hr, Pain, Severe, throw away unused liquid, # 40 mL
Below script = 60 MME per day
10 mg = 10 mL, PO, q6hr, Pain, Severe, throw away unused liquid, # 80 mL
Below script = 90 MME per day
10 mg = 10 mL, PO, q4hr, Pain, Severe, throw away unused liquid, # 120 mL

# Standardized Dosing

Order sentences for: oxyCODONE (oxyCODONE 5 mg oral tablet)

(None)
OPIOID PRESCRIBING REQUIRES CHECKING STATE PDMP SITES
<b>**ACUTE PAIN suggestions**</b>
< 7 days of treatment
< 50 morphine milligram equivalents (MME) per day
Below scripts = 30 MME per day
5 mg = 1 tablet, PO, q6hr, PRN Pain, throw away unused tablets, x 3 day(s), # 12 tablet
5 mg = 1 tablet, PO, q6hr, PRN Pain, throw away unused tablets, x 5 day(s), # 20 tablet
5 mg = 1 tablet, PO, q6hr, PRN Pain, throw away unused tablets, x 7 day(s), # 28 tablet
Below scripts = 45 MME per day
5 mg = 1 tablet, PO, q4hr, PRN Pain, throw away unused tablets, x 3 day(s), # 18 tablet
5 mg = 1 tablet, PO, q4hr, PRN Pain, throw away unused tablets, x 5 day(s), # 30 tablet
5 mg = 1 tablet, PO, q4hr, PRN Pain, throw away unused tablets, x 7 day(s), # 42 tablet



Order sentences for: oxyCODONE (oxyCODONE 5 mg oral tablet)

(None)
OPIOID PRESCRIBING REQUIRES CHECKING STATE PDMP SITES
<b>**ACUTE PAIN suggestions**</b>
< 7 days of treatment
<90 morphine milligram equivalents (MME) per day
<b>**Note: 1 mg of oxycodone equals 1.5 MME**</b>
<b>**For acute FRACTURES, consider prescribing 8 doses or less**</b>
Below scripts = 30 MME per day
5 mg = 1 tablet, PO, q6hr, Pain, Severe, throw away unused tablets, # 8 tablet
Below scripts = 45 MME per day
5 mg = 1 tablet, PO, q4hr, Pain, Severe, throw away unused tablets, # 8 tablet
Below script = 90 MME per day
10 mg = 2 tablet, PO, q4hr, Pain, Severe, throw away unused tablets, # 16 tablet

# Standardized Dosing

Order sentences for: oxyCODONE (oxyCODONE 10 mg oral tablet)

(None)
OPIOID PRESCRIBING REQUIRES CHECKING STATE PDMP SITES
**ACUTE PAIN suggestions**
< 7 days of treatment
< 50 morphine milligram equivalents (MME) per day
Below scripts = 60 MME per day
10 mg = 1 tablet, PO, q6hr, PRN Pain, throw away unused tablets, x 3 day(s), # 12 tablet
10 mg = 1 tablet, PO, q6hr, PRN Pain, throw away unused tablets, x 5 day(s), # 20 tablet
10 mg = 1 tablet, PO, q6hr, PRN Pain, throw away unused tablets, x 7 day(s), # 28 tablet
Below scripts = 90 MME per day
10 mg = 1 tablet, PO, q4hr, PRN Pain, throw away unused tablets, x 3 day(s), # 18 tablet
10 mg = 1 tablet, PO, q4hr, PRN Pain, throw away unused tablets, x 5 day(s), # 30 tablet
10 mg = 1 tablet, PO, q4hr, PRN Pain, throw away unused tablets, x 7 day(s), # 42 tablet



Order sentences for: oxyCODONE (oxyCODONE 10 mg oral tablet)

(None)
**ACUTE PAIN suggestions**
< 7 days of treatment
< 90 morphine milligram equivalents (MME) per day
**Note: 1 mg of oxycodone equals 1.5 MME**
**For acute FRACTURES, consider prescribing 8 doses or less**
Below scripts = 60 MME per day
10 mg = 1 tablet, PO, q6hr, Pain, Severe, throw away unused tablets, # 8 tablet
Below scripts = 90 MME per day
10 mg = 1 tablet, PO, q4hr, PRN Pain, Severe, throw away unused tablets, # 8 tablet



# Results

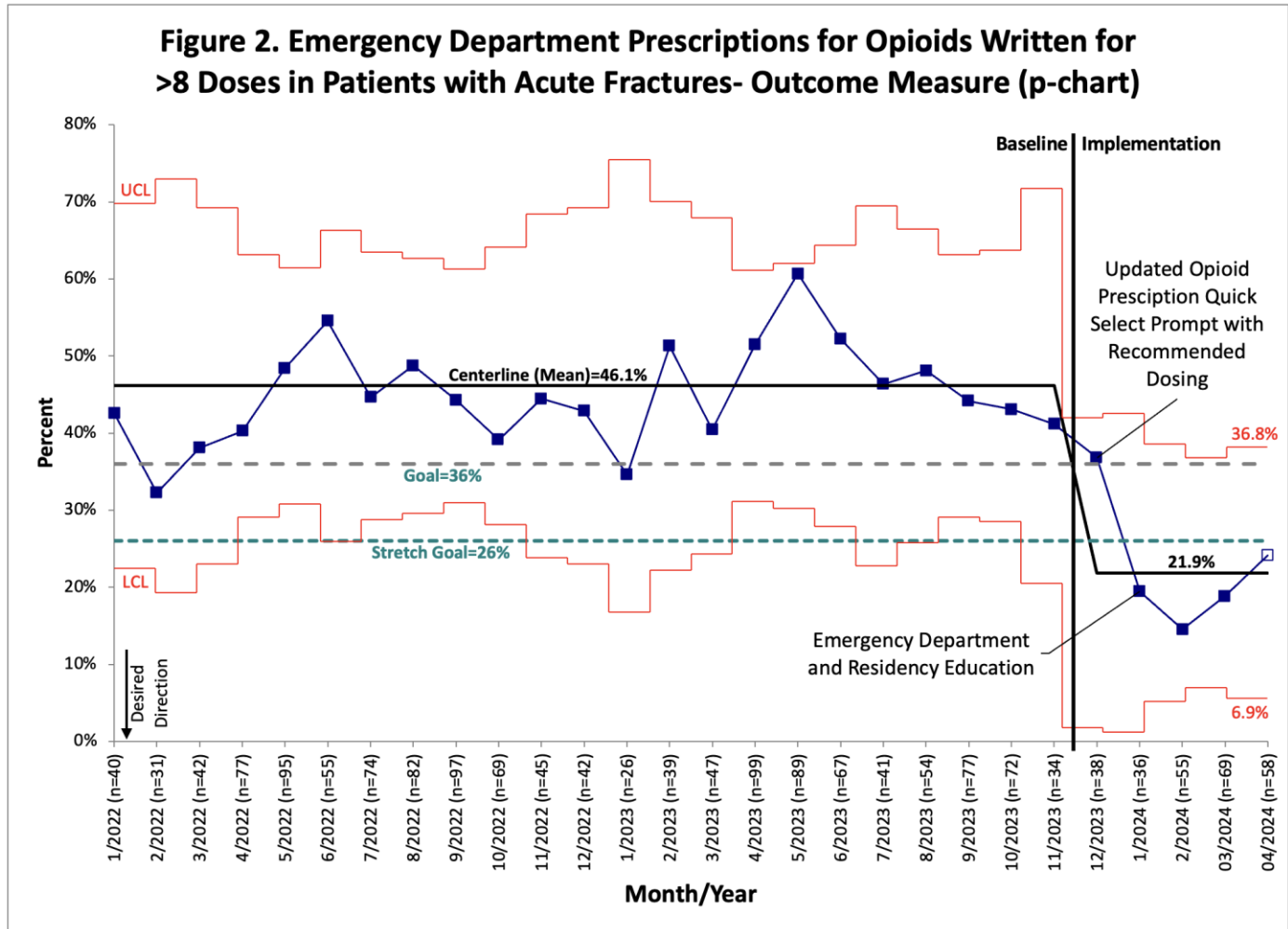
To date, 1650 patients included:

- 1394 baseline period
- 256 implementation period

Special cause variation displayed

- Multiple data points outside 3 sigma

Implementation period: **less than 22%** of opioid Rx written > 8 doses



# Conclusions

Using A3 improvement methodology, we were able to **surpass both initial and stretch goals**

Keys to success: EMR defaults, provider engagement

Next steps:

- *Report back to ED*
- *Expanding to other Dx*



# References

1. Ahmad FB, Cisewski JA, Rossen LM, Sutton P. Provisional drug overdose death counts. National Center for Health Statistics. 2024.
2. Substance Abuse and Mental Health Services Administration. (2023). Key substance use and mental health indicators in the United States: Results from the 2022 National Survey on Drug Use and Health (HHS Publication No. PEP23-07-01-006, NSDUH Series H-58). Center for Behavioral Health Statistics and Quality, Substance Abuse and Mental Health Services Administration.  
<https://www.samhsa.gov/data/report/2022-nsduh-annual-national-report>
3. DePhillips M, Watts J, Sample J, Dowd MD. Use of Outpatient Opioids Prescribed From a Pediatric Acute Care Setting. *Pediatr Emerg Care*. 2022 Jun 1;38(6):e1298-e1303. doi: 10.1097/PEC.0000000000002731. Epub 2022 Apr 28. PMID: 35470302.