Improving Pediatric Opioid Safety Through Enhanced Patient Education

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Introduction

- Pediatric postoperative patients often receive oral liquid opioids for pain management at home
- Caregiver dosing errors can lead to serious adverse effects, including overdose
- This project implemented a standardized, evidence-based approach to address this critical safety issue

Objectives

Primary Objective:
- Develop standardized best practices for liquid opioid management in pediatric patients to enhance safety of discharge practices and prevent opioid overdose, including:
  - Prescribing
  - Dispensing
  - Documenting
  - Caregiver education

Secondary Objectives:
- Improve EHR documentation of opioid-related education
- Ensure consistent counseling through outpatient pharmacy collaboration
- Evaluate effectiveness of return demonstration for verifying:
  - Caregiver comprehension
  - Adherence to proper administration techniques

Methods

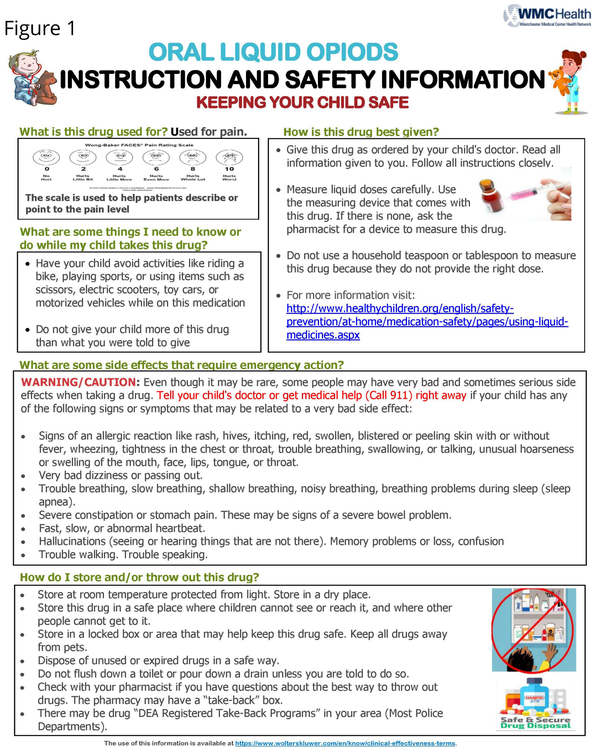
- Project duration: July 2022 – December 2023
- A multidisciplinary team developed a standardized pediatric opioid discharge process
- Nursing staff were trained on caregiver education for opioid safety, including the four elements of best practice:
  1. Proper administration
  2. Overdose recognition
  3. Safe storage
  4. Proper disposal

- Education was reinforced through return demonstration and EHR documentation
- Retrospective chart audits (n=413) were conducted to assess compliance
- Interventions were implemented as part of a Plan-Do-Study-Act (PDSA) cycle to continuously improve our approach to pediatric opioid safety

Interventions:
- February 2023: updated nursing discharge summary form with opioid-specific fields in the EHR
- August 2023: enhanced nursing education and implementation of an opioid discharge instructions sheet (Figure 1)
- A partnership was established with an on-site outpatient specialty pharmacy
  - Each pediatric prescription had a "hold" placed on it to ensure it did not get dispensed without pharmacist counseling
  - Counseling included:
    - Demonstrating how to draw up the correct dose
    - Emphasizing PRN use
    - Reviewing dose and frequency
    - Adverse event education
    - Storage and disposal

- Run charts were utilized to visualize changes in compliance rates over time (Figures 2 and 3)
- Key metrics included:
  - Opioid discharge education enhancement
  - Discharge counseling provided by outpatient pharmacy
  - Enhanced documentation of opioid discharge counseling in the EHR

Figure 1



ORAL LIQUID OPIODS

INSTRUCTION AND SAFETY INFORMATION

KEEPING YOUR CHILD SAFE

What is this drug used for? Used for pain.

Wong-Baker FACES® Pain Rating Scale

0 No Hurt · 2 Hurts Little Bit · 4 Hurts Little More · 6 Hurts Even More · 8 Hurts Whole Lot · 10 Hurts Worst

The scale is used to help patients describe or point to the pain level

How is this drug best given?

- Give this drug as ordered by your child's doctor. Read all information given to you. Follow all instructions closely.
- Measure liquid doses carefully. Use the measuring device that comes with this drug. If there is none, ask the pharmacist for a device to measure this drug.
- Do not use a household teaspoon or tablespoon to measure this drug because they do not provide the right dose.
- For more information visit: http://www.healthychildren.org/english/safety-prevention/at-home/medication-safety/pages/using-liquid-medicines.aspx

What are some things I need to know or do while my child takes this drug?

- Have your child avoid activities like riding a bike, playing sports, or using items such as scissors, electric scooters, toy cars, or motorized vehicles while on this medication
- Do not give your child more of this drug than what you were told to give

What are some side effects that require emergency action?

WARNING/CAUTION: Even though it may be rare, some people may have very bad and sometimes serious side effects when taking a drug. Tell your child's doctor or get medical help (Call 911) right away if your child has any of the following signs or symptoms that may be related to a very bad side effect:

- Signs of an allergic reaction like rash, hives, itching, red, swollen, blistered or peeling skin with or without fever, wheezing, tightness in the chest or throat, trouble breathing, swallowing, or talking, unusual hoarseness or swelling of the mouth, face, lips, tongue, or throat.
- Very bad dizziness or passing out.
- Trouble breathing, slow breathing, shallow breathing, noisy breathing, breathing problems during sleep (sleep apnea).
- Severe constipation or stomach pain. These may be signs of a severe bowel problem.
- Fast, slow, or abnormal heartbeat.
- Hallucinations (seeing or hearing things that are not there). Memory problems or loss, confusion
- Trouble walking. Trouble speaking.

How do I store and/or throw out this drug?

- Store at room temperature protected from light. Store in a dry place.
- Store this drug in a safe place where children cannot see or reach it, and where other people cannot get to it.
- Store in a locked box or area that may help keep this drug safe. Keep all drugs away from pets.
- Dispose of unused or expired drugs in a safe way.
- Do not flush down a toilet or pour down a drain unless you are told to do so.
- Check with your pharmacist if you have questions about the best way to throw out drugs. The pharmacy may have a "take-back" box.
- There may be drug "DEA Registered Take-Back Programs" in your area (Most Police Departments).

Safe & Secure Drug Disposal

The use of this information is available at https://www.wolterskluwer.com/en/know/clinical-effectiveness-terms.

Figure 2

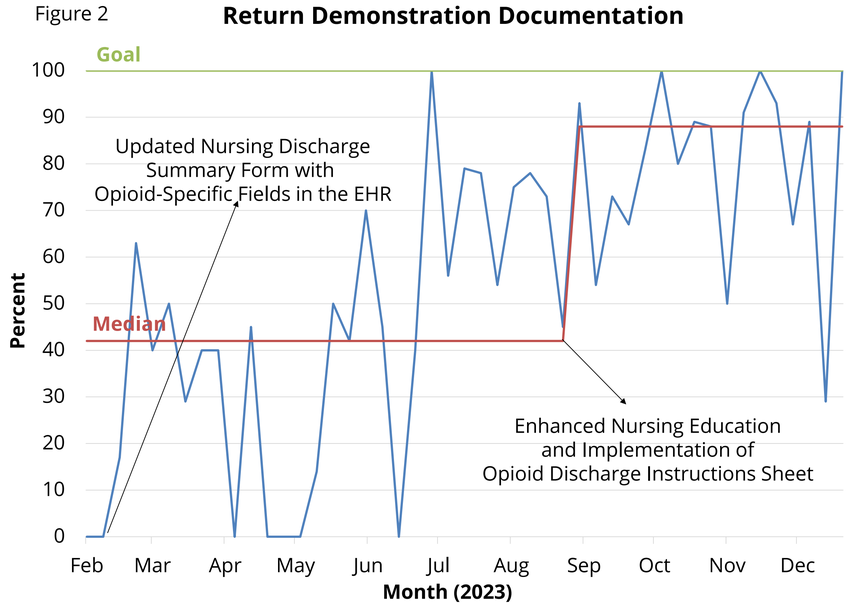
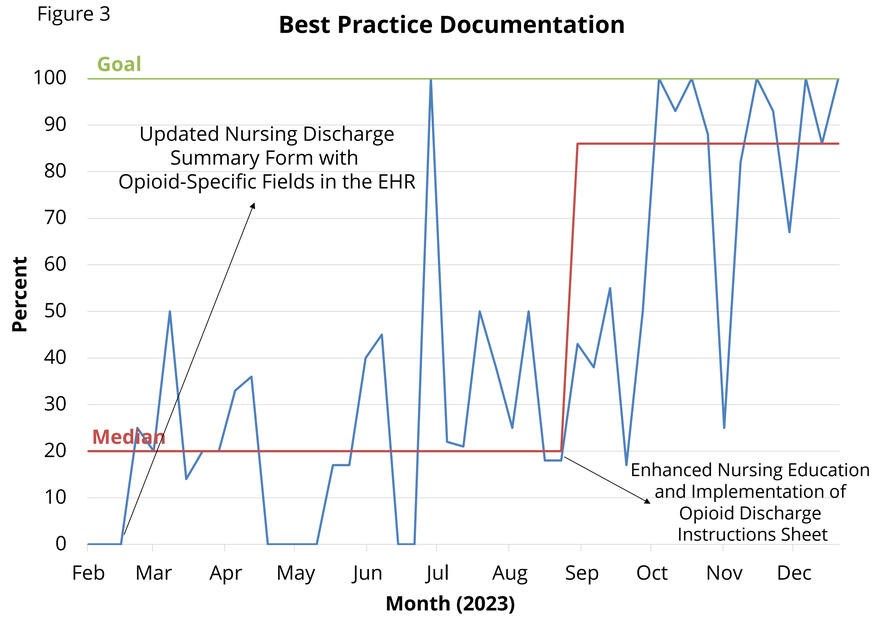


Figure 3



Results

Baseline Compliance Rates (July 2022):
- Opioid discharge education enhancement: 10%
- Discharge counseling by outpatient pharmacy: 10%
- Enhanced documentation in EHR: 0%

Initial Intervention (February 2023):
- Median compliance with all 4 best practice elements increased from 0% to 33% (range: 0%-67%) over 8 weeks
- Chart analysis revealed:
  - 53% of charts missing all 4 elements still documented at least one
  - 38% did not utilize the updated EHR form fields, prompting further interventions

Final Compliance Rates (December 2023):
- Opioid discharge education enhancement: 100%
- Discharge counseling by outpatient pharmacy: 100%
- Enhanced documentation in EHR: 90%

Key Outcome:
- No opioid overdose events reported post-implementation, supporting improved caregiver understanding and adherence through return demonstration

Conclusions

- Standardized discharge practices improved compliance and caregiver comprehension in pediatric opioid management
- The success of this project highlights the importance of utilizing a PDSA cycle to guide quality improvement initiatives
- This iterative approach—planning interventions, implementing them, studying their impact, and then acting on the results to refine the process—is essential for achieving sustained improvements in patient safety
- Continuous training of clinical staff and caregivers is crucial for sustaining best practices
- This approach offers a replicable model for enhancing pediatric opioid stewardship across institutions

Future Directions

- Implement annual opioid education competency for nurses
- Expand standardization of opioid management practices across all hospital departments
- Broaden oral liquid medication teaching to encompass all medications, not just opioids
- Provide appropriate measuring devices to all caregivers at discharge for accurate medication administration
- Distribute drug deactivation and disposal pouches to caregivers upon discharge for safe medication disposal (pilot program in progress)

Contact Information

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