# TABLE 4

| | |
|---|---|
| **5:00** | **Does Centering Pregnancy Affect Perinatal, Maternal & Fetal outcomes?** |
| **5:10** | **Testing a Visual Thermometer in Newborns and Young Infants** |
| **5:20** | **Factors Influencing Orthopedic Procedure Wait Times in Minnesota Rural vs. Urban Patients** |
| **5:30** | **Improving pain management in pediatric patients admitted for traumatic injuries** |
| **5:40** | **Networking** |

# Does Centering Pregnancy Affect Perinatal, Maternal & Fetal outcomes?

Allyssa Marie Jonsson, Zack Messer, Naomi Ojumah, & Ijeoma Toulassi

# Does Centering Pregnancy Affect Perinatal Maternal & Fetal Outcomes?

**Jonsson, AM; Messer, ZR; Ojuma, NE; Strickland, R; Toulassi, IJ**
Department of Family Medicine, Hennepin Healthcare, Minneapolis, MN

## Background

Centering is a model of prenatal care in a group setting that has been studied and implemented across the country. Group prenatal care has the benefits of improved patient education, social support while maintaining standard risk screening and physical exam assessment. Research has shown a reduction in costs, reduction in low birth weight, reduction in the risk of preterm births, reduction in NICU admissions; increased rates of breastfeeding; improved knowledge of childbirth and family planning. While individual prenatal care remains standard care, Centering can be useful and should be offered in especially in populations where racial and ethnic disparities persist as may be useful in addressing specific disparities in perinatal outcomes such as preterm birth among black women, for example. ACOG. Group Prenatal Care. Number 731. March 2018

## Objective

- Evaluate impact of centering vs standard prenatal care on maternal and fetal outcome at Whittier Clinic during the calendar year of 2023
- To guide the direction for improvement of the future of prenatal care by comparing present standard of care vs centering.

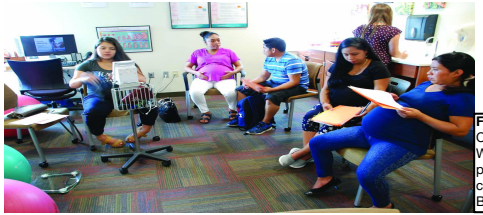


**Figure 2:** Centering at Whittier Clinic, patients checking their BP

## Methods

- Single site retrospective study.
- Reviewed electronic records (EMRs) for 190 patients out of which 133 received prenatal care through individual visit model and 57 received prenatal care through the centering pregnancy model during the calendar year 2023
- Centering patients were paired randomly with a noncentering counterpart for metrics which included
  - Gestational age at birth
  - Total Number of prenatal visits
  - Birth Weight
  - Duration of NICU stay
  - Number of C sections
- Paired T test, 1 and 2 tailed, were used to determine z scores for the various metrics.
- Given the relatively small sample size outliers in the dataset were not thrown out

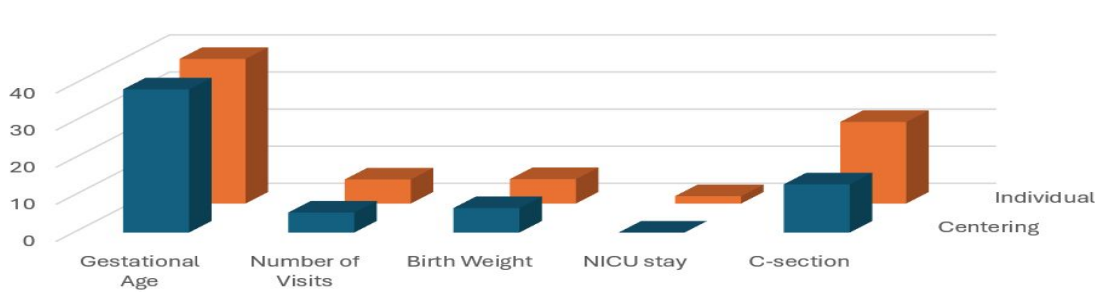



**Figure 1.** Bar chart comparing the several outcomes of the two models of prenatal care available at whittier clinic. See table 1 for total numbers and Z score comparisons expressed in this chart

## Results

In the dataset of 114 total patients there was no statistically significant difference in the majority of the endpoints. Average Gestational age, number of prenatal visits attended, birth weight, and NICU stay duration were all similar after they were randomly paired.

| | Gestational Age | Number of Visits | Birth weight (lbs) | NICU Stay Duration | Number of C sections |
|---|---|---|---|---|---|
| Centering | 38.6 | 5.4 | 6.6 | 0 | 13 |
| Noncentering | 39.0 | 6.5 | 6.6 | 2 | 22 |
| Z score | 0.244 | 0.137 | 0.378 | 0.232 | 0.002 |

**Table 1.** Average gestational age, number of visits, birth weight (lbs) NICU with centering and noncentering groups. Number of C sections per group over the course of 2023. Data including z scores, note P value < 0.5 for number of C sections during the study period.

Notably out of the 133 noncentering patients, 22 required a C section, compared to the 13 out of 57 centering patients.

## Conclusions

- Prenatal care provided in a group Centering model is comparable to standard individual prenatal care visits.
- No difference in gestational age, number of prenatal visit attendance, birth weight or length of NICU stay.
- Rate of C-section births between Centering and individual visits was statistically significant.
- The difference in C-section rates was likely artifact given the analysis was done between actual rates rather than paired T-tests.
- Small sample size may miss any differences between these two models of prenatal care, as larger national data sets do show differences.
- In future, recommend building a designation in EMR, epic for patients who receive prenatal care from Centering so future data analytics are able to pull across multiple years to evaluate a larger data set.
- Would be interesting to compare preterm birth rates, low birth weights, breastfeeding rates, or number of OB triage visits.
- Would be interesting to see if racial disparities in pregnancy outcomes are different with centering as this model of care has been shown to decrease disparities in large nationwide studies.

# Testing a Visual Thermometer in Newborns and Young Infants

Morgan McBride & Sanjana Molleti

# Testing a visual thermometer in newborns and young infants.

## A Liquid Crystal Thermometer Pilot Study

**Morgan McBride, Anna Strauss, Sanjana Molleti, Aisha B. Kasali, Ifelayo Ojo, Jennifer Udeogu, Rasheedat Oshodi, Tina M. Slusher.**

## Introduction

Hypothermia is a significant finding in newborns and can often be the first sign of sepsis. Similarly, hypo-/hyperthermia in infants indicates an ongoing disease process. Handheld thermometers are the mainstay for body temperature measurement, however, most thermometers capture only a single time point. Therefore, in low resource settings with understaffed nurseries, continuous temperature monitoring is difficult. The liquid crystal thermometer device (LCTD) would be ideal for ongoing temperature measurement in premature, newborns and sick infants as it can provide continuous monitoring that is legible to caregivers regardless of literacy.

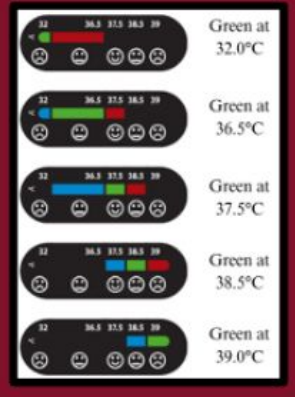
## Objectives

1. Determine the accuracy of the LCTD compared to standard of care temperature measurements in infants 0-6 months of age
2. Determine parent/legal guardian and nurse/healthcare provider's ability to use and interpret LCTD readings

## Methodology

- The standard of care (axillary) temperature recorded as time point zero, "T0."
- The first LCTD reading is obtained every 30 minutes for 2 hours; 5 temperature readings for each baby

# Improvements needed for mothers with limited healthcare access to reliably determine if their infant is normothermic and safe during phototherapy for jaundice.

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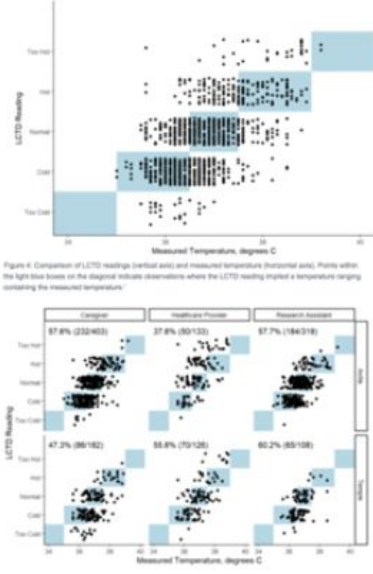
## Results

Results were analyzed for agreement between LCTD readings and measured temperatures. Readings at the temple had higher average rates of agreement with measured temperature. Average agreement between all readers combined (caregiver, healthcare provider, research assistant) was 54.4% for the temple and 51.0% for the axilla.

## Conclusion/Discussion

The modified Thermospot did not correlate well with axillary temperature readings. The device needs modification to be useful in the management of neonates under FSPT. There is still a gap in providing a way for mothers with limited healthcare access to reliably determine if their infant is normothermic and safe under FSPT.



# Factors Influencing Orthopedic Procedure Wait Times in Minnesota Rural vs. Urban Patients

William Shawn Morris

# Factors Influencing Orthopedic Procedure Wait Times in Minnesota Rural vs. Urban Patients

[1]William S. Morris, [1]Amoyiem Thompson, [1,2]Marilyn Odean, [2]Karley Respet, [1]Ryan Harden, MD

[1]University of Minnesota Duluth Medical School, [2]Whiteside Institute for Clinical Research

## Introduction

- Healthcare procedure wait times (date of consult to date of surgery) can vary for many different reasons.
- Orthopedic surgery procedures are increasing annually, driven by an increasing aging population.
- Longer wait times are detrimental to disease progression, debility, and overall patient morbidity and quality of life.
- Rural health disparities exist, which may affect surgery wait times for patients who reside in rural areas.

## Methods

- Retrospective EMR chart review of patients (n=478) who underwent hip, knee, or shoulder replacement
- Surgeries performed by orthopedic surgeons employed at Aspirus St. Lukes Hospital (Duluth, MN) from 2019-2024
- Patients classified as urban or rural (276 vs. 202) based on home zip code
  (Health Resources & Services Administration Federal Office of Rural Health Policy Database, www.hrsa.gov)

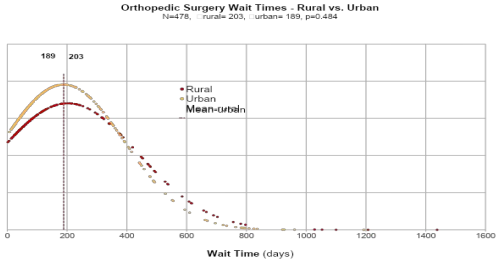
Surgery wait times were compared to:

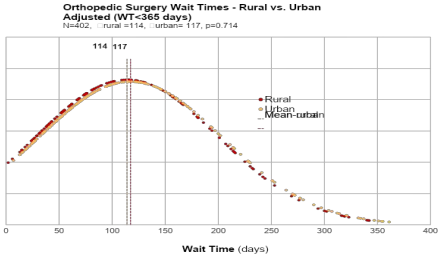
- Rural versus urban patients
- Type of medical insurance (commercial, Medicare, Medicaid, veteran plans, and workers' comp)
- Type of joint surgery (hip, knee, shoulder)
- COVID-19 pandemic
- Patient age
- Patient sex

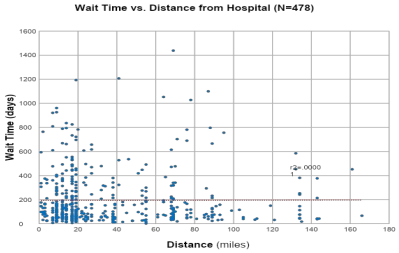
# Factors Influencing Orthopedic Procedure Wait Times in Minnesota Rural vs. Urban Patients

## Results

### Rural vs. Urban

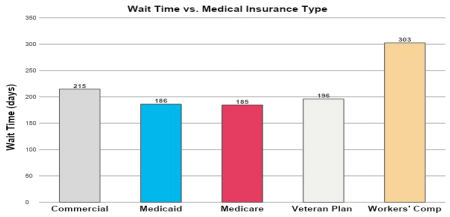


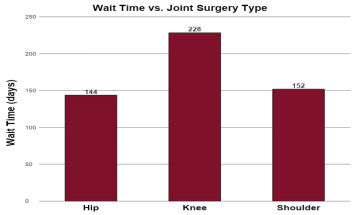




Average distance to surgery hospital for rural patients was **67** miles, and **14** miles for urban patients.

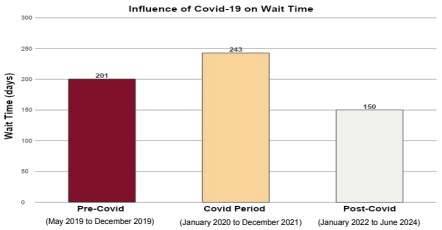
### Insurance




### Joint Type



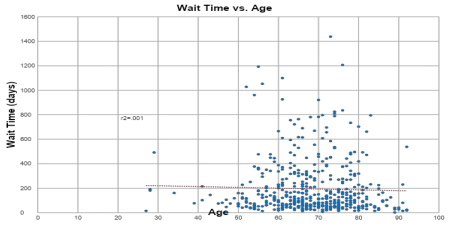

### Covid-19



# Factors Influencing Orthopedic Procedure Wait Times in Minnesota Rural vs. Urban Patients

## Results

### Age




Ages ranged from 27 to 92 years (average age 68).

### Sex


### Race

| | N | Percent (%) |
|---|---|---|
| Asian | 1 | 0.2 |
| Pacific Islander | 1 | 0.2 |
| Black (African American) | 4 | 0.8 |
| Native American/Alaska Native | 10 | 2.1 |
| White | 454 | 95.0 |
| Unreported | 8 | 1.7 |

Wait time versus race was not investigated because the population sample was predominantly white patients, and therefore non-white races were disproportionately underrepresented.

## Conclusions

- This study showed equitable procedure wait times between rural and urban patients, across patient age, and patient sex.
- Patients with Medicare health insurance had the shortest average wait time (185 days), and patients covered through workers compensation had the longest average wait time (303 days).
- Patients who underwent knee replacement surgery had the longest average wait time (228 days), and hip replacement patients had the shortest wait time (144 days).
- Covid-19 epidemic influenced procedure wait times by increasing the procedure wait time compared to Pre-Covid and Post-Covid wait times.

# Factors Influencing Orthopedic Procedure Wait Times in Minnesota Rural vs. Urban Patients

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[1]University of Minnesota Duluth Medical School, [2]Whiteside Institute for Clinical Research

## Acknowledgements

Aspirus St. Lukes Hospital, Department of Orthopedic Surgery

Whiteside Institute for Clinical Research

Karley Respet, Aspirus St. Luke's Research Project Facilitator

Marilyn Odean, MS

### References

1) E. Dawson, M.E. Neufeld. *The impact of wait time on patient outcomes in knee and hip replacement surgery: a scoping review protocol.* Journal of Systemic Reviews. March 4, 2022.
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- Type of joint replacement surgery (hip, knee, shoulder)
- COVID-19 pandemic period
- Patient Age
- Patient sex (male vs. female)

## Conclusions

**Rural vs. Urban**
No statistical difference between urban and rural patient wait times (p=0.484, p=0.714)
No correlation between patient wait times and distance from hospital ($r^2$ = 0.00001).
Average wait time for rural patients was 203 days, and 189 days for urban patients.
Average distance to surgery hospital for rural patients was 67 miles, and 14 miles for urban patients.

**Health Insurance**
Patients with Medicare health insurance had the shortest average wait time (185 days), and patients covered through workers compensation had the longest average wait time (303 days).

**Type of Surgery**
Patients who underwent knee replacement surgery had the longest average wait time (228 days), and hip replacement patients had the shortest wait time (144 days).

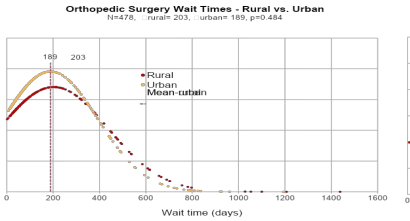
**COVID-19**
Average wait time for patients within the Covid-impacted period (January 2020 to December 2021) was 243 days compared to a pre-Covid period average wait time of 201 days (p=.194) and post-Covid period average wait time of 150 days (p=.00003).

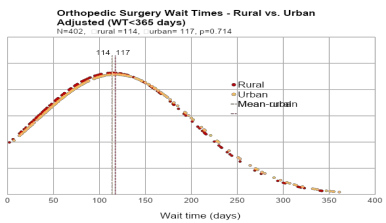
**Age**
Ages ranged from 27 to 92 years old (average age 68). Age showed no correlation to wait time ($r^2$ = 0.001). However, patients between 27-49 years old had the shortest average wait time (130 days), and patients 50-64 had the longest average wait time (213 days).

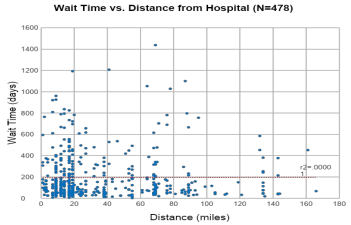
**Sex**
No statistical difference between sex of patient and wait time (p=0.877, males 196 days vs. females 193 days).

## Results

### Rural vs. Urban

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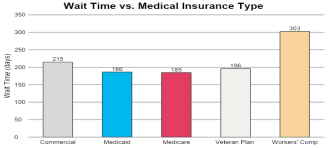


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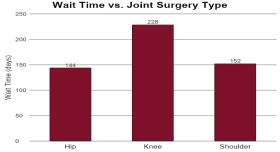


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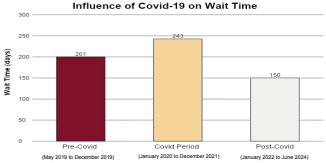
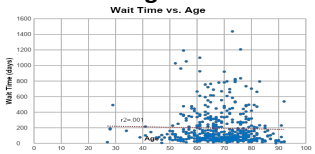
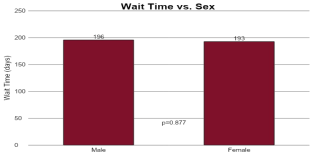



### Age




### Sex




### Race

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# Improving Pain Management in Pediatric Patients Admitted for Traumatic Injuries

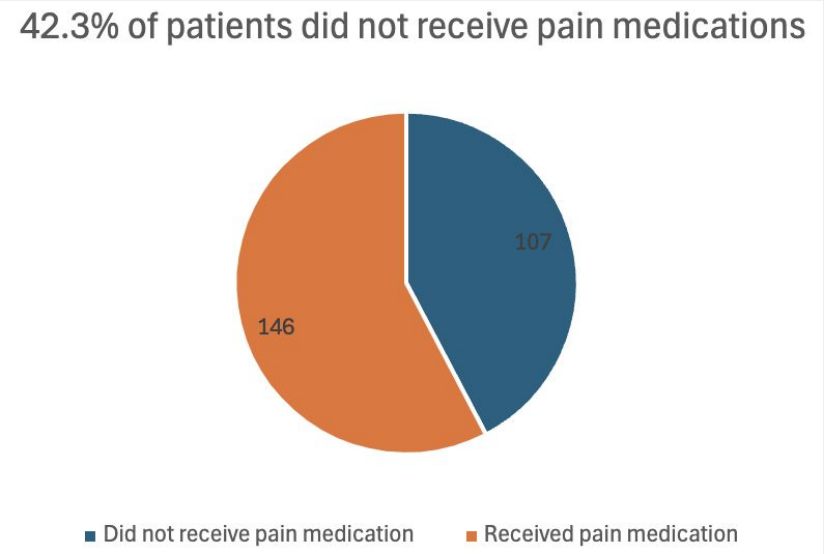
Madeleine Andersen Wagner

# Improving pain management in pediatric patients admitted for traumatic injuries

Madeleine Andersen Wagner, MD
Hennepin Healthcare Emergency Medicine PGY-1

# 2024 Data

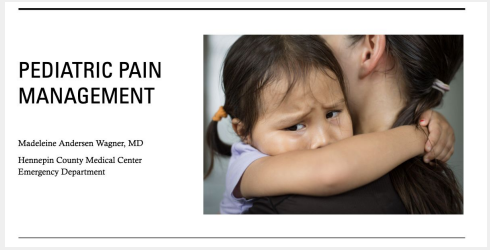
- Hennepin ED admitted a total of 253 pediatric patients with traumatic injuries
- 57.7% of these patients received pain management
- Who didn't get pain management?
    - Kids with...
        - Skull fractures (GCS 14-15)
        - Gunshot wounds
        - Spinal fractures
        - Small bowel injuries
        - Dog bites
        - Fractures
        - Solid organ injuries
        - Lacerations

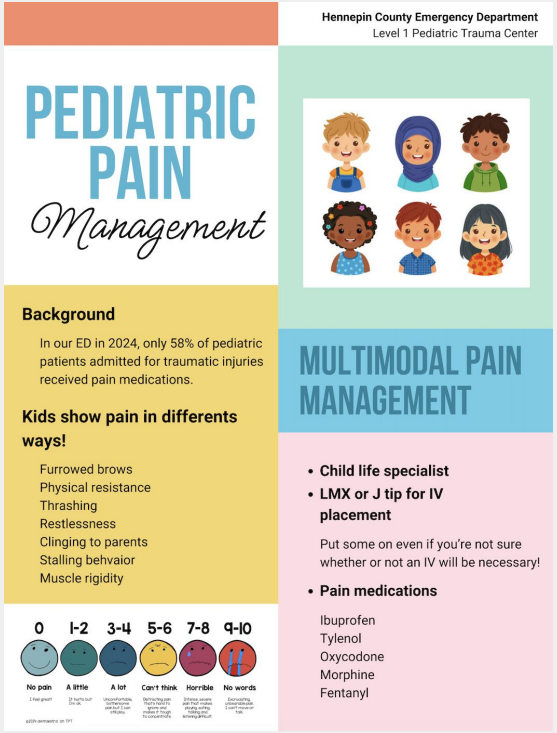


# Interventions

- Physician education and awareness
- Nursing staff awareness in team huddles
- Epic orderset to improve ease of ordering pain management with additional information
- Staff reminder posters

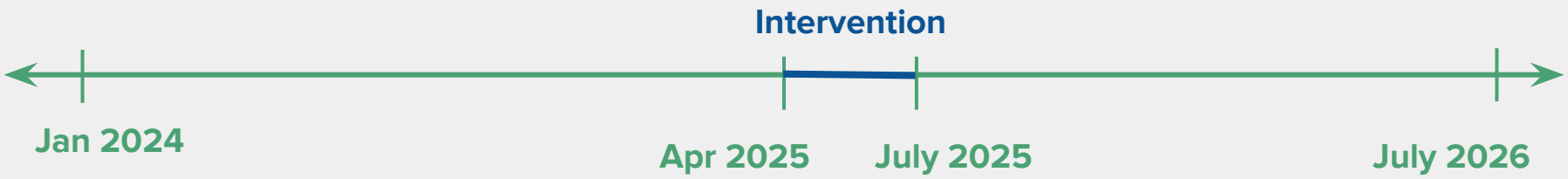

Epic



# Timeline

- Pre-intervention data: Jan 2024 - April 2025
- Interventions: May and June 2025 (incorporating new class of residents)
- Post-intervention data: July 2025 - July 2026




**Goal**: increase pain management from 58% to 75% by July 2026

# Improving pain management in pediatric patients admitted for traumatic injuries

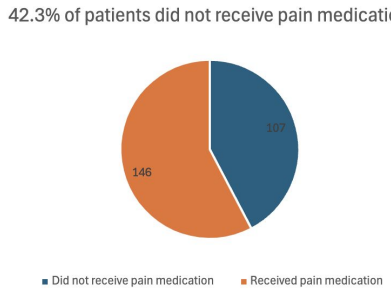
Madeleine Andersen Wagner, MD[1]
[1]Hennepin Healthcare Emergency Medicine Residency

## Background

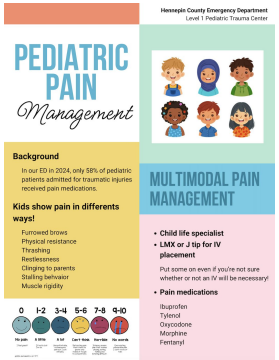
Hennepin Healthcare ED serves as a Level 1 Pediatric and Adult Trauma Center. Pain management is a critical aspect of the care for these patients. Pediatric patients often demonstrate painful distress differently than adults.

## 2024 Data

253 pediatric patients were admitted for traumatic injuries
57.7% received some form of pain management
The kids who didn't included kids with skull fractures, spinal fractures, gunshot wounds, small bowel injury, dog bite, solid organ injury




## Interventions

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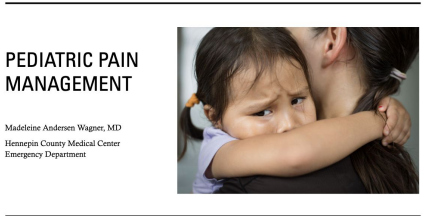


## Timeline

Jan 2024 - Apr 2025: pre-intervention
May - July 2025: initial interventions
July 2025 - July 2026: post-intervention


A year each of pre- and post-intervention data to account for seasonal changes in trauma admissions

## Goal

Following initial interventions and alongside integrated pediatric management education within pediatric sessions, our goal is to reach 75% of pediatric patients admitted for traumatic injuries having received some form of pain management in the emergency department.

Special thanks to Rachel Bienert, Anne Snuggerud, Anna McFarlin, MD