



Children's  
Wisconsin

# Antipyretic Prescriptions and Education at an Emergency Department Visit for Fever in Children 2-24 Months Increase Confidence and Reduce Return Visits

*HARC*

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# Background

- Fever is one of the most common chief complaints of children presenting to the emergency department or in acute care settings, accounting for 20-30% of all pediatric Emergency Department (ED) visits.
- Return visits are also very common within 72-hour period of fever, especially with higher measured temperatures and concern of fever duration and presenting symptoms.

McCaig LF, Nawar EW. National Hospital Ambulatory Medical Care Survey: 2004 emergency department summary. *Adv Data*. 2006;372:1-29.

Li J, Monuteaux MC, Bachur RG. Variation in pediatric care between academic and nonacademic US emergency departments, 1995–2010. *Pediatr Emerg Care*. 2018;34(12):866-71.

# Background

- Ibuprofen and acetaminophen
  - Up to 70% of parents make dosing errors of liquid acetaminophen.
  - Dosing is often not on common over-the-counter medications packaging for under age 2, including ibuprofen and acetaminophen.
- Several other concerns lead to families preferring to visit the ED for fever rather than treating at home:
  - Concerns of medication affordability or availability
  - Lack of instructions and/or education
  - Fever phobia

## Research Question

- Would providing antipyretic medication education and discharge prescriptions for ibuprofen and acetaminophen increase the comfort of families managing fever at home and reduce return visits?

# Methods

- Focus population: Children with fever (chief complaint or billing/discharge diagnosis), ages 2-24 months, non-urgent patients (triage acuity 4-5), English and Spanish.
- 5361 patients visited ED during implementation period (October 2021 through May 2022).
- Quality improvement team of physicians and nurses developed a plan to improve education provided to families regarding acetaminophen and ibuprofen.

# Fever Packet

- Magnets or 1-page sheets portraying pictograms with appropriate weight-based mL dosing with syringes

## Children's dosing for pain or fever

Children's Wisconsin  
Kids deserve the best.

### Liquid medicine for children

#### Acetaminophen

liquid medicine 160mg/5mL  
(Tylenol) give by mouth

**Give every 4-6 hours as needed for fever or pain.** Do not give more than 5 times in a 24-hour period.

Visual shows use of 10 mL syringe. Be sure to check your syringe size.

#### Ibuprofen

liquid medicine 100mg/5mL  
(Motrin or Advil) give by mouth

**Give every 6 hours as needed for fever or pain.**

Do not give to infants less than 6 months unless told by child's doctor.

Directions	Acetaminophen	Ibuprofen
4-8 pounds	1mL	
8-10 pounds	2 mL	2 mL
11-16 pounds	3 mL	3 mL
15-20 pounds	4 mL	4 mL
21-25 pounds	5 mL	5 mL
26-29 pounds	6 mL	6 mL
30-39 pounds	8 mL	8 mL
40-49 pounds	10 mL	10 mL
50-59 pounds	12 mL	12 mL
60-79 pounds	15 mL	15 mL
80 pounds+	20 mL	20 mL

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Weight	Acetaminophen	Ibuprofen
4-7 pounds	1mL	
7-10 pounds	2 mL	2 mL
11-16 pounds	3 mL	3 mL
15-20 pounds	4 mL	4 mL
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#### Ibuprofen

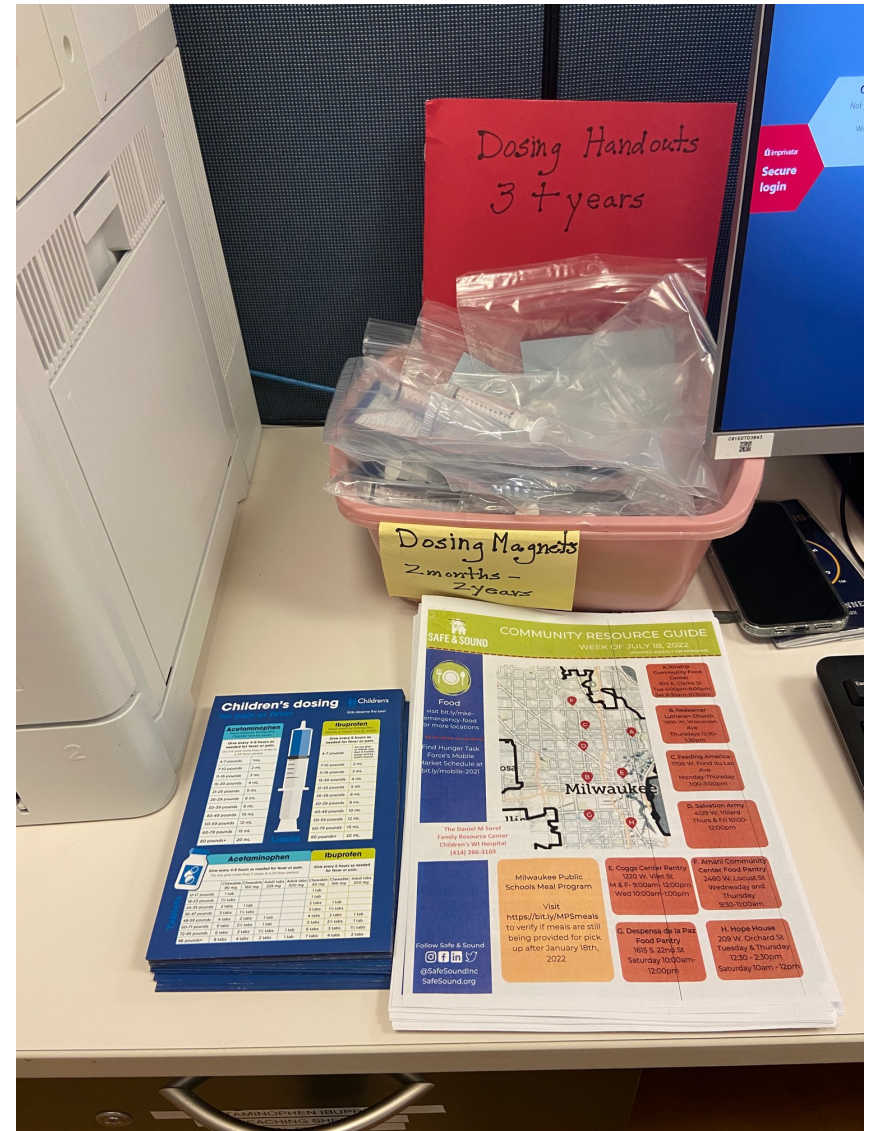
**Give every 6 hours as needed for fever or pain.**

	Chewable 80 mg	Chewable 160 mg	Adult tabs 325 mg	Adult tabs 500 mg	Chewable 50 mg	Chewable 100 mg	Adult tabs 200 mg
12-17 pounds	1 tab				1 tab		
18-23 pounds	1½ tabs				1 tab		
24-35 pounds	2 tabs	1 tab			2 tabs	1 tab	
36-47 pounds	3 tabs	1½ tabs			3 tabs	1½ tabs	
48-59 pounds	4 tabs	2 tabs	1 tab		4 tabs	2 tabs	1 tab
60-71 pounds	5 tabs	2½ tabs	1 tab		5 tabs	2½ tabs	1 tab
72-95 pounds	6 tabs	3 tabs	1½ tabs	1 tab	6 tabs	3 tabs	1½ tabs
96 pounds+	8 tabs	4 tabs	2 tabs	1 tab	7 tabs	4 tabs	2 tabs



# Fever Packet

- Workflow study done to be placed in high discharge workflow areas.
- Given by nurses for discharge education.



# Best Practice Advisory

- Workflow analysis of both nursing and physician workflows for best placement.
  - Several iterations required to get best placement, best nurse questions, and best prescription versions available.
- Alert providers to send antipyretic prescriptions on discharge if families requested so during initial triaging.

BestPractice Advisories

Collapse All

Important (1)

ⓘ Antipyretic/non-opioid analgesic Script Requested

×

⌵

The patient or family has requested a prescription for **both ibuprofen and acetaminophen** upon discharge today.

Order	Do Not Order	🏠 ACETAMINOPHEN OUTPT RX
Order	Do Not Order	🏠 IBUPROFEN OUTPT RX

⚠️ Acknowledge Reason

Contraindicated

✓ Accept



# Methods

- 56 were surveyed before and 101 after
  - Pre-post questionnaires gathered by call-back nurses and compared using Chi-square analysis
- Real Time chart review
  - Percent of 48-hour return visits
  - Statistical process control chart (p-chart)

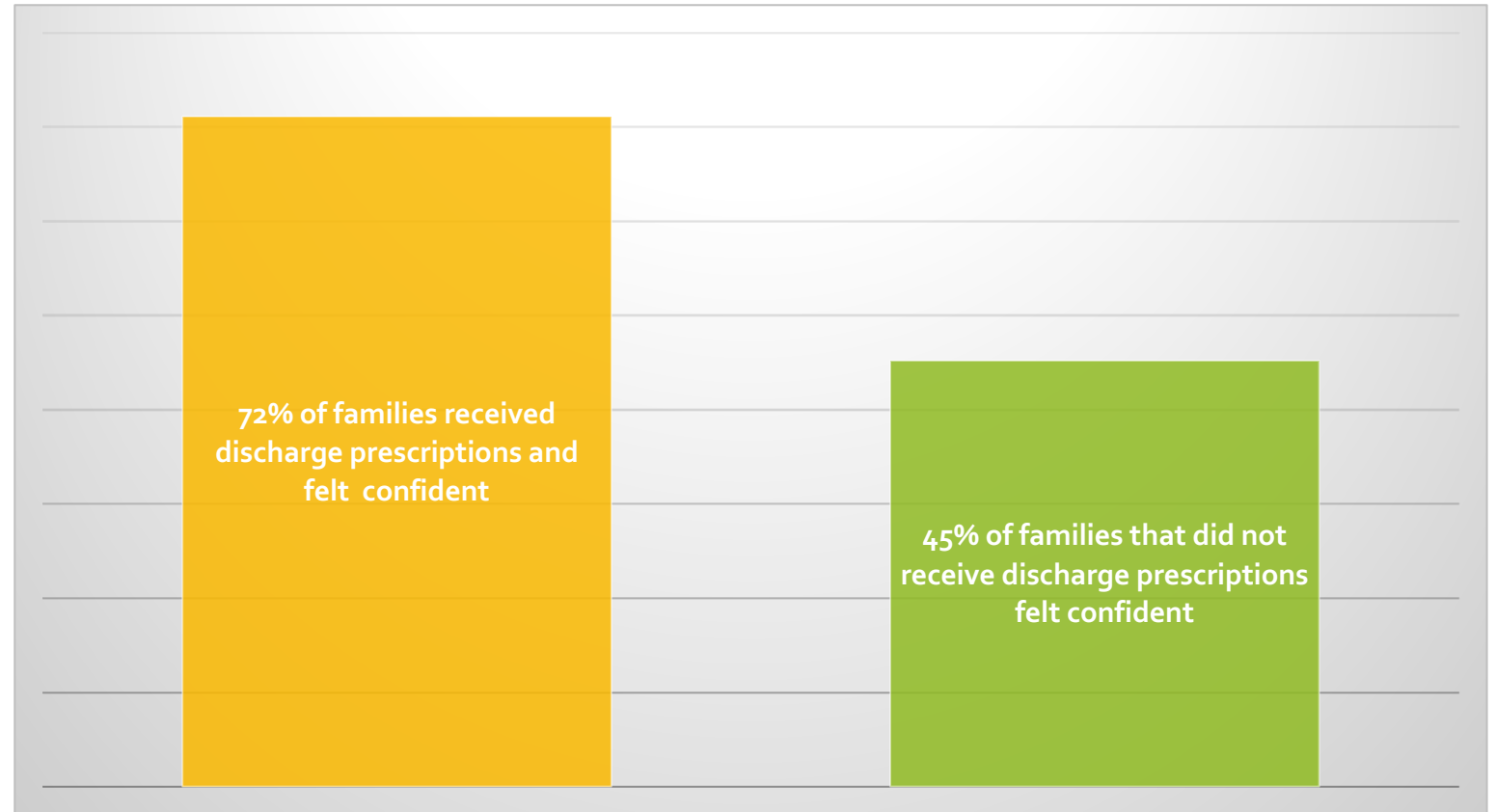
# Results

- Prior to implementation, 45% of families obtained discharge prescriptions, yet 70% of families felt prescriptions were very helpful.
- After implementation, 58% of families obtained discharge prescriptions ( $p = 0.95$ ) and 84% of families feeling that this was helpful ( $p = 0.35$ ).

# Results

- Education during the visit by nursing staff remained similar (69% pre, 72% post,  $p=.85$ ).
- Education at discharge remained similar (59% pre, 54% post,  $p=0.31$ ).

# Results



Families did feel more confident administering antipyretics at home after receiving discharge prescriptions ( $p < 0.01$ )

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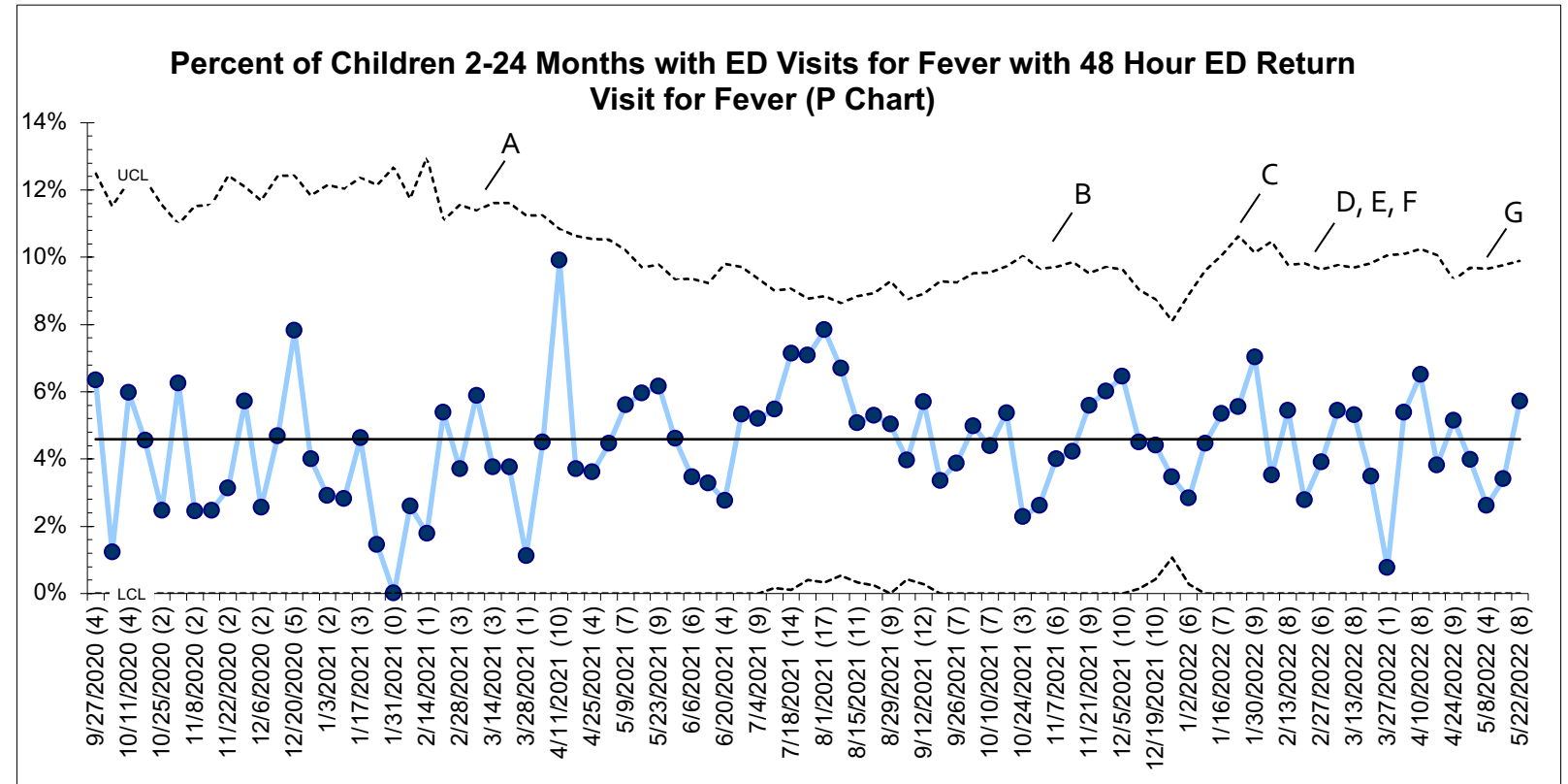


Families did feel more confident administering antipyretics at home after receiving education about antipyretics ( $p < .0001$ )



# Results

- After improvement approaches, 48-hour non-urgent ED return visits did not show a significant change



- A. Improvement team began meeting (March 2021)
- B. Physician/APP Clear Medication Communication CME event or online training (November 10th, 2021)
- C. Acetaminophen/ibuprofen pictogram reference available to distribute (January 18th, 2022)
- D. Acetaminophen/ibuprofen triage request, provider alert to prescribe (February 12th, 2022)
- E. Nurses Online Training Clear Medication Communication (by February 28th, 2022)
- F. Meducation Pilot Roll-out (March 1st, 2022)
- G. Meducation Full ED Roll-out (May 17th, 2022)

# Conclusions

- Parents felt significantly more confident after education at the visit, as well when discharge prescriptions and information with weight-based pictograms of dosing were provided.
- These interventions are simple and cost effective- total cost was \$1,400 for 2,000 magnets.

# Implications

- Providing families with simple cost-effective tools and education can lead to a significant decrease in return ED visits as confidence increases for home administration.
- This is especially for patients less than or equal to two years of age where appropriate dosing is not always available on OTC labels and fever phobia is common.

## Future Directions

- Collaborate with nursing on how to improve rates for education during visit and at discharge- ex: BPAs for nursing during review of medication history, or prior to printing of after-visit summary.
- Obtain further funds to create more magnets and packets.

# Acknowledgments

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Questions?