Reducing Antibiotic Usage in Pediatric Otitis Media with a Symptom Management Based Algorithm

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PROBLEM STATEMENT

- Antibiotics are the standard of care for treating mild to moderate Otitis Media (OM)
- 24% of pediatric visits annually are treated with antibiotics for OM[1]
- 8.7 million antibiotics prescribed annually[1]
- 97% of patients at the targeted facility received antibiotics for OM
- Complications from using unnecessary antibiotics such as *Clostridium difficile*, Irritable Bowel Syndrome (IBS), and antibiotic resistance

PROJECT PURPOSE

- **Purpose**: Develop and implement a symptom-based management algorithm to treat mild to moderate OM for utilization in the clinic
- **Aim**: Decrease the usage of antibiotics for treatment of mild to moderate OM in pediatric patients
- **Clinical Question**: In pediatric patients with uncomplicated otitis media, is watchful waiting with a protocol for symptom management compared to standard of care able to reduce the use of antibiotic therapy over a three-month period?

MODEL/NURSING THEORY

- The FADE Model was selected to guide the evidence-based practice project
- Pender's Health Promotion Model
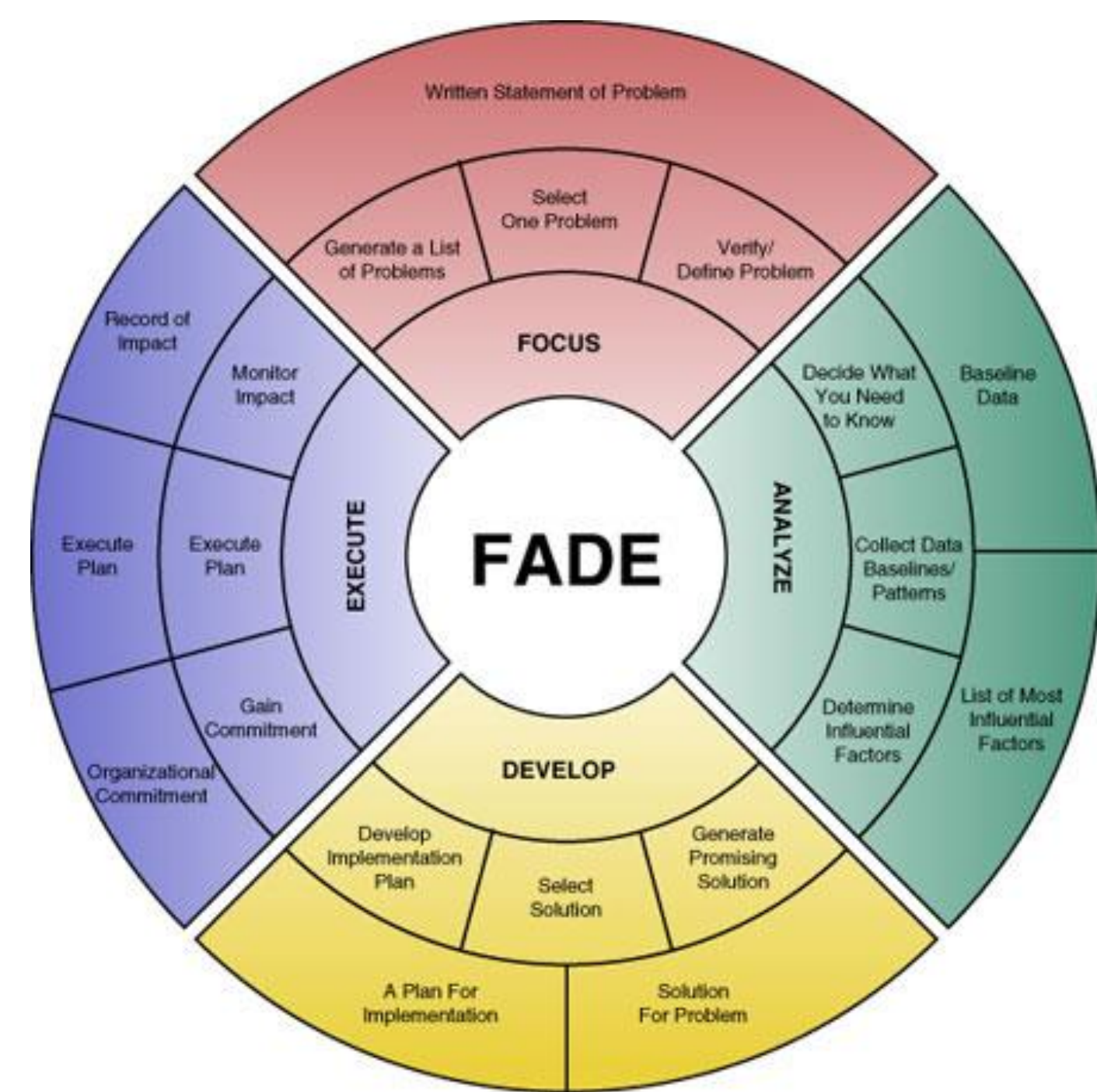
METHODS

Subjects (Participants)

- Pediatric patients between 6 months and 17 years 364 days old seen and treated for mild to moderate OM, temperature < 39 degrees Celsius, mild to moderate otalgia, a bulging tympanic membrane and/or erythema
- Exclusion criteria: Less than 6 months or greater than 18 years of age, a temperature > 39 degrees Celsius, severe otalgia, or a ruptured tympanic membrane

Setting

- Southwest Florida Nurse Practitioner run, rural pediatric after-hours clinic

Instruments/Tools

- Tools include spreadsheets and the symptom management algorithm
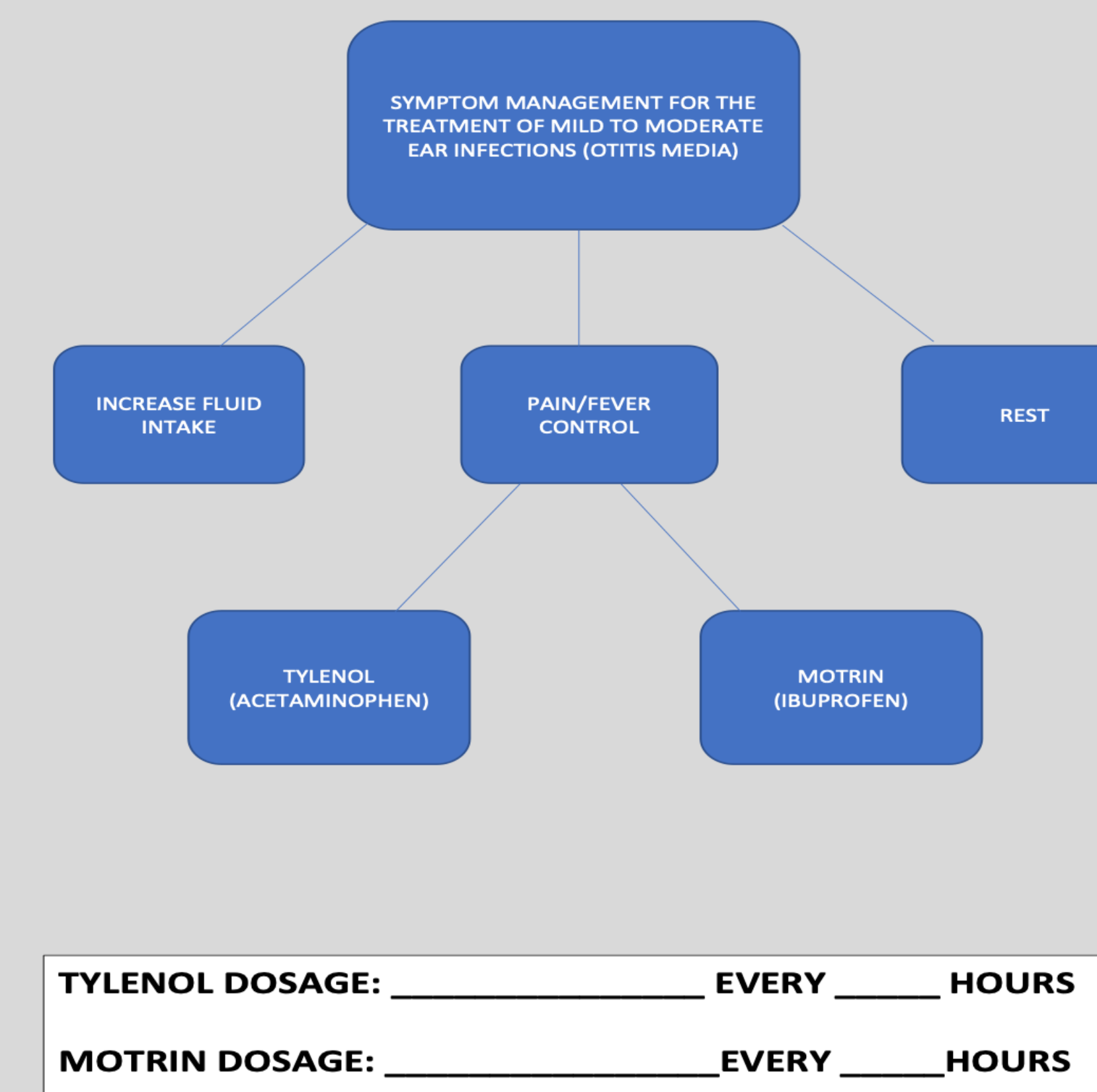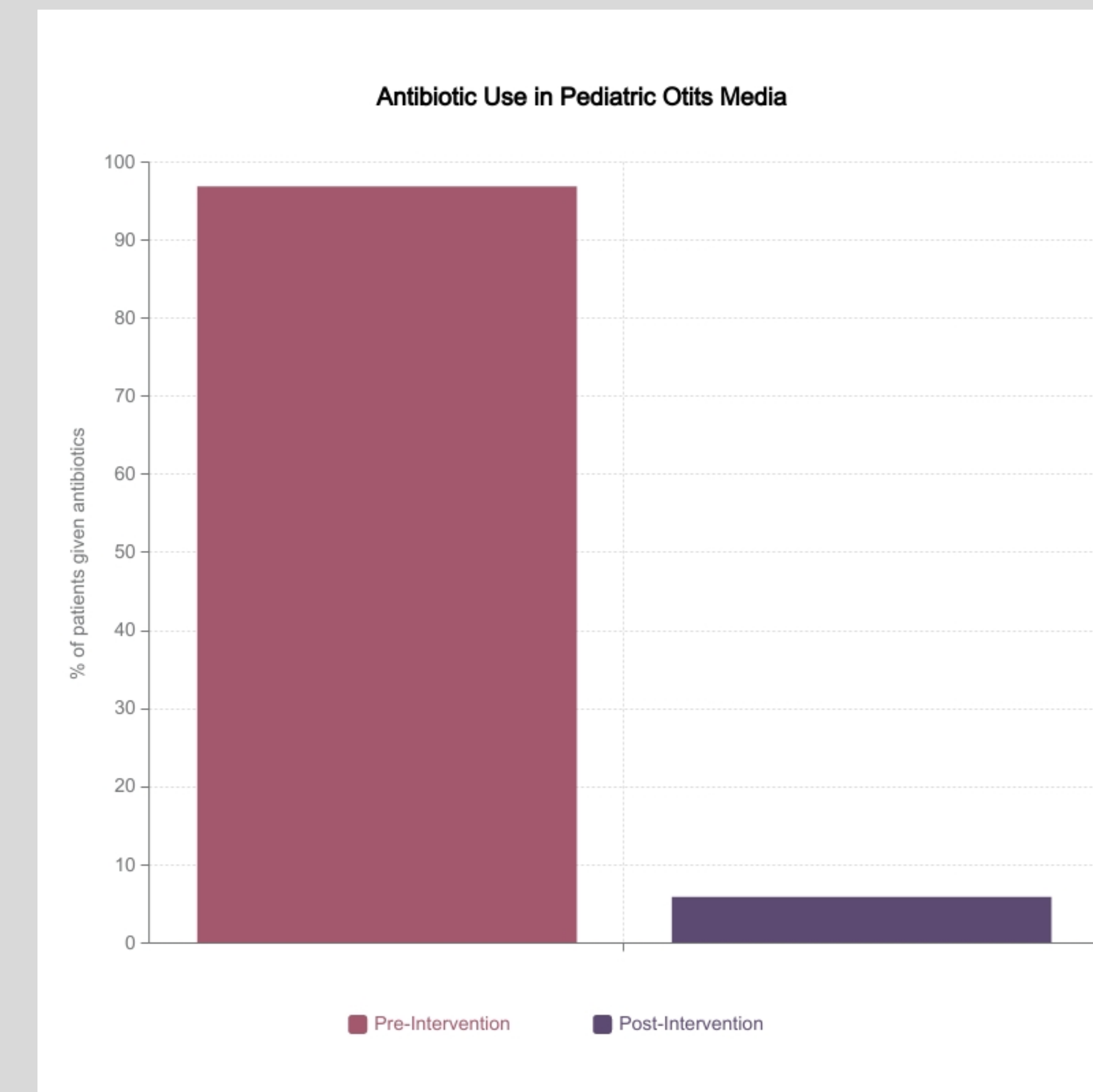
Intervention and Data Collection

- Retrospective chart review three months prior to implementation
- Development of a symptom management algorithm
- Implementation of symptom-based algorithm for three months with data collection of intervention utilized

RESULTS

- 6% of patients required antibiotic therapy post-intervention
- 13 patients did not qualify for the algorithm due to severity of symptoms
- Chi-Square Statistic: 165.7692
- Significance level: p<0.0001

Antibiotic Use in Pediatric Otitis Media

(Bar chart: Pre-Intervention ~97%, Post-Intervention ~6%; y-axis "% of patients given antibiotics")

SYMPTOM MANAGEMENT FOR THE TREATMENT OF MILD TO MODERATE EAR INFECTIONS (OTITIS MEDIA)

- INCREASE FLUID INTAKE
- PAIN/FEVER CONTROL
  - TYLENOL (ACETAMINOPHEN)
  - MOTRIN (IBUPROFEN)
- REST

TYLENOL DOSAGE: _____ EVERY _____ HOURS

MOTRIN DOSAGE: _____ EVERY _____ HOURS

DISCUSSION

- Antibiotic reduction was achieved with a reduction in 91% of patients using antibiotic therapy
- Parents engagement and willingness to adapt were beneficial to the success of the algorithm[2]

Limitations

- Rural clinic, limit of patients served
- Telehealth vs In person visits

IMPLICATIONS FOR ADVANCE PRACTICE NURSING

- Reduction of antibiotic usage for the treatment of mild to moderate OM
- Reduce future visits for OM, allowing additional time to see other patients

SUSTAINABILITY

- Simple process change to produce positive patient outcomes related to unnecessary antibiotic usage
- Process becomes routine once adopted by providers

REFERENCES

SCAN ME

Implementation of a symptom-based algorithm **reduces antibiotic usage** in pediatric patients for the treatment of mild to moderate otitis media.

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