

Reducing Inappropriate Antibiotic Use in Pediatric Patients with Upper Respiratory Infections

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Purpose

The purpose of this project was to enhance knowledge and confidence related to evidence-based management of pediatric upper respiratory infections (URIs) and antibiotic stewardship among second-year Family Nurse Practitioner (FNP) students enrolled in a Doctor of Nursing Practice (DNP) program.

Available Knowledge & Rationale

Provider Education

- Teach providers when antibiotics are needed and when they are not.
- Give feedback to help improve prescribing.
- Encourage use of treatment guidelines.

Parent Education

- Teach families when antibiotics are helpful.
- Explain the risks of using antibiotics when they are not needed.
- Use shared decision-making to support the best treatment.

Technology

- Use EHR tools to guide antibiotic decisions.
- Provide reminders and treatment recommendations.
- Track prescribing to improve care.

Antibiotic Stewardship

- Combine education, feedback, family involvement, and technology.
- Follow CDC antibiotic stewardship recommendations.
- Help reduce unnecessary antibiotic use and antibiotic resistance.

Rationale: Health Belief Model Framework guided this presentation



Methods

Context

- Midwestern College of Nursing and Allied Health
- Online Maternal and Children's Nursing course
- 33 second-year DNP-FNP students
- Students preparing to care for children in primary care
- Over 400 clinical hours completed before the project
- Program focuses on evidence-based care, leadership, and quality improvement

Intervention

- One 40-minute online learning module
- Completed through the learning management system (LMS)
- Taught when antibiotics are needed
- Explained the difference between viral and bacterial infections
- Reviewed treatment guidelines for children
- Covered symptom relief without antibiotics
- Explained the risks of antibiotic overuse and resistance
- Taught ways to talk with caregivers about antibiotics
- Goal: Improve students' knowledge, confidence, and decision-making about antibiotic use in children

Study of Intervention

Knowledge and Confidence were measured using a pre-, post, and 4-week post study design.

Measure

- 10-question survey
- 5 knowledge questions, each question worth 1 point for a total of 5 points
- 5 confidence questions, scores range from 1= not at all certain/satisfied to 5= absolutely certain/satisfied with a total score range of 5-25
- Used a validated confidence tool (C-Scale)
- Measured confidence in antibiotic use and caring for children with URIs
- Measured knowledge of antibiotic stewardship and URI treatment
- Included multiple-choice, true/false, and rating-scale questions
- Higher scores showed greater confidence and knowledge

Analysis

- Compared surveys before, after, and 4 weeks after the module
- Used measures of central tendency means and standard deviations.
- Measured changes in:
 - Antibiotic stewardship knowledge
 - Confidence in making treatment decision
- Due to limited participation, descriptive statistics weren't run on the 4-week post-intervention survey scores, and inferential statistics could not be utilized to compare the surveys.

Results

Confidence Outcomes:

Pre-intervention: **M = 15.0** (SD = 1.41, n = 2)

Post-intervention: **M = 18.5** (SD = 0.71, n = 2)

Improvements observed across all five confidence domains

Knowledge Outcomes:

Mean knowledge scores increased following the intervention

Pre-intervention: **M = 4.5** (SD = 0.71, N = 2)

Post-intervention: **M = 5** (SD = 0, N = 2)

Discussion

• The educational module improved students' knowledge and confidence about antibiotic use. Low survey participation limited the strength of the findings. Future studies should: Include more students from multiple schools

- Use clinical skills assessments
- Measure long-term knowledge and prescribing practices

Conclusions

Antibiotic stewardship education improved FNP students' knowledge and confidence in pediatric URI management

Sustainable intervention:

- Low-cost
- Scalable
- Easily integrated into graduate nursing curricula

Practice Implications:

- Add education into FNP training
- Reinforce evidence-based prescribing and caregiver communication strategies

Future Directions:

- Expand to multiple institutions/DNP programs
- Evaluate clinical outcomes and prescribing behaviors over longer time periods