

# Antibiotic Stewardship in Pediatric Primary Care: A Quality Improvement Project

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## Introduction

Non-adherence to management guidelines developed for antibiotic use in the pediatric primary care setting may contribute to antibiotic resistance.

## Purpose

The purpose of this quality improvement (QI) project was to improve provider adherence to guidelines developed by the CDC and the AAP for antibiotic use in the treatment of viral upper respiratory tract infections (URTIs), sinusitis, acute otitis media (AOM), and streptococcal pharyngitis at a pediatric primary care practice.

## Aims

- 1) Increase provider knowledge of evidence-based practice AAP and CDC guidelines for URTIs, sinusitis, AOM, and streptococcal pharyngitis during a 30-minute in-person training session.
- 2) Increase provider confidence regarding educating parents on appropriate use of antibiotics during a 30-minute in-person training session.
- 3) Increase adherence to CDC and AAP guidelines for treating URTIs, sinusitis, AOM, and streptococcal pharyngitis for providers over a 12-week period.

## Methods

**Design:** Single pre- and post-test study design and retrospective chart review.

## Setting and Sample:

- 1) A single pediatric primary care practice in an urban setting.
- 2) Three pediatric providers.
- 3) Inclusion criteria: work full time at the practice, able to participate in the training and employed during the time period of retrospective chart review for the baseline and post-intervention data (June 2018 through February 2019).

## Interventions

- One time provider education session.
- Rate of adherence reporting.

## Measures

### Pre and Post-Tests:

- Knowledge survey: Adapted with permission from the Antimicrobial Stewardship Knowledge, Attitudes, and Practices (KAP) survey (Salsgiver, et al., 2018).
- Confidence scale: Adapted with permission from a nurses' confidence in delivering diabetes education survey created by Stoffers, & Hatler (2017).

**Rate of Adherence:** Reports were filtered by International Statistical Classification of Diseases and Related Health Problems (ICD-10) diagnosis, encounter date signed, and care team. The co-investigator reviewed the management plan, diagnosis and subjective/objective data to determine adherence.

## Analysis Plan

Aims one and two were analyzed using the summary scores and descriptive statistics from the pre- and post-test knowledge and confidence surveys. Aim three was analyzed by comparing baseline rates of adherence to implementation rates of adherence.

## Results

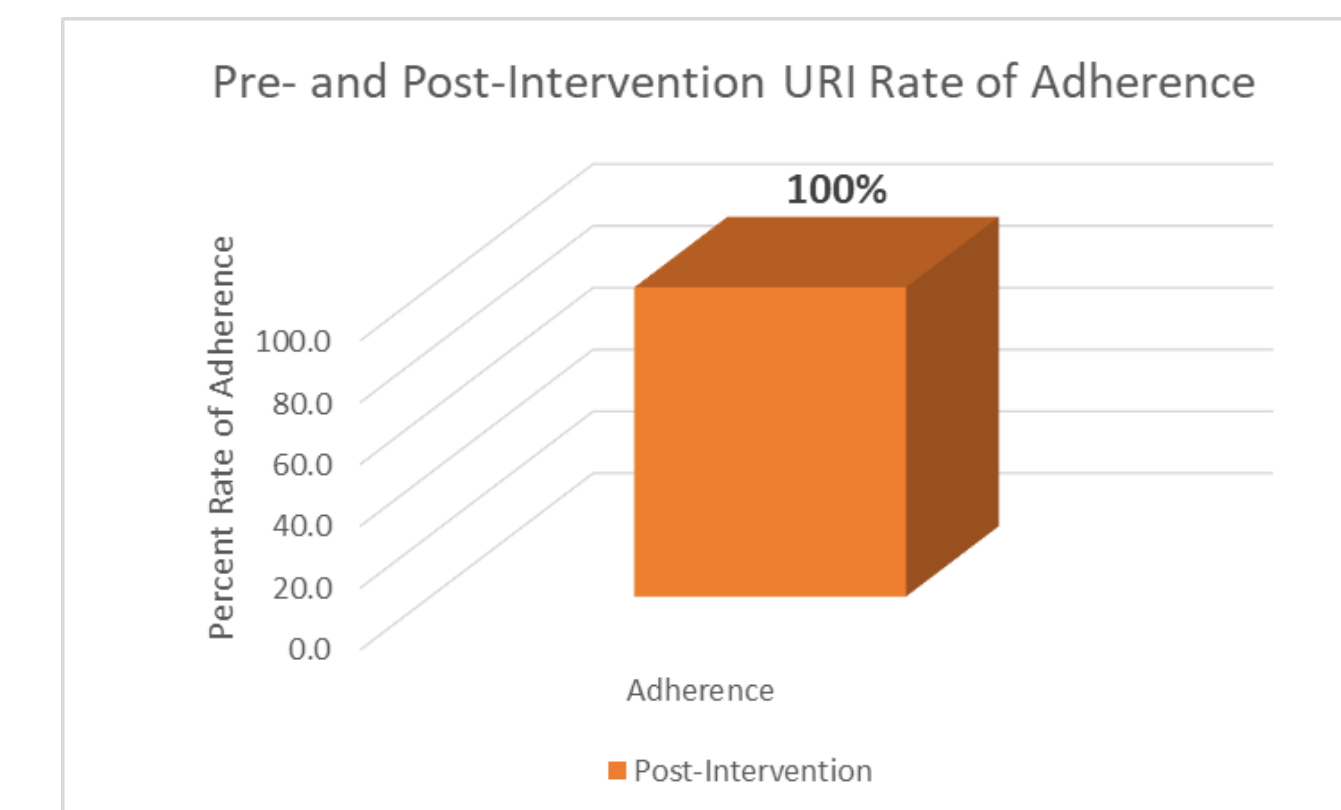
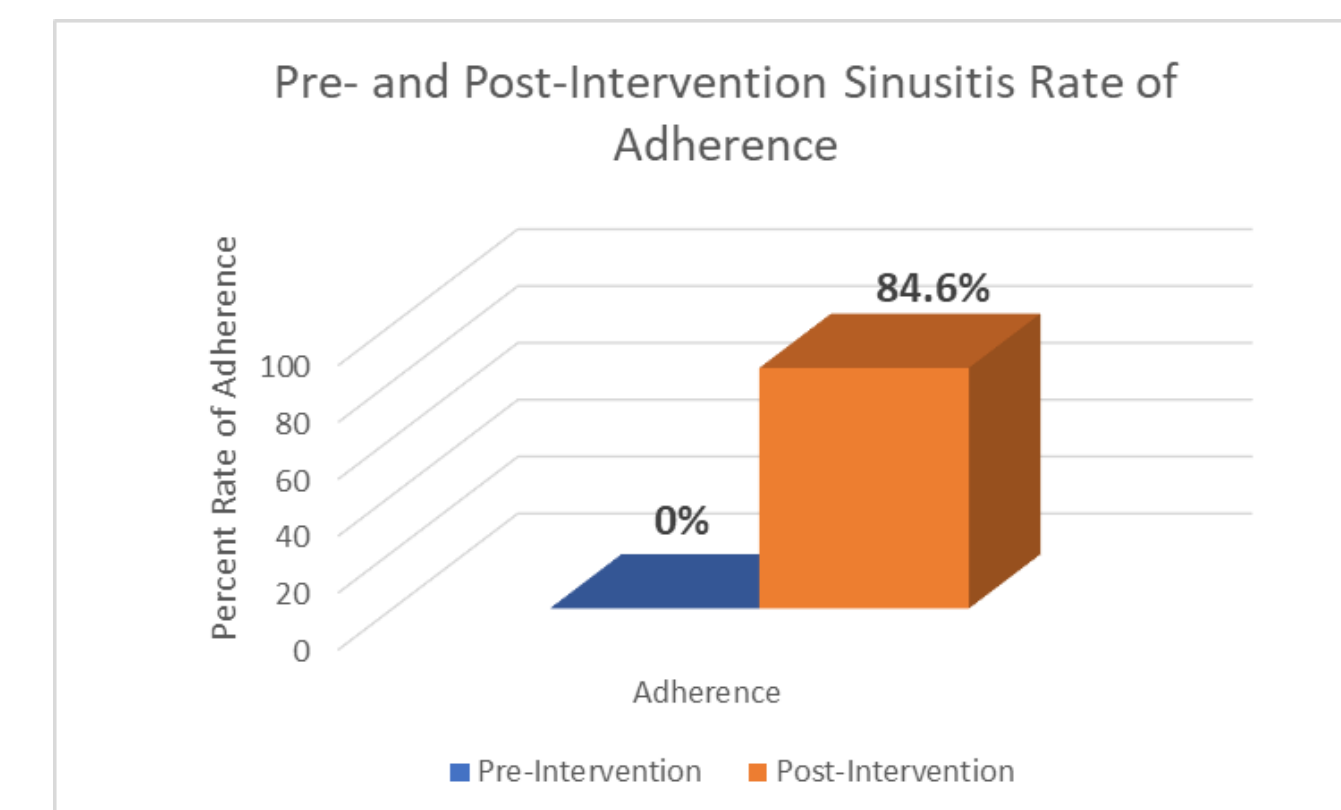
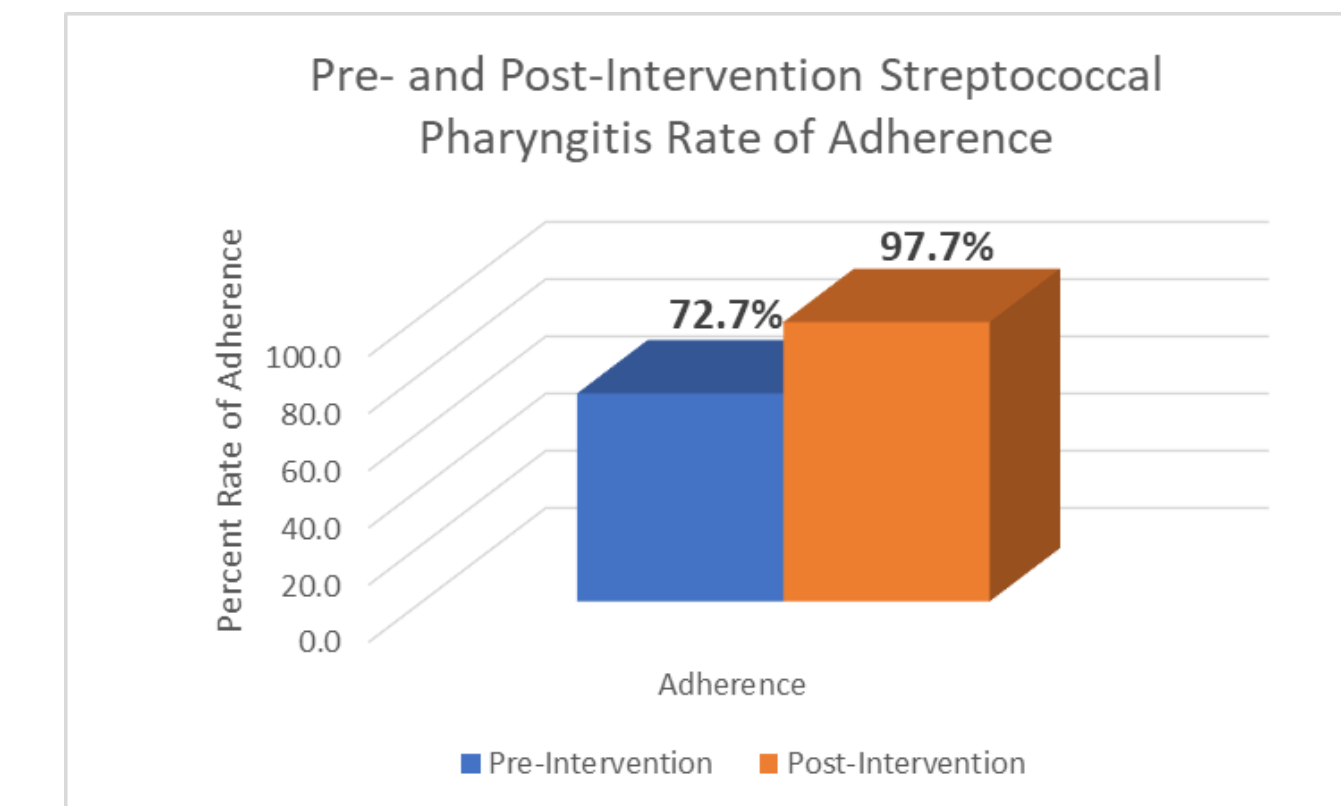
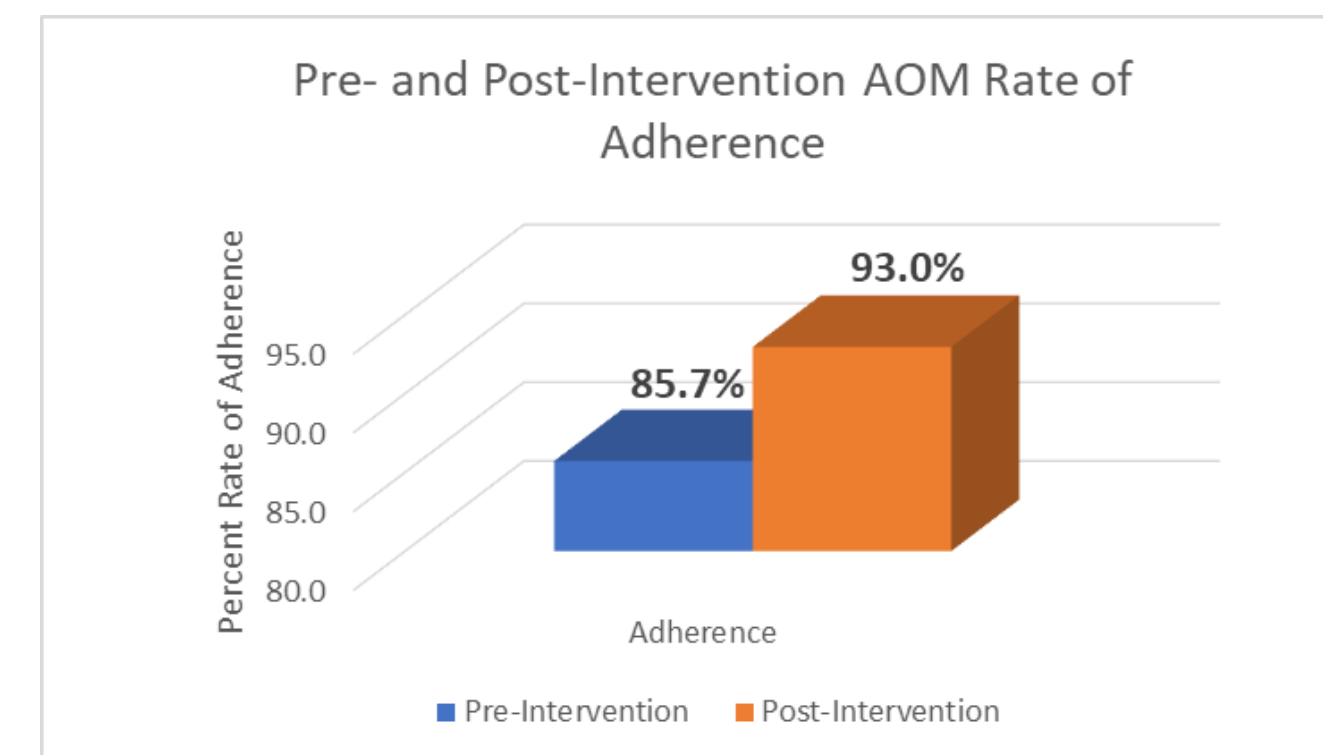
Sample Characteristics: Three pediatric providers agreed to participate. Provider credentials included two board-certified pediatric nurse practitioners (NPs) and a physician assistant (PA). All providers were female with ages between 25 to 35 years. Years of experiences varied from nine years to less than one

### Aims 1 and 2

	Pre-and Post-Survey Results (n=3)	
Mean (SD)	Pre	Post
Knowledge	30.0 (2.6)	34.3 (4.6)
Confidence	11.7 (1.5)	11.7 (1.5)

### Aim 3

For the 12-week period June through August 2018, the overall adherence rate was 67% and 96% post-intervention. The diagnosis URI was not found in the pre-intervention data but was 100% in adherence to guidelines post-intervention



## Conclusions

This QI project demonstrated there is still need for continued education and the application of interventions to improve the use of antibiotics in pediatric primary care to reduce the risks that contribute to antibiotic resistance. More research is needed to identify the most effective interventions that would be generalizable to a variety of settings varying in size, location, and resources. The results of this study were encouraging and provided evidence that a multi-faceted educational intervention can change provider prescribing practices for antibiotics use.

## References

- Salsgiver, E., Bernstein, D., Simon, M. S., Eiras, D. P., Greendyke, W., Kubin, C. J., ... & Jia, H. (2018). Knowledge, attitudes, and practices regarding antimicrobial use and stewardship among prescribers at acute-care hospitals. *Infection Control & Hospital Epidemiology*, 39(3), 316-322.
- Stoffers, P. J., & Hatler, C. (2017). Increasing Nurse Confidence in Patient Teaching Using Motivational Interviewing. *Journal for Nurses in Professional Development*, 33(4), 189-195.



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