Antibiotic Stewardship to Improve Antibiotic Prescribing for Acute Respiratory Tract Infections in Primary Care

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Background

- Unnecessarily antibiotic prescriptions for ARTIs in primary care account for 30% of cases in the United States³
- This highlights the significance of an antibiotic stewardship education program for providers that will improve antibiotic prescribing and use and, thus, patient health outcomes

Purpose & Aims

- To determine whether an evidence-based antibiotic stewardship education program and toolkit improve provider knowledge regarding antibiotic prescribing practices and reduce unnecessary antibiotic prescriptions in a primary care setting

Aim 1

- Increase provider knowledge about safe antibiotic prescribing for patients with ARTIs

Aim 2

- Decrease antibiotic prescription rates for viral ARTIs

Aim 3

- Determine the feasibility of a 12-week evidence-based antibiotic stewardship education program

Methods

- Design: Pre and post-test design
- Setting: Primary care clinic
- Sample: Convenient sample of six providers
- Measure/Procedure

Baseline Collection

- Provider knowledge (Modified KAP survey)
- Abx Rx rate (44 patients chart review)

Educational Intervention

- Provider knowledge (Modified KAP survey)
- Abx Rx rate (44 patients chart review)
- Feasibility (FIM survey)

Outcome Data Collection

- Provider knowledge (Modified KAP survey)
- Abx Rx rate (44 patients chart review)
- Feasibility (FIM survey)

Demographics

Baseline Characteristics of Provider Participants

<table>
<thead>
<tr>
<th>Title</th>
<th>Sex</th>
<th>Age</th>
<th>Highest Level of Education</th>
<th>Years of Experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD</td>
<td>20%</td>
<td>60%</td>
<td>40%</td>
<td>20%</td>
</tr>
</tbody>
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Results

Aim 1

- Total score for provider's antibiotic knowledge increased by 4 in median
- Wilcoxon Signed Rank Test revealed statistically significant improvement in provider knowledge (Z = -2.060, p = .039)

Aim 2

- 4.5% decrease in Abx Rx rate for viral ARTIs among patients \( X^2 (1, N=88) = 3.585, p = .05 \)
- Changes to provider's decision: 43% decrease in unnecessary Rx for viral ARTIs by the provider
  - Mixed effect logistic regression model
    - OR = 0.57, 95% CI [0.15–2.12], \( p = .4 \)
- No statistically significant relationship between educational intervention and Abx Rx rates

Discussion/Limitations

- Strength
  - Comprehensive approach of intervention w/ multifactorial strategies

- Limitations
  - Small Sample Size
    - May not be generalizable to other populations
  - High attrition (i.e., 1 attrition =16%)
  - Low degree of anonymity

Conclusion

- This project confirms on previous research on the efficacy of a multifaceted antibiotic stewardship educational intervention
- The project was found to be effective and highly feasible
- Future studies on a larger scale can build upon this to help establish antibiotic stewardship as a standard care practice for the treatment of ARTI patients and encourage appropriate antibiotic use.

References