Fall 2016

Shared Decision Making for the Appropriate Use of Antibiotics for Respiratory Tract Infections

Kristina Blyer
James Madison University

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Shared Decision Making for the Appropriate Use of Antibiotics for Respiratory Tract Infections

Kristina Blyer

A research project submitted to the Graduate Faculty of

JAMES MADISON UNIVERSITY

In

Partial Fulfillment of the Requirements

for the degree of

Doctor of Nursing Practice

School of Nursing

December 2016

FACULTY COMMITTEE:

Committee Chair: Dr. Maria deValpine

Committee Members/Readers:

Dr. Richard Ayers

Dr. Patty Hale
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Abstract

**Objective**- Determine the effectiveness of shared decision making to 1) increase decisional comfort with the appropriate use of antibiotics for respiratory tract infections and 2) maintain antibiotic prescribing rates at current levels.

**Participants**- English speaking college students age 18 and over diagnosed with a respiratory tract infection in the general medical clinic of a university health center from August 31, 2015-May 6, 2016.

**Methods**- Pre- and post-intervention surveys used to measure decisional conflict of students. Intervention included staff training in shared decision making and the use of a decision aid in clinical practice.

**Results**- Students who received routine care were 2.2 times more likely to experience decisional conflict than students whose care included the decision aid. Antibiotic prescribing rates were maintained at pre-intervention levels.

**Conclusions**- Use of a decision aid show promise to increase comfort with the appropriate treatment of respiratory tract infections while maintaining current prescribing rates.
**Introduction and Background**

The World Health Organization (2012) reports that antibiotic resistance is a global health emergency which poses a serious threat to modern medicine; making the inability to treat common illnesses and injuries no longer a fantasy, but a real possibility. Overuse of antimicrobials correlates directly with antibiotic resistance within a population (World Health Organization, 2012). Viral respiratory tract infections are a major cause of antibiotic use, even though there is no evidence to support their use for these infections (Kenealy & Arroll, 2013; World Health Organization, 2012). In September 2014 the White House released the National Strategy for Combating Antibiotic-resistant Bacteria. Goal one of this strategy calls for the cooperation of providers and patients to strengthen antibiotic stewardship.

Numerous interventions have been studied to decrease the inappropriate use of antibiotics for respiratory tract infections; however, no one intervention has been identified as best practice (Tonkin-Crine, Yardley, & Little, 2011). The idea of improved provider-patient communication and patient centered care, in the form of shared decision making, has been gaining attention as a possible intervention (Briel et al. 2006; Elwyn et al., 2012; Haltiwanger et al. 2001; Welschen et al., 2004; Zoorob et al., 2001). Shared decision making is defined as the interactional exchange of information and deliberation between a health care provider and patient (Légaré et al., 2013b). Traditional provider patient interactions are passive in that the provider makes the decision without input from the patient (Elwyn et al., 2012; Légaré et al., 2013a). Shared decision making is a process which encourages patients to move from the traditional passive interaction to a collaborative interaction.( Légaré et al., 2013a). The process includes providing the
patient with the best evidence regarding the risks and benefits of their condition and exploring the patient’s values and perceptions (Elwyn et al., 2012; Légaré et al., 2013a).

**Review of Literature**

Evidence based guidelines for the treatment of respiratory tract infections are readily available to providers; however, biomedical aspects are not the only factors that affect provider’s decisions to prescribe antibiotics. Patient perceptions and expectations are often the reason unnecessary antibiotics are prescribed (Altiner et al., 2007; Briel et al., 2006). While education is important, a focus should be placed on provider-patient communication to effectively decrease the use of antibiotics for respiratory tract infections (Altiner et al., 2007).

College health providers are not immune to challenges related to the ethical treatment of viral respiratory tract infections and often deal with pressures to prescribe unnecessary antibiotics for students. In addition, college health centers are in a unique position to educate students regarding the appropriate treatment of respiratory tract infections, promoting life-long stewardship of antibiotics (Haltiwanger et al., 2001; Zoorob et al., 2001). The idea of improved provider-patient communication, including shared decision making, shows promise for use with college students. Young adults have been found to prefer, and even expect, shared decision making when consulting with health care providers (Alden, Merz, & Akashi, 2012; Briel et al., 2007). In addition, an increase in education level correlates with an increase in preference for shared decision making (Briel et al., 2007).
A systematic literature review evaluating the use of shared decision making for respiratory tract infections in college students was completed during fall 2014 and serves as the background of evidence for this project. The manuscript of this systematic review was published in the May-June 2016 issue of the Journal of American College Health (Blyer and Hulton, 2015).

**Problem Statement**

The unnecessary use of antibiotics for viral respiratory tract infections contributes to antibiotic resistance. Patient perceptions and expectations often lead to the unnecessary use of antibiotics. The question to be answered from the implementation of this project is, “Does the use of shared decision making within the college health setting increase student decisional comfort with the ethical use of antibiotics while maintaining low antibiotic prescribing rates for viral respiratory tract infections?”

**Theoretical Model**

The Ottawa Research Institute (2014) five step process for implementation of a shared decision making intervention was used as a guide for the implementation process. This process is based on the Knowledge to Action Cycle (McDavid, Huse, and Hawthorn, 2013) and includes the following steps:

1) Identify the decision;
2) Find patient decision aids;
3) Identify barriers and explore ways to over them;
4.1) Implement decision aids and support;
4.2) Provide training; and
5) Monitor use and outcomes.
See Figure 1 for a depiction of a logic model for this project.

**Project Description**

The project was conducted as a quality improvement project implementing shared decision making into a college health clinic. Implementation included the use of the decision aid, “Taking an Antibiotic or Not? Acute Respiratory Tract Infections (ARI)” by Labrecque, LeBlance, Légaré, and Cauchon (2010). Permission to use the aid was received in writing from the author.

**Objectives**

Objectives for this project include:

1) To increase student comfort with the appropriate use of antibiotics for respiratory tract infections.

2) To maintain antibiotic prescribing rates at current rate or lower.

The vision of the University Health Center’s strategic plan is, “To be the model for translating health care and health education into increased student engagement and learning.” One objective of this plan is to, “Ensure that our educational programs include intentional opportunities for students to learn ethical decision-making skills.” The objectives for this project directly related to the organizations strategic plan by engaging students in learning about their health and ethical decision making skills related to the appropriate, or ethical, use of antibiotics for respiratory tract infections.

Pre-intervention prescribing rates for respiratory tract infections in the Health Center’s General Clinic are around 33%. According to a Cochrane Review by Coxeter et al. (2015) shared decision making was shown to decrease prescribing rates from 47% to
29%. Briel et al. (2006) found that shared decision making did not decrease prescribing rates for providers with already low prescribing rates. An initial assessment of perceptions related to shared decision making identified provider concerns that shared decision making would increase prescribing rates. Considering the fact that the providers already have relatively low prescribing rates, shared decision making is not shown to decrease low prescribing rates, and the provider’s concerns about increased prescribing, objective two, was focused on maintaining prescribing rates at current levels and not necessarily on lowering prescribing rates.

**Project Design**

**Setting and Resources**

The project took place in the General Medicine Clinic at the James Madison University Student Health Center located in Harrisonburg, Virginia. The University has a population in excess of 20,000 students and the health center provides in excess of 30,000 student visits per year. Respiratory tract infections account for approximately 5000 student visits per year. Funding for the project was provided through the James Madison University Student Affairs Innovation Grant.

**Study Population**

Four providers from the General Medicine Clinic, including two physicians and two nurse practitioners, agreed to participate in the study. Project participants included English speaking patients 18 years and older who made an appointment with participating providers at the University Health Center General Medicine Clinic between August 31, 2015 and May 6, 2016 and who were diagnosed with an upper respiratory tract infection.
Design

Prior to the start of the study all General Clinic providers were offered participation in the study through direct contact. All Health Center staff, including providers, where offered access to training whether or not they participated in the study. See Appendix A for a copy of the provider consent form.

The pre-implementation phase of the project took place from August 31, 2015 to December 18, 2015. During the pre-implementation phase participating providers offered students diagnosed with a respiratory tract infection participation in the study through an anonymous survey. Students who choose participation in the study completed the one page survey in a waiting area located at check-out and placed it in a locked drop box. Please see Appendix B for a copy of the patient cover/consent and survey (survey was distributed as a single front and back document). Surveys were color coded per provider.

In December, following the pre-implementation phase, participating providers as well as all other Health Center staff were offered shared decision making training using online training videos developed using the Agency for Healthcare Research and Quality (AHRQ) SHARE program. On January 8th, 2016 a hands-on clinical training was also offered. The training included an interprofessional role play and discussion of shared decision making followed by hands-on practice. The practice sessions included volunteer student patients who acted out case studies. This allowed the providers to practice with patients in their own exam rooms to increase comfort with the intervention.
The post-intervention phase of the project took place from January 11, 2016 to May 6, 2016. During the post-intervention phase providers had the option of using the decision aid for patients with symptoms of a respiratory tract infection. Students were offered participation in the study using the same survey and method as during the pre-intervention phase. The use of a decision aid was specified by providers on the bottom of the patient survey. See Figure 2 for a visual depiction of the project timeline.

Sources of Data

Antibiotic prescribing rates for respiratory tract infections will be collected during both pre-and post-intervention phases using data from the Health Center’s electronic health record (EHR) system. EHR reports created for this data included ICD-9/ICD-10 codes for respiratory tract infections to account for the coding changes that occurred during the study. Reports also included the transaction codes for antibiotics commonly used for respiratory tract infections.

Patient decisional comfort was assessed pre- and post-intervention using the SURE test© located on the patient survey (see Appendix A). Permission to use the test was obtained in writing from the author. The four items on the SURE test© are summed to determine the decisional conflict score for each individual. Scores range from extremely high decisional conflict (0) to no decisional conflict (4). A score of ≤ 3 indicates decisional conflict is present (O’Conner, 1993). A summary of data variables can be found in Table 1.
Within one week of study implementation providers reported that the student population was making decisions quickly without needing to complete all six steps of the decision aid. Providers felt that completing the final steps after students declared their decision was redundant and unnecessary. Upon being made aware of this phenomenon the researchers received IRB approval to add a Provider Use of Decision Aid Survey to the end of the implementation phase (See Appendix C). The purpose of the additional survey was to assess the extent of DA use.

Special Note

The original project proposal and subsequent IRB addendum included surveys on provider intent, use of shared decision making, qualitative feedback, and visit time studies. Data collected which relates to providers does not directly relate to the objectives for this portion of the study and will not be reported in this executive summary. A subsequent data analysis and manuscript based on provider data will be considered at a later time.

Evaluation Plan

Data analysis will be completed using SPSS. Decisional conflict directly links to objective one and was measured using the SURE test© (see description above). Odds ratio was used to determine the effect of each predictor variable on the outcome of decisional conflict. Antibiotic prescribing rates directly link to objective two and were measured using EHR data to determine the percentage of antibiotics prescribed for
patients diagnosed with respiratory tract infections. Please see Figure 3 and Table 2 for a list of respiratory diagnoses and antibiotics used to determine prescribing rates.

**Findings**

The decision aid was the only statistically significant predictor of decisional conflict. Those who did not have the decision aid used in consultation were almost 2.2 times more likely than those who did to experience decisional conflict \[N=643; p=0.001; 95\% \text{ CI} (1.55, 3.12)\]. See Table 3 for complete Variables Results. Antibiotic prescribing rates did not show any significant difference with antibiotics being prescribed 33.3\% of the time pre-intervention and 31.7\% of the time post-intervention \[X^2(1, N=3174)=.922, p=0.337\].

When using a decision aid all providers reported using steps one and two “almost always”. Half of the providers reported using steps three and four “almost always” and half reported using steps three and four “sometimes”. Step five was reportedly used from “not at all” to “almost always”. Step six of the decision aid was the least used with reported use ranging from “not at all” to “sometimes”.

The findings answered the question proposed in the project problem statement. The use of shared decision making, through the use of a decision aid, increased student comfort by over two times that of usual care while maintaining current antibiotic prescribing rates for respiratory tract infections. Likewise, the study also met both
objectives by increasing student comfort with appropriate antibiotic prescribing rates while maintaining current prescribing rates.

The most significant barrier to the study was the varied use of the decision aid. The most significant motivation to the use of the shared decision making was steps one and two of the decision aid which educated students on the probability that their symptoms were bacterial. The providers felt that these steps were the most beneficial communication and educational tools for use during the visit. Providers felt that students were often quick to make decisions about the use of antibiotics based in this probability. No other unintended consequences or findings were identified.

**Recommendations/Implications**

Haltiwanger, et al. (2001) identified the antibiotic-seeking behaviors of college students, reporting that 55% of students being seen for a respiratory tract infections expected to receive an antibiotic while only 36% received a prescription for an antibiotic. This study identified a clear diagnosis, explanation for treatment, and a prescription for an antibiotic as being significantly associated with patient satisfaction. Fifteen years later college health centers still struggle with student dissatisfaction when not receiving antibiotics for respiratory tract infections and cannot ignore the call to change prescribing practices while educating patients about the appropriate use of antibiotics (Blyer and Hulton, 2016). In the current study, the decision aid, “Taking an Antibiotic or Not?” was shown to be an effective intervention to improve college student decisional comfort with the appropriate use of antibiotics for respiratory tract infections. In addition, the intervention was shown to increase decisional comfort without increasing already low
antibiotic prescribing rates. College health centers should consider implementation of the
decision aid to increase students comfort and promote the appropriate use of respiratory
tract infections.

This study identifies many implications for further studies. Future studies should focus on the effectiveness of the decision aid in varied college health settings including those serving large numbers of international students. In addition, further work should also identify which steps of the decision aid are most effective for the college population and use this information to adapt the decision aid for the population. Assessment and measurement of student learning related to the use of the decision aid would also be valuable data and should be considered for future studies.

According to Elwyn, G., Frosch, D., and Kobrin, S. (2016) the future of shared decision studies lies in a broader conceptualization and measurement of the practice. Considering these recommendations along with the findings from this study future studies should also focus on long term outcomes of the intervention. For the purpose of this study immediate prescribing rates were reported but no other prescribing rates were available. Future studies should focus on longer term outcomes such as re-consultation rates and prescribing rates within the days and weeks following the initial use of the decision aid.
References


making implementation in the context of antibiotics use for acute respiratory infections.

*Implementation Science, 8*(1), 144-144.


Appendix

Appendix A
Provider Consent

Consent to Participate in the Project on Shared Decision Making for the Ethical Use of Antibiotics

Identification of Investigators & Purpose of Study
You are being asked to participate in a research study conducted by Kristina B. Blyer, MSN, RN, NE-BC from James Madison University. The purpose of this study is to assess the use of shared decision making for the ethical use of antibiotics. This study will contribute to the researcher’s completion of Doctor of Nursing Practice (DNP).

Research Procedures
Should you decide to participate in this research study, you will be asked to sign this consent form once all your questions have been answered to your satisfaction. This study consists of a survey that will be administered to individual participants at four points throughout the study. You will be asked to provide answers to a series of questions related to the use of shared decision making for students consulting with respiratory tract infections. In addition, participants will be asked to distribute patient surveys following consultation for respiratory tract infections.

Time Required
Participation in this study will require 10 minutes of your time per survey. Surveys will be given in at four points during the study for a total of 30 minutes. Patient surveys will be distributed with visit encounter form and should require less than 30 seconds of time for each patient.

Risks
The investigator does not perceive more than minimal risks from your involvement in this study (that is, no risks beyond the risks associated with everyday life).

Benefits
There are no direct benefits for participation in the study. Study finding will contribute to general knowledge regarding the use of shared decision making for respiratory tract infections.

Confidentiality
The results of this research will be presented to health center staff and administrators, at conferences, and in manuscript format. The researcher retains the right to use and publish non-identifiable data. While individual responses are obtained and recorded anonymously and kept in the strictest confidence, aggregate data will be presented representing averages or generalizations about the responses as a...
whole. All data will be stored in a secure location accessible only to the researcher. Upon completion of the study, all records will be destroyed.

**Participation & Withdrawal**

Your participation is entirely voluntary. You are free to choose not to participate. Should you choose to participate, you can withdraw at any time without consequences of any kind.

**Questions about the Study**

If you have questions or concerns during the time of your participation in this study, or after its completion or you would like to receive a copy of the final aggregate results of this study, please contact:

Kristina B. Blyer, MSN, RN, NE-BC
University Health Center
James Madison University
blyerkb@jmu.edu

Dr. Maria DeValpine
Nursing Department
James Madison University
devalpmg@jmu.edu

**Questions about Your Rights as a Research Subject**

Dr. David Cockley
Chair, Institutional Review Board
James Madison University
(540) 568-2834
cocklede@jmu.edu

**Giving of Consent**

I have read this consent form and I understand what is being requested of me as a participant in this study. I freely consent to participate. I have been given satisfactory answers to my questions. The investigator provided me with a copy of this form. I certify that I am at least 18 years of age.

____________________________________
Name of Participant (Printed)

____________________________________    ______________
Name of Participant (Signed)    Date

____________________________________
Name of Researcher (Signed)    Date
Cover Letter for Project on Shared Decision Making for the Ethical Use of Antibiotics (Page 1)

Identification of Investigators & Purpose of Study
You are being asked to participate in a research study conducted by Kristina B. Blyer, RN, MSN, NE-BC from James Madison University. The purpose of this study is to assess the use of shared decision making for the ethical use of antibiotics. This study will contribute to the researcher’s completion of her doctoral capstone project.

Research Procedures
This study consists of a survey that will be administered to individual participants in the University Health Center following a visit for symptoms of a respiratory tract infection. You will be asked to provide answers to a series of questions related to your preferred treatment for respiratory tract infections and your decisional comfort with this preferred treatment.

Time Required
Participation in this study will require 2 minutes of your time.

Risks
The investigator does not perceive more than minimal risks from your involvement in this study (that is, no risks beyond the risks associated with everyday life).

Benefits
There are no direct benefits for participation in the study. Study finding will contribute to general knowledge regarding the use of shared decision making for respiratory tract infections.

Confidentiality
The results of this research will be presented to health center staff and administrators, at conferences, and in manuscript format. While individual responses are obtained and recorded anonymously and kept in the strictest confidence, aggregate data will be presented representing averages or generalizations about the responses as a whole. No identifiable information will be collected from the participant and no identifiable responses will be presented in the final form of this study. All data will be stored in a secure location accessible only to the researcher. The researcher retains the right to use and publish non-identifiable data. At the end of the study, all records will be destroyed.

Participation & Withdrawal
Your participation is entirely voluntary. You are free to choose not to participate. Should you choose to participate, you can withdraw at any time without consequences of any kind. However, once your responses have been submitted and anonymously recorded you will not be able to withdraw from the study.

Questions about the Study
If you have questions or concerns during the time of your participation in this study, or after its completion or you would like to receive a copy of the final aggregate results of this study, please contact:

Kristina B. Blyer, MSN, RN, NE-BC  Dr. Maria DeValpine
University Health Center  Nursing Department
James Madison University  James Madison University
blyerkb@jmu.edu  devalpmg@jmu.edu

Questions about Your Rights as a Research Subject
Dr. David Cockley
Chair, Institutional Review Board
Giving of Consent

I have read this cover letter and I understand what is being requested of me as a participant in this study. By completing this survey I consent to participate. I have been given satisfactory answers to my questions. I certify that I am at least 18 years of age.

__Kristina B. Blyer___________________________
Name of Researcher (Printed)

_________ (Signature) ____________ ____________
Name of Researcher (Signed) Date
Treatment Preference and Decisional Comfort Survey (page 2)

Please complete the following questions; all answers are anonymous.
Which option for the treatment of respiratory tract infections (colds, sinus infections, sore throat, bronchitis, or ear infections) do you expect? Please check one.

a. □ Antibiotics  
b. □ Non-antibiotic treatment  
c. □ Whatever my medical provider recommends based on my symptoms  
d. □ Unsure

When making decisions about the treatment of respiratory tract infections:

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you feel SURE about the best choice for you?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Do you know the benefits and risks of each option?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Are you clear about which benefits and risks matter most to you?</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Do you have enough support and advice to make a choice?</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Adapted from the SURE Test® O’Conner and Légaré, 2008.

How do you identify?
☐ Male    ☐ Female    ☐ Other
What is your age? ______

What year are you at JMU?
☐ Freshman  ☐ Sophomore  ☐ Junior  ☐ Senior  ☐ Graduate

Have you completed this questionnaire (since “August 2015 or January 2016”)?
☐ Yes  ☐ No

When completed, please place this form in the secure drop box located at the check-out desk. Thank you for your participation!

Provider use only:
DA
☐ Yes  ☐ No
### Appendix C
Provider Use of Decision Aid

#### Use of Decision Aid (Please refer to attached copy of decision aid)

1. I used the decision aid, “Taking an Antibiotic or Not?”:
   - Not at all | Rarely | Sometimes | Often | Almost Always
   - [ ] | [ ] | [ ] | [ ] | [ ]

2. When using the decision aid I used Step 1 (The Decision Support Tool):
   - Not at all | Rarely | Sometimes | Often | Almost Always
   - [ ] | [ ] | [ ] | [ ] | [ ]

3. When using the decision aid I used Step 2 (Estimation of Probability of Bacterial Infection):
   - Not at all | Rarely | Sometimes | Often | Almost Always
   - [ ] | [ ] | [ ] | [ ] | [ ]

4. When using the decision aid I used Step 3 (Shared Estimate with Patient):
   - Not at all | Rarely | Sometimes | Often | Almost Always
   - [ ] | [ ] | [ ] | [ ] | [ ]

5. When using the decision aid I used Step 4 (Communicated Options, Benefits, and Risks):
   - Not at all | Rarely | Sometimes | Often | Almost Always
   - [ ] | [ ] | [ ] | [ ] | [ ]

6. When using the decision aid I used Step 5 (Clarified Patient Values and Preferences):
   - Not at all | Rarely | Sometimes | Often | Almost Always
   - [ ] | [ ] | [ ] | [ ] | [ ]

7. When using the decision aid I used Step 6 (Evaluated the Decisional Comfort of the Patient):
   - Not at all | Rarely | Sometimes | Often | Almost Always
   - [ ] | [ ] | [ ] | [ ] | [ ]
## Table 1

### Variables Table

<table>
<thead>
<tr>
<th>Dependent (Outcome) Variable</th>
<th>Brief Description</th>
<th>Data Source</th>
<th>Possible Range of Values</th>
<th>Reference</th>
<th>Time Frame for collection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Decisional Comfort</strong></td>
<td>4-item tool to assess clinically significant decisional conflict in patients</td>
<td>Patient survey-SURE tool</td>
<td>Items are given a score value of: 0= no and 1= yes Items are summed and scores rage from 0 [extremely high decisional conflict] to 4 [no decisional conflict] Score of ≤ 3 indicates decisional conflict</td>
<td>Ferron Parayre et al. [1] (2014)</td>
<td>Pre-intervention August 31, 2015 - December 18, 2015 Post-intervention Jan. 11, 2016- May 6, 2016</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Predictor Variable</strong></th>
<th>Brief Description</th>
<th>Data Source</th>
<th>Possible Range of Values</th>
<th>Reference</th>
<th>Time Frame for collection</th>
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</thead>
<tbody>
<tr>
<td><strong>Antibiotic prescribing Rates</strong></td>
<td>Antibiotic prescribing rates for respiratory tract infections (RTIs)</td>
<td>EHR</td>
<td>Percentage of antibiotics prescribed for RTIs. ICD-9/ICD-10 codes Antibiotic transactions codes</td>
<td>N/A</td>
<td>Pre-intervention August 31, 2015 - December 18, 2015 Post-intervention Jan. 11, 2016- May 6, 2016</td>
</tr>
<tr>
<td><strong>Patient sex</strong></td>
<td>Sex with which patient identifies</td>
<td>Patient survey</td>
<td>Male</td>
<td>N/A</td>
<td>Pre-intervention August 31, 2015 - December 18, 2015</td>
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<tr>
<td></td>
<td>Age at time of visit</td>
<td>Patient Survey/EHR</td>
<td>Patient Age</td>
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<td>Post-intervention</td>
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<td>January 11, 2016 - May 6, 2016</td>
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<td>Year in College</td>
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### Table 2

**List of Antibiotics**

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Table 3

Variable Results

Variables in the Equation

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*Variable(s) entered on step 1: Gender, Age, Year, DAU Used.
Figure 1
Logic Model

The Knowledge-To-Action Cycle

Ottawa's 5 Steps for Implementation

Implementation Activities
1. Identify the decision
2. Find patient decision aid
3. Identify barriers and explore ways to overcome them
4. Provider training/implementation of decision aids and support
5. Monitor use and outcomes

Intervention
Shared decision making using:
- The decisional aid, "Taking an antibiotic of not? Acute respiratory tract infection (ARI)"
  (Labrecque et al., 2010)
- Decision support (including electronic forms of patient education)

Outcomes
Antibiotic prescribing rates for respiratory tract infections maintained at current level or below
Increase in patient decisional comfort

Long-Term Outcomes
Local:
Provider intent to continue the use of shared decision making
National:
Patients with life-long understanding of ethical antibiotic use
Global:
Decrease in antimicrobial resistance

Data Variables
Prescribing Rates
Decisional Comfort

Data Variables
Provider Intent
Figure 2
Timeline for Project

August 31 - December 18, 2015
- Pre-intervention Data Collection
- Patient Surveys
- Antibiotic prescribing rates

January, 2016
- Shared Decision Making Training
- Provider Intent

May, 2016
- Provider Intent Survey
- Provider Use Survey

December, 2015
- Provider Use Survey

January 11 - May 6, 2016
- Intervention/Data Collection
- Patient Surveys
- Antibiotic Prescribing Rates
- Mid-point Provider Intent Survey

Summer-Fall, 2016
- Data Analysis
- Preparation for Dissemination
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