Handling Antibiotics with Care: 
*The Expansion of Antimicrobial Stewardship into the Ambulatory Setting*

Lisa Davidson, MD and Erin Gentry, PharmD, BCPS
Why is Antimicrobial Stewardship Needed?

**Antibiotic Resistance**
- Global public health crisis affecting more than 2 million people annually
- Accounts for at least 23,000 deaths annually
- Total economic burden exceeds $20 billion in direct healthcare costs

**Overuse of Antibiotics**
- Approximately 154 million outpatient visits lead to an antibiotic prescription annually
- An estimated 30% of outpatient antibiotics are unnecessary
- Total inappropriate prescribing – selection, dose, duration – approaching 50%

**Prescribing Barriers**
- Patient knowledge gaps regarding antibiotic use
- Expectations of patients and care givers
- Patient satisfaction goals
- Unclear prescribing practices and guidelines for treatment
National Action Plan to Combat Resistance

CDC Report: Antibiotic Resistance Threats in the US
2013

Presidential Advisory Council on Combating Antibiotic Resistant Bacteria (PACCARB)
2015

Target Goal 50% Reduction of Inappropriate Antibiotic Use in the Ambulatory Care Setting by 2020
CHOSEN: Carolinas HealthCare Outpatient Antimicrobial Stewardship Empowerment Network

• 2-year grant funded by Duke Endowment

• **Build awareness** of appropriate use of antibiotics and antibiotic resistance through patient, provider and clinical staff education

• **Change attitudes** by helping patients better understand how antibiotics work and fostering a culture of shared values around the use of antibiotics

• **Enhance the patient experience** through education and providing solutions to problems

• **Reduce inappropriate antimicrobial prescribing** in upper respiratory illnesses by 20% within two years of program rollout
CHOSEN Program Design and Outline

Baseline Data Collection
- 3-4 years data on outpatient prescribing
- Analysis of patterns
- Set baseline for interrupted time series

Stakeholder-Centered Design
- Report design & roll-out
- Provider tools and education
- Patient education & priority communication

Evaluation & Sustainability
- PDSA Cycle
- Metrics: prescribing rates, adverse events, MDRO infection rates
- Stakeholder acceptance

Providers
- Knowledge of appropriate antimicrobial use
- Awareness of potential patient harms

Provider Engagement
- Communication plan & tool kit
- Report design & roll-out
- Educational materials

Providers
- Knowledge & awareness
- Reporting effectiveness
- Perceptions & feedback

Patients
- Knowledge of antimicrobial effectiveness for illness types
- Awareness of harm/dangers of overuse

Patient Engagement
- Priorities and gaps
- Communication preferences
- Media design & roll-out

Patients
- Knowledge & awareness
- Media effectiveness
- Content feedback

10th Annual Quality & Patient Experience Sharing Day
It Starts With You.
Patient Survey: Key Findings and Identified Opportunities

- 53% incorrectly believed that antibiotics work well for treating a virus such as the flu or common cold.

- 61% report they want provider to give order for symptom relief.
- 78% report they want provider to suggest an OTC to help symptoms.

- 62% report they have heard a great deal/fair amount about antibiotic resistance.

- 65% believe that some providers are more willing than others to write an order for an antibiotic.

**Improve Understanding**
- Develop Patient Handout: “What You Need to Know: Antibiotics, Bacteria and Viruses”

**Improve Awareness**
- Develop consumer webpage & videos; commitment poster; media pitching

**Reduce Perceived Barriers**
- Develop symptom checklists & dosing guides for providers to give during patient visits

**Identified Challenges**
- Develop consistent treatment algorithms and use of provider scripting
Provider Qualitative Research: Findings and Identified Opportunities

Patients and Caregivers Play a Role by Demanding Antibiotics, Whether or Not Indicated

- Provide Education Prior to Appointment
- Develop and Distribute User Friendly, Engaging, and Easy Access Patient Education
- Offer Something for Patients to Take Away from Visit

Healthcare Providers May Not Have the Time, Knowledge, or Tools to Educate

- Provide Evidence of Treatment Support and Reference
- Communicate Guidelines, Both Electronically and in Face-to-Face Meetings
- Cascade Information to All Levels

Most Healthcare Providers Have Little or No Understanding of Their Current Utilization

- Inform Clinicians of Their Prescribing Practices
- Incorporate Antibiotic Prescribing Reports into Existing Reporting Streams
- Tailor Information to the Individual Provider and Separate by Indication
CHOSEN Strategy

Data and Analytics
- Patient and Provider perspectives
- Data integrated into reporting structure
- Accessible on demand

Reporting
- Baseline and monthly prescribing data on antibiotic utilization by indication, provider and practice

Provider Tools
- Pathway alerts, MD script, Non-abx Rx recs, Easy access guidelines

Patient Tools
- Videos
- Website resources, Posters, Handouts, Branding, Advertisements

10th Annual
Quality & Patient Experience
IT STARTS
SHARING DAY
With You.
Atrium Health
Website, Blog, and Social Media

- Consumer webpage
- Downloadable guides and educational videos
- Tile on the homepage
- Daily Dose blog post
- Twitter and Facebook
- Charlotte Agenda shared blog post in email and Twitter
- Media pitching garnered column in Cabarrus County’s Independent Tribune, and an interview on Spectrum News.
Educational Resources for Consumers

- Consumer-friendly explanations of antibiotic usage, colds and flu symptoms, including:
  - Antibiotics Do’s and Don’ts
  - What you need to know: Antibiotics, Bacteria and Viruses (downloadable guide)

- Videos:
  - Animated: Good Germs vs. Bad Germs
  - Colds, Flu and Antibiotics

- Dosing Guides for Children and Infants:
  - Acetaminophen
  - Ibuprofen
### Physician Connect and People Connect

- Scripting: how to talk antibiotics with your patients
- Educational handouts to print and share with patients
  - Dosing Guides
  - What You Need to Know: Antibiotics, Bacteria and Viruses
- Symptoms Checklists for Adults, Teens and Children
- Disease state management guides:
  - Acute uncomplicated bronchitis
  - Pharyngitis
  - Acute uncomplicated sinusitis
  - Influenza

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#### Treating Your Cold, Flu and Other Symptoms

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Medicines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aches, Pain, Fever</td>
<td>Acetaminophen, Ibuprofen, Naproxen</td>
</tr>
<tr>
<td>Sore Throat</td>
<td>Throat Lozenges, Throat Sprays, Cough Syrups</td>
</tr>
<tr>
<td>Cough</td>
<td>Cough suppressants, Dextromethorphan, Mercy</td>
</tr>
<tr>
<td>Stuffly Nose</td>
<td>Decongestant nose spray with xylometazoline, phenylephrine, Afrin, Afrin Plus, Nasal Spray, Neo-Synephrine, nasal irrigation, saline irrigation or nose spray</td>
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**CarolinaHealthCare.org/Germs**

[More info on the back of this sheet]
Antibiotic Education Campaign Results

1,795 unique pageviews

Average time on page is 05:04
(193% higher than average time spent on AtriumHealth.org webpages)

Outpatient Antibiotics is the third-most visited page on PhysicianConnect

Numbers were expected to grow over time as the materials were distributed via providers and social media.
Antibiotic Prescribing Dashboard - May, 2019

Overall metrics for All Indications

- **Prescribing Rate**: 33.9%
- **Target Rate**: 35.4%

Antimicrobial Encounters: 21,335
Total Encounters: 62,866

Number of Encounters with Antibiotic Prescription for All Indications

- *Order Item*:
  - AZITHROMYCIN: 4,171 (19.6%)
  - AMOXICILLIN-CLAVULANATE: 3,449 (16.2%)
  - DOXYCYCLINE: 1,735 (8.1%)
  - AMOXICILLIN: 1,484 (7.0%)
  - LEVOFLOXACIN: 1,319 (6.2%)
  - CEFTRIAXONE: 440 (2.1%)
  - CIPROFLOXACIN: 373 (1.9%)

Total: 21,335 (100.0%)
What We Learned About Patient Perceptions

• Compared to pre-survey results, significantly fewer patients reported antibiotics work extremely/very/somewhat well for viral infections, such as the flu or common cold

• Exposure to a commitment educational poster is associated with understanding of the appropriate use of antibiotics

• Opportunities still exist to improve patient understanding of appropriate use of antibiotics

• Opportunities still exist to improve patient awareness of antibiotic resistance
<table>
<thead>
<tr>
<th></th>
<th>Baseline 2017</th>
<th>2018 Target</th>
<th>Year End 2018</th>
<th>2019 Target</th>
<th>YTD May 2019*</th>
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<tbody>
<tr>
<td>Family Medicine</td>
<td>0.455</td>
<td>0.41</td>
<td>0.39</td>
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<td>0.365</td>
<td>0.38</td>
<td>0.325</td>
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</table>

* Rolling 12 months
Future Directives

- CHosen name change to Atrium SOAR (Stewardship for Outpatient Antibiotic Awareness and Resistance Reduction) – Effective Fall 2019
- Expansion to Emergency Medicine, E-Visit and Virtual Visit
- QCC Measure for 2020
- Participation in the United Nations CDC Antimicrobial Resistance Challenge
- Collaboration with community medicine to target patients and families outside of ambulatory practices
  - Community groups, church, and school education programing
Acknowledgments

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