Emergency Department Antibiotic Stewardship Collaborative
Kick-Off
March 12, 2018
# Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Item</th>
<th>Presenter(s)</th>
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<tbody>
<tr>
<td>12-12:10PM</td>
<td>Introductions and Roll Call</td>
<td>Group</td>
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<tr>
<td>12:10-12:20PM</td>
<td>Collaborative Background and Overview</td>
<td>Erin Epson</td>
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<tr>
<td>12:20-12:30PM</td>
<td>ED Survey Results Review</td>
<td>Erin Garcia</td>
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<tr>
<td>12:30-1:15PM</td>
<td>Antibiotic Stewardship in the Emergency Department</td>
<td>Larissa May</td>
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<tr>
<td>1:15-1:30PM</td>
<td>Collaborative Next Steps, Q&amp;A</td>
<td>Erin Epson, Larissa May</td>
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INTRODUCTIONS
Public Health - Academic Partnership to Improve Antibiotic Prescribing

- Erin Epson, MD; Erin Garcia, MPH, CPH – Healthcare-Associated Infections (HAI) Program, California Department of Public Health
- Dawn Terashita, MD; Kelsey OYong, MPH – Los Angeles County Department of Public Health
- Larissa May, MD, MSPH, Director of Emergency Department Antibiotic Stewardship, University of California at Davis
ED Collaborative Participants

- Kaiser Permanente
- County of Los Angeles Public Health
- Sutter Health Sutter Delta Medical Center
- UC Davis Medical Center
- HCA Highland Hospital
- LAC+USC Healthcare Network
- Olive View-UCLA Medical Center
- Torrance Memorial Medical Center
- UCSF Medical Center
- Harbor-UCLA Medical Center
- Riverside University Health System Medical Center
- Stanford Health Care
- San Gorgonio Memorial Hospital
- HSAG Health Services Advisory Group
COLLABORATIVE BACKGROUND AND OVERVIEW
Antibiotic Prescribing in Outpatient Settings

At least 30% of antibiotic courses are unnecessary

Most unnecessary antibiotic use for acute respiratory conditions, e.g., acute bronchitis

Fleming-Dutra et al. JAMA 2016
Consequences of Inappropriate Antibiotic Prescribing

• Leading cause of adverse drug event (ADE)-related ED visits

• Driver of antibiotic resistance and *Clostridium difficile* infections (CDI)

• Community-associated CDI
  – 64% recently exposed to antibiotics, most commonly for upper respiratory tract infection (35%)
  – Reducing outpatient antibiotic prescribing among adults by 10% estimated to result in 17% reduction in CA-CDI rates

Shehab et al. JAMA 2016  Dantes et al. OFID 2015
Chitnis et al. JAMA 2015
Estimated CDI Burden Across the Continuum of Care, California, 2016

Sources: National Healthcare Safety Network (NHSN) and CDC Emerging Infections Program (EIP)

- Hospital-onset: 10,279 cases
- Nursing home-onset: ~13,700 cases
- Community-onset with recent inpatient exposures: ~16,400 cases
- Community-associated: ~34,600 cases
The California Emergency Department Antibiotic Stewardship Collaborative aims to engage emergency department (ED) staff in efforts to improve antibiotic prescribing by facilitating shared expertise and best practices for implementing stewardship interventions in ED settings.
ED Collaborative Objectives

• Engage ED staff to view antibiotic prescribing as a quality and patient safety issue
• Share ED-specific antibiotic prescribing and stewardship tools and best practices
• Provide a forum to exchange practical strategies for overcoming barriers to stewardship interventions in ED settings
• Reduce inappropriate prescribing in ED settings
Collaborative Structure

• Pre-collaborative ED survey
• Webinars and regional in-person meetings
• ED provider surveys, development of action plans for each participating ED
• ED one-on-one calls
• Dissemination of guidance and tools
• Opportunities to discuss and share best practices
ED SURVEY RESULTS
ED Survey Overview

• Pre-collaborative survey
• 20 questions regarding
  – CDC Core Elements:
    Commitment, Action, Tracking and Reporting, Education and Expertise
  – ED prescribing practices and challenges
• Establish baseline, guide discussion topics, identify resources/tools for sharing, and assess progress throughout the year
CDC Core Elements for Outpatient Antibiotic Stewardship

**Commitment**
Demonstrate dedication to and accountability for optimizing antibiotic prescribing and patient safety.

**Action for policy and practice**
Implement at least one policy or practice to improve antibiotic prescribing, assess whether it is working, and modify as needed.

**Tracking and reporting**
Monitor antibiotic prescribing practices and offer regular feedback to clinicians, or have clinicians assess their own antibiotic prescribing practices themselves.

**Education and expertise**
Provide educational resources to clinicians and patients on antibiotic prescribing, and ensure access to needed expertise on optimizing antibiotic prescribing.
Core Elements

- Number of ED with all four elements: 7
Commitment

<table>
<thead>
<tr>
<th>Strategy</th>
<th>No. ED (%)</th>
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<tbody>
<tr>
<td>Identify a single leader to direct antibiotic stewardship activities within the ED</td>
<td>7 (70)</td>
</tr>
<tr>
<td>Include antibiotic stewardship-related duties in position descriptions or job evaluation criteria</td>
<td>4 (40)</td>
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- Number of ED involved with inpatient ASP: 2 (20%)
### Action

**ED implemented at least one policy or procedure to improve antibiotic prescribing**

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<tr>
<th>Strategy</th>
<th>No. ED (%)</th>
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<tbody>
<tr>
<td>Provide communications skills training for clinicians</td>
<td>3 (30)</td>
</tr>
<tr>
<td>Use formulary restriction / preauthorization for any antibiotic</td>
<td>4 (40)</td>
</tr>
<tr>
<td>Require explicit written justification in the medical record for non-recommended antibiotic prescribing</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Provide clinical decision support (e.g., pocket cards, order sets, guidelines)</td>
<td>7 (70)</td>
</tr>
<tr>
<td>Use call centers, nurse hotlines, or pharmacist consultations as triage systems to prevent unnecessary visits</td>
<td>1 (10)</td>
</tr>
<tr>
<td>Provide education to ED and urgent care patients about the use and duration of antibiotic prescriptions prior to ED discharge</td>
<td>6 (60)</td>
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Action – Rapid Diagnostic Testing

<table>
<thead>
<tr>
<th>Test Type</th>
<th>No. ED (%)</th>
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</thead>
<tbody>
<tr>
<td>Procalcitonin</td>
<td>5 (50)</td>
</tr>
<tr>
<td>Strep</td>
<td>8 (80)</td>
</tr>
<tr>
<td>Respiratory viral panel</td>
<td>6 (60)</td>
</tr>
<tr>
<td>Influenza</td>
<td>7 (70)</td>
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</tbody>
</table>
## Tracking and Reporting

<table>
<thead>
<tr>
<th>Strategy</th>
<th>No. ED (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information tracked:</strong></td>
<td></td>
</tr>
<tr>
<td>Percentage of all visits leading to antibiotic prescriptions</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Complication of antibiotic use and antibiotic resistance trends among common bacterial pathogens</td>
<td>0 (0)</td>
</tr>
<tr>
<td>ED-specific antibiogram</td>
<td>3 (30)</td>
</tr>
<tr>
<td>Antibiotic prescribing for one or more high-priority conditions (e.g., acute bronchitis, UTI)</td>
<td>5 (50)</td>
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## Tracking and Reporting

<table>
<thead>
<tr>
<th>Strategy</th>
<th>No. ED (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information reported via:</strong></td>
<td></td>
</tr>
<tr>
<td>Report on any tracked measures to quality committee(s) (e.g., percentage of all visits leading to antibiotic prescriptions)</td>
<td>5 (50)</td>
</tr>
<tr>
<td>Assess and share performance on quality and process measures and established reduction goals addressing appropriate antibiotic prescribing from health care plans and payers (e.g., obtaining cultures before antibiotics)</td>
<td>2 (20)</td>
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Education and Expertise

ED provides resources to clinicians and patients on evidence-based antibiotic prescribing

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<tr>
<th>Strategy</th>
<th>No. ED (%)</th>
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<tbody>
<tr>
<td>Provide face-to-face educational training</td>
<td>5 (50)</td>
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<tr>
<td>Provide continuing education activities for clinicians</td>
<td>3 (30)</td>
</tr>
<tr>
<td>Ensure timely access to persons with expertise (e.g., inpatient ASP, ED pharmacist)</td>
<td>8 (80)</td>
</tr>
<tr>
<td>Provide guidance for using antibiograms to direct antibiotic prescribing</td>
<td>8 (80)</td>
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ED Prescribing Practices

Perceived Frequency of ED Clinicians Prescribing Antibiotics for Specific Conditions

Acute Bronchitis

- <10% of the time
- 10-25% of the time
- 26-50% of the time
- 51-75% of the time
- >75% of the time

Sinusitis

- <10% of the time
- 10-25% of the time
- 26-50% of the time
- 51-75% of the time
- >75% of the time
ED Prescribing Challenges

Barriers to Appropriate Prescribing for Acute Respiratory Infection

- Lack of access to guidelines
- Lack of clear evidence
- Patient expectations
- Psychosocial barriers
- Electronic health record
- Lack of resources
- Lack of administrative support
- Concerns about liability

No. ED

Barriers
ED Topics of Concern

1. Sepsis, including quality measures
2. Access to rapid diagnostic tests
3. Skin and soft tissue infection
4. Upper respiratory infection
5. Interaction/involvement in inpatient ASP
6. Urinary tract infection
Doing What’s Best for Our Patients

ANTIBIOTIC STEWARDSHIP IN THE EMERGENCY DEPARTMENT
DOING WHAT’S BEST FOR OUR PATIENTS

Antibiotic Stewardship in the Emergency Department

Larissa May, MD, MSPH
Associate Professor, Emergency Medicine
Director of Emergency Department Antibiotic Stewardship
University of California-Davis
ACKNOWLEDGEMENTS

• Collaborators: Kabir Yadav, Ross Fleischman, Daniella Meeker, Jason Doctor, Aubyn Stahmer, Richard Kravitz, Rakesh Mistry
• Presentation Support: Katherine Fleming-Dutra (CDC), Veronica Mijic (CMA)
• Sam Gaona
OUTLINE

• What antibiotic stewardship is
• The importance of the emergency department setting
• Understanding barriers to improving care
• Potential interventions to improving appropriate use of antibiotics
Estimated minimum number of illnesses and deaths caused annually by antibiotic resistance*:

At least 2,049,442 illnesses,
23,000 deaths

*bacteria and fungus included in this report

$20 billion in excess direct healthcare costs annually

ANTIBIOTIC USE DRIVES RESISTANCE

Date of antibiotic introduction

- Penicillin: 1943
- Methicillin: 1960
- Vancomycin: 1972
- Levofloxacin: 1996
- Ceftaroline: 2010

Date of resistance identified

- 1940: Penicillin-R Staphylococcus
- 1962: Methicillin-R Staphylococcus
- 1988: Vancomycin-R Enterococcus
- 1996: Levofloxacin-R Streptococcus
- 2011: Ceftaroline-R Staphylococcus

http://www.cdc.gov/drugresistance/about.html
• 849 antibiotic prescriptions dispensed per 1000 population in outpatient settings (4 prescriptions for every 5 people)

Sweden, 2014: 328 antibiotic prescriptions per 1000 population

IT’S A MATTER OF PATIENT SAFETY

- Adverse events from antibiotics range from minor to severe
  - Rash or antibiotic-associated diarrhea
  - Anaphylaxis
- 1 in 1000 antibiotic prescriptions leads to an emergency department visit for an adverse event
  - 142,000 ED visits per year
  - Most common cause of drug-related ED visits for children
- Long-term consequences: associated with chronic disease
  - Asthma, food allergies, obesity, selfie-obsession

IT’S A MATTER OF PATIENT SAFETY: CLOSTRIDIUM DIFFICILE

More recent estimate: **453,000** infections and caused **15,000** deaths in the US annually

Lessa NEJM 2015;372(9):825-34
WHERE DO WE WANT TO BE?

• Every patient gets optimal antibiotic treatment
  • Antibiotics only when they are needed
  • If needed
    • Right antibiotic
    • Right dose
    • Right duration

• Antibiotic stewardship is the effort to measure and optimize antibiotic use
Prevalence of Inappropriate Antibiotic Prescriptions Among US Ambulatory Care Visits, 2010-2011

Katherine E. Fleming-Dutra, MD; Adam L. Hersh, MD, PhD; Daniel J. Shapiro, MD; Monina Bartoces, PhD; Eva A. Enns, PhD; Thomas M. File Jr, MD; Jonathan A. Finkelstein, MD, MPH; Jeffrey S. Gerber, MD, PhD; David Y. Hyun, MD; Jeffrey A. Linder, MD, MPH; Ruth Lynfield, MD; David J. Margolis, MD, PhD; Larissa S. May, MD, MSPH; Daniel Merenstein, MD; Joshua P. Motlay, MD, PhD; Jason G. Nevland, MD; MEd; Jay F. Piccirillo, MD; Rebecca M. Roberts, MS; Guillermo V. Sanchez, MPH, PA-C; Katie J. Suda, PharmD, MS; Ann Thomas, MD, MPH; Teri Moser Woo, PhD; Rachel M. Zetts; Lauri A. Hicks, DO

The National Action Plan for Combating Antibiotic-Resistant Bacteria set a goal of reducing inappropriate outpatient antibiotic use by 50% by 2020, but the extent of inappropriate outpatient antibiotic use is unknown.

SETTING NATIONAL TARGETS: OUTPATIENT ANTIBIOTIC PRESCRIBING

47 million unnecessary antibiotic prescriptions per year

http://www.pewtrusts.org/~/media/assets/2016/05/antibioticuseinoutpatientsettings.pdf;
TARGETS FOR STEWARDSHIP

• Appropriate antibiotics
  • Pneumonia, urinary tract infections and miscellaneous bacterial infections

• No antibiotics
  • Bronchitis, bronchiolitis, viral upper respiratory infection (URI), influenza, non-suppurative otitis media, viral pneumonia, asthma, and allergy

• Test for bacterial infection
  • Pharyngitis (all-cause)

• Reduction in antibiotics to level of the lowest prescribing region
  • Sinusitis
  • Suppurative otitis media
  • All other remaining conditions
ED AS A TARGET SITE FOR STEWARDSHIP

• Each year 10 million antibiotic prescriptions are written from the emergency department
• Unnecessary antibiotics are frequently prescribed for known viral infections
  • 75% of adults with acute bronchitis
  • 45% of children with viral URI
• Inappropriate antibiotics are frequent
  • >66% for UTI
CHALLENGES FOR THE ED

- ED crowding/boarding
- Patient turnover
- Quick decision-making
- Mix of providers-shift-based scheduling
- Diagnostic uncertainty
- Concern for poor outcomes
- Lack of patient follow-up
- Patient satisfaction
WHY MIGHT PROVIDERS PRESCRIBE ANTIBIOTICS INAPPROPRIATELY?

• Lack of knowledge of appropriate indications?
• Fear of complications?
• Patient pressure and satisfaction?
• Habit?
• What else?
WHY MIGHT PROVIDERS PRESCRIBE ANTIBIOTICS INAPPROPRIATELY?

- Lack of knowledge of appropriate indications
  - Providers generally know the guidelines
  - *Just-in-time evidence delivery*
- Fear of complications
  - Providers cite fear of infectious complications

Sanchez, EID; 2014; 20(12);2041-7
WHAT IF SOMETHING BAD HAPPENS?

• **Without an antibiotic**
  • Complications to common respiratory infections are very rare
  • NNT=4000 URIs treated to prevent 1 case of pneumonia

• **With an antibiotic**
  • Side effects
    • Diarrhea in 5-25% (NNH 4-20)
    • Yeast infections
    • Allergic reactions and anaphylaxis
  • 1:1000 antibiotics lead to ED visit for adverse events
  • *Clostridium difficile* infection

WHY MIGHT PROVIDERS PRESCRIBE ANTIBIOTICS INAPPROPRIATELY?

• Lack of knowledge of appropriate indications
  • Providers generally know the guidelines
  • Just-in-time evidence delivery

• Fear of complications
  • Providers cite fear of infectious complications
  • Understanding adverse events (NNH)

• Patient pressure and satisfaction
  • Providers universally cite patient requests for antibiotics
  • Providers worry about losing patients to other providers

Sanchez, EID; 2014; 20(12);2041-7
PHYSICIAN PERCEPTION OF PATIENT EXPECTATIONS

- Overt requests for antibiotics are rare
- When physicians think patients/parents want antibiotics, they are more likely to prescribe
  - 62% when they thought parent wanted antibiotics
  - 7% when they thought parent did not want antibiotics
- ED physicians are terrible at predicting which patients want antibiotics
  - 25-33% correctly identified patient’s expectations
  - Why are we so bad at predicting?

WHY DO WE THINK PATIENTS WANT ANTIBIOTICS?

• Physicians thought parents wanted antibiotics when
  • Parents suggested a candidate diagnosis
  • Parents question non-antibiotic treatment plan

• Parents who questioned the treatment plan were equally likely to expect or not expect antibiotics

• Two different conversations
  • One that the physician understands
  • One that the patient is having

IMPROVE PATIENT SATISFACTION

• Parents are still satisfied if they don’t get antibiotics
• Parents are dissatisfied if communication expectations are not met
• What do parents want?
  • Explanation
  • Positive recommendations
  • Contingency plan

WHY MIGHT PROVIDERS PRESCRIBE ANTIBIOTICS INAPPROPRIATELY?

- Lack of knowledge of appropriate indications
  - Providers generally know the guidelines
  - Just-in-time evidence delivery
- Fear of complications
  - Providers cite fear of infectious complications
  - Understanding adverse events (NNH)
- Patient pressure and satisfaction
  - Providers universally cite patient requests for antibiotics
  - Effective communication skills, managing expectations
- Habit

PROVIDER VARIABILITY: HABIT OF PRESCRIBING ANTIBIOTICS

• In a large study of 1 million VA outpatient visits for acute respiratory infections (most do not require antibiotics)
  • Top 10% of providers prescribed antibiotics in ≥95% visits
  • Lowest 10% prescribed antibiotics in ≤40% of ARI visits

• In a pediatric network of 25 practices, antibiotic prescribing variability
  • 18 to 36% of acute visits resulted in antibiotic prescriptions by practice
  • 15 to 57% of antibiotics were broad-spectrum by practice

HOW CAN WE CHANGE CLINICIAN ANTIBIOTIC PRESCRIBING PRACTICES?

- Identify effective interventions to improve outpatient antibiotic prescribing
- Adapt them to the local context
- Use rigorous implementation science methods before and after
- Disseminate for broader uptake (scale and spread)
EM AS LEADERS OF CHANGE

• Team based approach
• Nexus of community and hospital
• Willingness to take on new tasks and learn
• Patient education/communication tools
• Innovate/create
  • Local guidelines/pathways
  • CDSS
  • Rapid diagnostics
  • Antibiograms
WHAT WORKS IN THE OUTPATIENT SETTING?

- Educational methods — decisions are based on knowledge
  - Guidelines
  - Clinical decision support
- Behavioral methods — decisions are influenced by psychosocial factors
  - Communications training
  - Public commitments
- Mixed theoretical basis
  - Audit and feedback with comparisons to peers
  - Academic detailing (one-on-one education)
• Effective intervention
  • Acute bronchitis: 12–14% reduction in antibiotic prescribing
  • Pharyngitis: reduced antibiotics use
  • Pneumonia: improved antibiotic selection

• Important considerations
  • Print and electronic tools are likely equally effective
  • Tools need to be used to be effective
    • In one study, tool was used in 6% of eligible visits
  • Alert fatigue is a problem

BEHAVIORAL CLINICAL DECISION SUPPORT: ACCOUNTABLE JUSTIFICATION

• “Antibiotic justification note” in medical record
  • Prompted free text note if antibiotics prescribed for diagnosis for which antibiotics are not indicated
  • If no text entered: “No justification given” appeared in medical record
  • Note disappeared if antibiotic prescription deleted

• Idea: Clinicians want to preserve their reputation

• Reduced inappropriate antibiotic prescribing from 23.2% to 5.2% pre and post-intervention (-7.0% difference in differences)

PUBLIC COMMITMENT POSTERS

• Simple intervention: poster-placed in exam rooms with provider picture and commitment to use antibiotics appropriately

• Principle of behavioral science: desire to be consistent with previous commitments

  “As your doctors, we promise to treat your illness in the best way possible. We are also dedicated to avoid prescribing antibiotics when they are likely do to more harm than good.”

• **Adjusted absolute reduction: -20% compared to controls**

AUDIT AND FEEDBACK WITH PEER COMPARISONS

• RCT of audit-and-feedback for unnecessarily broad-spectrum antibiotics for sinusitis in children
  • Included clinician’s data and the average performance of their peers in their practice and network

• Results
  • Clinicians in the feedback group performed significantly better than control clinicians
  • Antibiotic selection patterns reverted to baseline once audit-and-feedback was stopped

PUBLIC COMMITMENT

JAMA Internal Medicine
Original Investigation

Nudging Guideline-Concordant Antibiotic Prescribing: A Randomized Clinical Trial

Daniella Meeker, PhD; Tara K. Knight, PhD; Mark W. Friedberg, MD, MPP; Jeffrey A. Linder, MD, MPH; Noah J. Goldstein, PhD; Craig R. Fox, PhD; Alan Rothfeld, MD; Guillermo Diaz, MD; Jason N. Doctor, PhD

Meeker D, Knight TK, Friedberg MW, Linder JA, Goldstein NJ, Fox CR, Rothfeld A, Diaz G, Doctor JN.
Effect of Behavioral Interventions on Inappropriate Antibiotic Prescribing Among Primary Care Practices: A Randomized Clinical Trial

Daniella Meeker, PhD; Jeffrey A. Linder, MD, MPH; Craig R. Fox, PhD; Mark W. Friedberg, MD, MPP; Stephen D. Persell, MD, MPH; Noah J. Goldstein, PhD; Tara K. Knight, PhD; Joel W. Hay, PhD; Jason N. Doctor, PhD
PEER COMPARISON TO TOP PERFORMERS

• “You are a Top Performer”

• “You are not a Top Performer”

• Mean antibiotic prescribing decreased from 19.9% to 3.7% (-16.3%)

PEER COMPARISON: FURTHER EVIDENCE

- National Health Service randomized trial of letters to 1581 GP practices
  - “Your practice is prescribing antibiotics at a rate higher than 80% of your local GP practices”
  - From England’s Chief Medical Officer
- 3.3% relative reduction in antibiotic prescribing
  - Estimated ~73,000 antibiotic prescriptions saved
- Concluded it was cost effective
  - Materials to send letters v. cost of antibiotic prescriptions

CONCLUSIONS AND IMPLICATIONS

- Physicians are people too
- Traditional CDS the least effective
- Social motivation appears effective
- Participatory design for QI may not yield desired results...
CHANGING BEHAVIOR

- **Implicit model**: clinicians reflective, rational, and deliberate
  - “Educate” and “remind” interventions

- **Behavioral model**: decisions fast, automatic, influenced by emotion and social factors
  - Cognitive bias
  - Appeal to clinician self-image
  - Consider social motivation
COGNITIVE SYSTEMS

1. Automatic

2. Reflective
## TWO DISTINCT COGNITIVE SYSTEMS

<table>
<thead>
<tr>
<th>Automatic</th>
<th>Reflective</th>
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<tbody>
<tr>
<td>Uncontrolled</td>
<td>Controlled</td>
</tr>
<tr>
<td>Effortless</td>
<td>Effortful</td>
</tr>
<tr>
<td>Associative</td>
<td>Deductive</td>
</tr>
<tr>
<td>Fast</td>
<td>Slow</td>
</tr>
<tr>
<td>Unconscious</td>
<td>Self-aware</td>
</tr>
<tr>
<td>Experience-based</td>
<td>Rule-based</td>
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NUDGES TARGET AUTOMATIC THINKING

- **Nudge**: gentle, non-intrusive persuaders which influence choice in a certain direction
  - Different frames, default rules, feedback mechanisms, social cues
  - Can be ignored
  - A good nudge will only affect choice when there are not strong reasons for the decision
Public Commitment as a Motivator for Weight Loss

Prashanth U. Nyer
Chapman University

Stephanie Dellande
University of New Orleans

Figure 2. The effect of public commitment on weight loss.

I'm running 8 miles on Saturday and riding my bike 50 miles on Monday. Hoping if I put these things out there, that they will actually happen. :)

State your own workout goals below. Let's help hold each other accountable through the holiday weekend.
Safe Antibiotic Use:
A Letter From Your Medical Group

Dear Patient,

We want to give you some important information about antibiotics.

Antibiotics, like penicillin, fight infections due to bacteria that can cause some serious illnesses. But these medicines can cause side effects like skin rashes, diarrhea, or yeast infections. If your symptoms are from a virus and not from bacteria, you won't get better with an antibiotic, and you could still get these bad side effects.

Antibiotics also make bacteria more resistant to them. This can make future infections harder to treat. This means that antibiotics might not work when you really need them. Because of this, it is important that you only use an antibiotic when it is necessary to treat your illness.

How can you help? Carefully follow your doctor’s advice. You should not take antibiotics if you don’t need them.

When you have a cough, sore throat, or other symptoms the best possible treatments. If an antibiotic is prescribed, your doctor will explain this to you, and you should take it as directed.

Your health is very important to us. As your doctors, we promise to treat your illness in the best way possible. We are also dedicated to avoiding prescribing antibiotics when they are likely to do more harm than good.

If you have any questions, please feel free to ask your doctor, nurse, or pharmacist.

Sincerely,

[Signatures]
EXAMPLES: SSTI IN THE ED-LOW HANGING FRUIT?

- Nearly 3 million visits/year
- Empiric treatment for MRSA
- Overuse of broad spectrum agents for SSTI, both abscess and cellulitis
  - Clinician concerns about MRSA
  - Evidence suggests antibiotic overuse
  - Treatment discordant with guidelines
  - Antibiotics more common in ED setting
  - 3% adverse events
Provider Identified Barriers

- Patient expectations
- Lack of access to guidelines
INTERVENTION

• Educational presentations
• Implementation of a clinical treatment algorithm and order set based on IDSA practice guidelines
  • Incorporate current antibiograms, with current formulary approved drugs via EHR
• Peer comparison reports to ED clinicians
  • Duration of Rx
• Individual provider feedback: “top performer” or “not a top performer” and general feedback
  • Antibiotic selection and duration
  • Confidential feedback to outlier clinicians
RESOURCES NEEDED

- Formal commitment = ED champion
- Low hanging fruit for stewardship improvement
- Clinician buy-in and pre-program implementation
- Team: Director of ED Antibiotic Stewardship (10% protected time) and program associate (50-75% time)
- Consultation from adult + pediatric infectious diseases faculty
- Information Technology Support
  - Electronic order set in EHR
  - Analyst to develop feedback report for select ICD10 codes
Results of SSTI stewardship

*Difference of -3.0 (-0.6, -5.3) days (95% CI adjusted for provider cluster effects)
RESULTS

• Antibiotic overuse self reports decreased from 67% to 32%.
• Those reporting antibiotic stewardship programs as important increased from 72% to 84%.
• Of the 24 post survey respondents who had participated in the stewardship program,
  • 88% felt the program changed their practice,
  • 13% felt ED stewardship programs interfered with usual decision-making.
• 80% of respondents thought the stewardship program was valuable.
LESSONS LEARNED

• Ground up approach
• ED champion should be passionate and have administrative support
  • Buy in from ED colleagues/staff + other key stakeholders
  • Chief Quality Officer, adult/pediatric ID and pharmacists
• Implementation science and QI approaches can provide a framework for program implementation
  • Assessment/ongoing modification of ED workflow, stakeholder buy in, education and feedback delivery
  • Focus on low hanging fruit
• Evidence-based intervention tailored to local setting
• External factors and prioritization=need institutional buy in!
• Align projects with operational goals of the department and institution
• Relationship building and collaboration
  • Time should be spent at the outset & checking in frequently
MITIGATE STUDY

• MITIGATE: an Antibiotic Stewardship Implementation Science Project

• A Multifaceted Intervention to Improve Prescribing for Acute Respiratory Infection for Adults and Children in Emergency Department and Urgent Care Settings
### STUDY OVERVIEW

<table>
<thead>
<tr>
<th>Component</th>
<th>Definition</th>
<th>Adapted</th>
<th>Enhanced</th>
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<tbody>
<tr>
<td>Provider education</td>
<td>Educational presentations, electronic reminders of ARI guidelines, GetSmart brochures</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Patient education</td>
<td>CDC GetSmart posters in waiting rooms, discharge handouts</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Provider Commitment-Enhanced Patient Education</td>
<td>Personalized Posters in exam rooms including modified GetSmart content directed at patients, enhanced with E-BIFEP clinicians’ photos and signed public commitment to antibiotic stewardship <strong>20</strong>.</td>
<td>**</td>
<td>X</td>
</tr>
<tr>
<td>Physician champion</td>
<td>Designated physician at each site who will lead provider education and be an advocate for antimicrobial stewardship</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Departmental Feedback</td>
<td>Monthly aggregate of antibiotic prescribing practices for ARI from electronic health record data provided to departmental leadership</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Peer-comparisons in personalized Audit and Feedback</td>
<td>Personalized monthly performance ranking with each physician receiving designation of being a “top performer” (top decile) or “not a top performer” for appropriate antibiotic Rx for ARI delivered by email <strong>20</strong>.</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

*Peer comparison will be distinct from traditional audit-and-feedback interventions in its comparison with top-performing peers instead of average-performing peers and its delivery of positive reinforcement to top performers—a strategy shown elsewhere to sustain performance. Norms will be computed within each clinical institution.

**Because exam rooms are shared across enrolled providers and patients from both experimental arms, those in the adapted arm will be exposed to commitment posters despite having not been offered to make the commitment or be pictured on posters.
RESOURCES

• https://www.cdc.gov/getsmart/
• http://www.thecmafoundation.org/Programs/AWARE
AWARE

Background & History

The Alliance Working for Antibiotic Resistance Education (AWARE) was initiated by the CMA Foundation in 2000, as a long-term statewide effort to promote the appropriate use of antibiotics. Physician organizations, healthcare providers, health systems, health plans, public health agencies, consumer and community based organizations, federal, state and local government representatives and the pharmaceutical industry have all worked to achieve the mission and goals of this project.

PROJECT MISSION

Reduce the unnecessary use of antibiotics and reduce the prevalence of antibiotic resistant bacteria in California.

PROJECT GOALS

- Increase appropriate prescribing of antibiotics.
- Raise consumer awareness and understanding regarding the appropriate use of antibiotics.
- Mobilize the community to reduce the unnecessary use of antibiotics.

Download the AWARE Compendium
AWARE Basics

AWARE, the Alliance Working for Antibiotic Resistance Education, was initiated by the California Medical Association Foundation in 2006 and is a long-term, statewide effort to promote the appropriate use of antibiotics. The partnership includes physician organizations, healthcare providers, health systems, health plans, public health agencies, consumer and community based organizations, government representatives and the pharmaceutical industry.

The goals of AWARE are to:

- Increase appropriate prescribing of antibiotics.
- Raise consumer awareness and understanding regarding the appropriate use of antibiotics.
- Mobilize the community to reduce the unnecessary use of antibiotics.

The AWARE Toolkit

Each year, the CMA Foundation convenes an expert clinical workgroup to develop timely educational materials, commonly known as the "AWARE Toolkit," which promote the appropriate use of antibiotics in English and Spanish.

Through partnerships with health plans across California, high-prescribing physicians are identified and invited to download the most recent AWARE Toolkit. The goal of this educational intervention is to reduce the increasing rate of antibiotic resistance by promoting:

- Cautious prescribing by physicians.
- Decreasing demand for antibiotics for viral upper respiratory infections among patients, and increasing patient adherence to prescribed antibiotics for upper respiratory infections caused by bacteria.

AWARE Online

In addition to mailing the AWARE Toolkit to high-prescribing physicians, the CMA Foundation also offers educational materials online at www.AWARE.md. These materials are accessible to anyone interested in learning more about antibiotic stewardship, with some materials targeted specifically to patients and families.

Recently, the CMA Foundation developed the AWARE Toolkit mobile app for Apple and Android devices to provide prescribers with updated antibiotic guidelines directly on their mobile devices. To promote this feature, a "Choose AWARE" campaign was created to prevent targeted ads directed at high-prescribing physicians. In addition, a "Choose AWARE" keyword search feature allows users to search for specific keywords, such as "antibiotic resistance" or "antibiotic prescribing guidelines."
NEXT STEPS

• Toolkit development and approval
• Dissemination through various local and national channels
• Expansion and uptake of our toolkit to diverse academic and community-based collaborating sites through the CDPH ED Antibiotic Stewardship Collaborative
SUMMARY

• Providers prescribe antibiotics inappropriately for a variety of reasons
  • Fear of complications, perceived patient expectations, practice variability

• ED antibiotic prescribing can be improved
  • In line with national goals (and local goals)
  • Support and expand to community efforts

• Interventions effective in improving antibiotic Rx even in chaotic ED setting
  • Need to address more than knowledge deficits
  • Incorporating principles of implementation science can help change behavior


REFERENCES


• Daniella Meeker, Ph.D., & Jason N. Doctor, Ph.D., Schaeffer Center for Health Policy and Economics, University of Southern California, Los Angeles, CA Applications of Behavioral Economics to Clinical Quality Improvement
**Next Steps**

- Decide upon a quality improvement project
- Schedule ED one-on-one call with collaborative leads
- Conduct ED provider survey
Quality Improvement Project Examples

• Feasible in 12 months (duration of collaborative)
• Can build upon an existing initiative
• Syndrome-specific
• Track existing quality measures, e.g., HEDIS
One-on-One Phone Calls

• Each participating ED will discuss plans for QI project with collaborative leads
• Timeframe – April 2018
ED Provider Survey

• Prescribing practices and attitudes related to QI project area of focus
• ED Champion will receive link to be distributed to all ED staff
• Goal: at least 30% response rate
• Timeframe – May 2018 (TBD)
Collaborative Timeline

- Kick-off session Q&A
- Recruitment
- In-person meetings
- Provider Survey
- ED one-on-one meetings
- Webinar
- In-person meetings
- Webinar

Dates:
- Jan 2018
- Mar
- Apr
- May
- Jun
- Sep
- Dec
- Mar 2019
Next Meetings

In-person / SoCal
Friday, June 1, 2018, 10-12:30

In-person / NorCal
Monday, June 25, 2018, 1-3:30PM

Webinar
Tuesday, September 11, 2018, 12-1:30PM
Questions?

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