

NC CLASP OUTPATIENT STEWARDSHIP YEAR 2, SESSION 9

Additional Stewardship Strategies and Review June 12, 2024



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- These slides contain materials from a variety of colleagues, as well as the CDC, WHO, AHRQ, etc.





INTRODUCTIONS

Please put your name, clinic, and location in the chat!







CME AND CE CREDIT



CME & CE for participants

- Attendance and active participation per learning session
- Click the link in the chat during the session to document your attendance
- Complete surveys as requested



TODAY'S OVERVIEW

- Quick Review:
 - Antibiotic Allergies
- Additional Strategies to Reduce Antibiotic Overuse
 Vaccines
- Special Settings
- Review

VACCINES AND ANTIMICROBIAL RESISTANCE



Vaccines and AMR

- Most antibiotic stewardship focuses on proper treatment of sick people
- Vaccines prevent people from getting sick!

WHO, 2021



BACTERIAL VACCINES AND AMR

- Direct prevention of bacterial infections that require antibiotics
 - Pneumococcus, Hib, meningococcus, pertussis, diphtheria, typhoid
- Less fear of bacterial complications
- Targeting key bacterial drivers of antibiotic resistance
 - Pneumococcus
 - Typhoid



WHO. Leveraging Vaccines to Reduce Antibiotic Use and Prevent Antimicrobial Resistance, 2020

VIRAL VACCINES AND AMR

Prevention of viral infections with bacterial complications

- Influenza, measles, varicella
- ► Increasing flu vaccine coverage by 10 percentage points → 6.5% decrease in antibiotic prescribing (Klein et al., OFID, 2020)

Prevention of viral infections that may lead to unnecessary antibiotics

- ► Less acute illness → fewer antibiotic prescriptions
- ▶ Influenza, COVID-19, RSV, etc.

HOPEFUL FUTURE HIGH-IMPACT VACCINES

North America and Europe

- Staphylococcus aureus
- C. difficile
- Gonorrhea and chlamydia

Worldwide

- Tuberculosis
- Malaria



WHAT CAN PROVIDERS DO?

Ensure patients are adequately vaccinated!

- Newer vaccines for older patients RSV and PCV20
- New vaccines for babies nirsevimab for RSV
- Flu and COVID shots
- Advocate for pro-vaccine policies

Use vaccination rates as a quality metric

Clinic level, system level, payor level



OTHER SETTINGS



OTHER IMPORTANT SETTINGS FOR STEWARDSHIP

Emergency Department

Urgent Care

Dental offices

► Telemedicine



ED AND URGENT CARE

► Challenges

- ED context need to triage time and effort to sickest patients
- No prior relationship with patient; no follow-up
- Priority on assessment and disposition

Opportunities

- Very amenable to algorithmic approach for minor illnesses
- Often have pharmacy support for antibiotic recommendations



ED AND URGENT CARE: SUCCESSFUL STRATEGIES

Clearly defined diagnostic pathways and antibiotic treatment recommendations

Follow up on negative urine cultures and actively STOP antibiotics

Routine practice is to follow up only on *positive* cultures



DENTAL PRACTICE

- Dentists prescribe 10% of outpatient antibiotics
- Dental antibiotic prescribing has remained flat, while medical antibiotic prescribing has declined slightly since 2012
- AHA and ADA guidelines are available.

https://www.cdc.gov/antibioticuse/media/pdfs/dental-fact-sheet-508.pdf

Checklist for Antibiotic Prescribing in Dentistry



Pretreatment

- Correctly diagnose an oral bacterial infection.
- □ Consider therapeutic management interventions, which may be sufficient to control a localized oral bacterial infection.
- □ Weigh potential benefits and risks (i.e., toxicity, allergy, adverse effects, *Clostridium difficile* infection) of antibiotics before prescribing.
- Prescribe antibiotics only for patients of record and only for bacterial infections you have been trained to treat. Do not prescribe antibiotics for oral viral infections, fungal infections, or ulcerations related to trauma or aphthae.
- □ Implement national antibiotic prophylaxis recommendations for the medical concerns for which guidelines exist (e.g., cardiac defects).
- Assess patients' medical history and conditions, pregnancy status, drug allergies, and potential for drug-drug interactions and adverse events, any of which may impact antibiotic selection.

Prescribing

- □ Ensure evidence-based antibiotic references are readily available during patient visits. **Avoid** prescribing based on non-evidence-based historical practices, patient demand, convenience, or pressure from colleagues.
- Make and document the diagnosis, treatment steps, and rationale for antibiotic use (if prescribed) in the patient chart.
- Prescribe only when clinical signs and symptoms of a bacterial infection suggest systemic immune response, such as fever or malaise along with local oral swelling.
- Revise empiric antibiotic regimens on the basis of patient progress and, if needed, culture results.
- □ Use the most targeted (narrow-spectrum) antibiotic for the shortest duration possible (2-3 days after the clinical signs and symptoms subside) for otherwise healthy patients.
- Discuss antibiotic use and prescribing protocols with referring specialists.

Patient Education

□ Educate your patients to take antibiotics exactly as prescribed, take antibiotics prescribed only for them, and not to save antibiotics for future illness.

Staff Education

Ensure staff members are trained in order to improve the probability of patient adherence to antibiotic prescriptions.

National Center for Emerging and Zoonotic Infectious Disease Division of Healthcare Quality Promotion



TELEMEDICINE

Multiple models:

- Primary care practice-based
- Direct-to-consumer, fully remote practitioner
- Synchronous vs asynchronous; text messages vs audio vs audio/video

Convenient, efficient

May be able to reach rural and underserved populations

Challenges:

- Cannot perform physical exam (throat, ears, lungs, etc.)
- Usually cannot perform diagnostic testing (strep, urine culture, etc.)
- Physical exam warning signs may be missed (vital sign abnormalities, mastoiditis, etc.)



TELEMEDICINE

Antibiotic prescribing

- Generally lower-quality; lots of variability
- Primary care-based telehealth: good quality
- Less is known about direct-to-consumer services

Best-practice recommendations for practitioners:

- Synchronous, audio/video visits most effective whenever possible
- Have a backup plan if telemedicine is not appropriate
- Establish standards for antibiotic prescribing during virtual visits
- Avoid use of telemedicine for *convenience* only



DEFINING ANTIBIOTIC OVERUSE

Unnecessary antibiotics

- Prescribing when not indicated
- Viral URI, bronchitis, etc.

Excess Spectrum

- Treatment not targeted
- Example: thirdgeneration cephalosporins for respiratory infection

Duration

 Longer courses than necessary



CDC Core Elements of Outpatient Stewardship

https://www.cdc.gov/antibioticuse/community/pdfs/16_268900-A_CoreElementsOutpatient_508.pdf



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.

COMMITMENT



Identify a single leader who is accountable



Include stewardship duties in position descriptions and job evaluation criteria



Communicate with all clinic staff members to set patient expectations



Write and display public commitments in support of antibiotic stewardship



"TRACKING AND REPORTING"

- 1. Participate in CME and QI activities to track and improve antibiotic prescribing
- 2. Implement at least one antibiotic prescribing tracking and reporting system
- 3. Assess and share performance on quality measures and established reduction goals



EVIDENCE-BASED STRATEGIES

- Peer comparison
- Clinical decision support
- Nudging strategies
 - Written justification
 - Signed commitment letter
- Communication training



COMMUNICATION TRAINING

DART Project (Dialogue Around Respiratory Illness Treatment)

- 4 key components to successful communication
 - 1. Review your physical exam findings
 - "Lungs sound nice and clear"
 - 2. Deliver a clear diagnosis
 - "You have bronchitis"
 - 3. Use a two-part negative/positive treatment recommendation
 - Negative: "This is caused by a virus that antibiotics won't touch"
 - Positive: what things the patient can do to feel better
 - Start with negative and then do positive shift the focus away from antibiotics
 - 4. Provide a contingency plan



"EDUCATION AND EXPERTISE"

Patient Education

- Patient-Facing Materials
- Face-to-face counseling

Provider Education

• CME

Quality
 Improvement



Patient Education

DON'T SAY

- "You just have a virus, you just have to let it pass."
- "Let's start antibiotics just in case."
- "Why don't you come in for a visit so we can see if you need antibiotics?"

DO SAY

- "You definitely have a viral infection, but it's not something that antibiotics are going to help with."
- "I think this is a bacterial infection, and I think it's worth taking antibiotics to help you get better faster."
- "Why don't you come in for a visit so we can figure out what's going on?"



HARMS CAUSED BY ANTIBIOTICS

Antibiotic resistance

- Especially recent and/or long-term antibiotic exposure (e.g., UTI prophylaxis)
- Usually difficult to link this directly

Antibiotic-related toxicity

- Antimicrobials cause 1/6 of all ED visits for adverse drug events (#2 after anticoagulant/antiplatelet drugs)
- Over half of all ED visits for ADEs in children under 6

C. difficile infection

▶ 10% reduction in outpatient antibiotics → 16.8% reduction in community-acquired C-diff



SPECIFIC CONDITIONS



CONDITIONS DISCUSSED

Infection	Biggest Problem	Recommended First-Line Antibiotics
Acute Bacterial Sinusitis	Overdiagnosis, antibiotic duration too long	Amox-clav x 7 days (adults) or 7-10 days (children)
Acute Bronchitis	Antibiotics given at all (confusion with pneumonia)	None
Community-Acquired Pneumonia	Overdiagnosis, antibiotic selection	Amox-clav x 5-7 days +/- azithromycin (adults)
COPD Exacerbation	Using antibiotics when unlikely to help	Only if purulent sputum plus either increased sputum or increased dyspnea
Pharyngitis	Overdiagnosis of strep throat	Penicillin IM x1 or amoxicillin x 10 days
Acute otitis media	Overdiagnosis; broad-spectrum antibiotics	Amoxicillin x 10 days (first-line in kids)
Urinary Tract Infection	Overdiagnosis (many false-positive results); broad-spectrum antibiotics; excessive duration	Cystitis: nitrofurantoin Pyelonephritis: ceftriaxone; ciprofloxacin if less severe
Skin and soft-tissue infection	Overdiagnosis of cellulitis; excessive MRSA coverage; excessive duration	Cellulitis: cephalexin x 5 days Abscess: I&D TMP-SMX or doxy x 5 days



ANTIBIOTIC ALLERGY



PENICILLIN ALLERGY IMPACT

Reported penicillin allergy associated with:

- 1.5x greater risk of surgical site infection
- Increased risk of MRSA
- Increased risk of C-diff
- 14% greater risk of mortality
- 10% of all patients report a penicillin allergy
- Only 10% of allergy reporters are *actually* allergic
- Alternative antibiotics are often:
 - Broader-spectrum
 - Less effective
 - More likely to cause C-diff

PENICILLIN ALLERGIES

- Penicillin allergy is often falsely reported
- Inaccurate penicillin allergy labels are <u>harmful</u>
- You can identify patients who are likely to benefit from penicillin allergy testing
- Penicillin allergy testing is NOT a waste of time, effort, or money. It is very helpful for patients – and they appreciate it!
- After testing, most patients reporting a penicillin allergy can safely take betalactams



TAKING ACTION



A GOOD TARGET SHOULD BE...

Common

- Salient to clinicians
- Measurable impact in reasonable timeframe

Impactful

- Avoiding toxicity, preventing Cdiff
- Maximizing efficacy

Measurable

- Data is available
- Metric matches the desired change

Actionable

- Clear plan for change
- Sensible for stakeholders



POTENTIAL TARGETS: CONDITIONS

Condition	Potential Problems
Otitis media	Unjustified cephalosporin use
Sinusitis	-Use of azithromycin or fluoroquinolones -Not applying strict diagnostic criteria -Durations: 5-7 days now recommended
Viral URI (e.g., pharyngitis with negative testing, bronchitis)	Prescribing any antibiotic at all
UTI	-Overdiagnosis (asymptomatic bacteriuria) -Prescribing doesn't match resistance patterns -Excessive durations for cystitis



POTENTIAL TARGETS: DRUGS

Drug or Class	Potential Problems
Azithromycin	Overuse in acute respiratory infections when beta- lactams are more likely to be effective
Fluoroquinolones	Overuse in acute respiratory infections and/or urinary tract infections in which beta-lactams would be equally effective with less toxicity
Third-generation cephalosporins	Overuse in acute respiratory infections in which amox+/- clav would be sufficient: pneumonia, sinusitis, streptococcal pharyngitis





SMART AIMS

► Specific

- Have a clear goal in mind.
- NOT: "Use fewer fluoroquinolones."
- "Reduce X by 25%." "Increase Y by 50%." "Achieve 90% compliance."

Measurable

Can't be specific if you can't measure it

Attainable

- Is there a strategy that's likely to work?
- Don't set your goal too high

▶ Relevant

- "If we achieve our aim, will our patients be safer/have better outcomes?"
- Make sure your aim affects a lot of patients (or makes a big difference for a small number)

Time-bound

- Set a deadline
- Work backward from there

CASE EXAMPLES



A nurse in a pediatric clinic notices that they are seeing a ton of cases of strep throat. She did a CE course recently and learned that strep throat is very uncommon before school age, but many of the patients they are diagnosing with strep are under 4 years of age. What is the most likely explanation?

- There is new strain of Group A Strep that causes more illnesses in young children
- The clinic adopted a new workflow so that the MA can swab the patient for strep before the provider sees them
- Kids are just more susceptible to Group A Strep these days



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STREP THROAT CASE

- Next steps
 - If possible, get data on strep throat diagnoses
 - Arrange an educational session for all staff members on strep throat symptoms
 - Change the workflow to integrate screening for symptoms that are rare in strep throat
 - Cough, hoarse voice, runny nose

Develop a SMART Aim

"In the next 6 months, we will screen at least 80% of patients with sore throat for viral symptoms before we get a strep swab."



A nurse practitioner in Internal Medicine recently had a 60-year-old patient suffer an Achilles tendon rupture while taking ciprofloxacin for 14 days for a UTI. She reflects on her own practice – she uses fluoroquinolones often for suspected UTI and sometimes for sinusitis or pneumonia if the patient reports a penicillin allergy. What steps can she take to prevent future adverse effects from fluoroquinolones in her clinic? What steps can she take to prevent future adverse effects from fluoroquinolones in her clinic?

- Obtain and review local urine culture antibiogram to see if alternatives to FQ would offer better coverage (e.g., cephalexin, TMP-SMX, nitrofurantoin)
- Conduct an educational session for providers about the differences between asymptomatic bacteriuria, cystitis, and pyelonephritis
- Obtain a list of clinic patients with reported penicillin allergies and frequent antibiotic prescriptions; refer the patients to an allergist
- Initiate a comprehensive QI project to stop antibiotics when urine cultures return negative

WHAT CAN WE DO EVERY DAY?

- Educate our patients continuously
- Strive for guideline adherence
 - Evidence-based diagnostic criteria
 - Narrowest-spectrum effective antibiotics
 - Shortest effective durations
- Little projects:
 - Make one-page or card-sized guideline summaries and post on computers
 - Educational sessions focused on antibiotic stewardship
 - Antibiotic stewardship commitment posters



THE NORTH CAROLINA CLINICAL ANTIBIOTIC STEWARDSHIP PARTNERS (NC CLASP)

All the information from today's session will be on our website <u>https://spice.unc.edu/ncclasp/</u>









THANK YOU!!



North Carolina Clinical Antibiotic Stewardship Partners

