

Expert Panel

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Introduction

Antibiotic stewardship is assuring the right drug, in the right dose, for the right duration, at the right time, every time. The CDC has published Antibiotic Stewardship Core Elements for various healthcare settings (Hospital; Small and Critical Access Hospitals; Outpatient; and Nursing Homes). There is notable alignment in the guidelines that create opportunities to establish programs that complement one another. For purposes of this coaching event attention focused on the hospital and outpatient guidelines; the on-demand [STRIVE Antibiotic Stewardship Learning Modules](#) served as the platform for discussion.

Core Elements | Leadership Endorsement and Commitment and Expertise

Setting	CDC Recommendations Leadership Endorsement and Commitment and Expertise
Outpatient	Commitment <ul style="list-style-type: none"> -Write and display public commitments in support of antibiotic stewardship. -Identify a single leader to direct antibiotic stewardship activities within a facility. -Include antibiotic stewardship-related duties in position descriptions or job evaluation criteria. -Communicate with all clinic staff to set patient expectations.
Hospital	Leadership <ul style="list-style-type: none"> • Obtain a formal, written statement of support from leadership as well as a budget. Accountability <ul style="list-style-type: none"> • Designate a physician (e.g., CMO) in the C-suite or individual that reports to C-suite to be accountable for the outcomes of the antibiotic stewardship program. Commitment <ul style="list-style-type: none"> • Approve a policy for the creation and/or expansion of the antibiotic stewardship program to include all core elements. • Integrate stewardship activities into ongoing quality improvement and/or patient safety efforts in the hospital (e.g., efforts to improve sepsis management) • Create a reporting structure for the stewardship program to ensure that information on stewardship activities and outcomes is shared with facility leadership and the hospital board (e.g., semi-annual stewardship update at the board meeting). • Issue a formal board-approved statement on the importance of the antibiotic stewardship program and include in the hospital's annual report. • Issue a statement from the hospital leadership (e.g., medical, pharmacy and nursing) to all providers and patients highlighting the hospital's commitment to improving antibiotic use. • Support training for hospital stewardship leaders on antibiotic stewardship through on-line or in-person courses. Expertise <ul style="list-style-type: none"> • Build a multidisciplinary team lead where possible by a PharmD, ID Specialist <p>Include IP, QI, lab, IT, nursing ES</p>

Expert Panel Recommendations

Hospital

- Use executive leaders, i.e., CMO, pharmaceutical lead, to help pitch the idea of developing an antibiotic stewardship program with dedicated resources of a pharmacist's time. Then, increase allocated time as improvement and benefit around antibiotic stewardship is noted, i.e., reduction in antibiotic resistant infections; reduction in adverse effects from unnecessary or inappropriate antibiotics; significant cost reductions in antibiotic use.
- Create a business case for AS programs demonstrating cost savings and improved quality of care.
- Define nursing's role in AS and provide the resources to build capacity and establish confidence.

- In smaller facilities without in-house pharmacy support consider expanding contract(s) to allocate AS support.

Outpatient

- Focus on improving prescribing habits.
- Review quality measures and health measures that are data driven & emphasized in outpatient settings. Focus on those ASP-associated measures that are already tracked; stress how these measures can be improved through an ASP.
- As the program matures expand these measures and/or look at other types of infections and associated antibiotic prescribing practices.
- Identify one or two individuals from the medical staff to be provider champions, i.e., medical director, staff physician, FNP.
- Involve provider champions in meetings to heighten awareness and generate staff-wide interest.
- Generate support and create commitment and accountability by getting others involved in AS work.

Core Element | Action for Policy and Practice

Setting	CDC Recommendations Action for Policy and Practice
Outpatient	<ul style="list-style-type: none"> -Use evidence-based diagnostic criteria and treatment recommendations. -Use delayed prescribing practices or watchful waiting, when appropriate. -Provide communications skills training for clinicians. -Require explicit written justification in the medical record for non-recommended antibiotic prescribing. -Provide support for clinical decisions. -Use call centers, nurse hotlines, or pharmacist consultations as triage systems to prevent unnecessary visits.
Hospital	<p>Broad</p> <ul style="list-style-type: none"> -put in place a formal procedure for all clinicians to review the appropriateness of all antibiotics 48 hours after initial orders (i.e., antibiotic time out)? -implement a process for antibiotic agents to be approved by a physician or pharmacist prior to dispensing (i.e., preauthorization)? -implement a physician or pharmacist review of therapy for specified antibiotic agents with feedback (i.e., prospective audit)? <p>Pharmacy</p> <ul style="list-style-type: none"> -Review antibiotics for unnecessary duplicative antibiotic therapy, such as double anaerobic (e.g., piperacillin/tazobactam AND metronidazole) or double anti-MRSA coverage. - Review for opportunities for intravenous to oral conversion (e.g. patients taking other oral medications). - Monitor for medication safety (e.g., renal dose adjustments) though these represent general pharmacy practices and are not specific to stewardship. <p>Nursing</p> <ul style="list-style-type: none"> -Review culture techniques to ensure that microbiology cultures are collected properly. - Review culture results with the treating clinician and pharmacist. - Monitor response to antibiotic therapy with feedback to the treating clinician and pharmacist. - Assess oral intake and clinical status to alert providers and pharmacist when there are opportunities to convert antibiotics from intravenous to oral therapy. - Educate patients about potential adverse events associated with antibiotics, especially C. difficile infection. - Nurses are also well positioned to initiate “antibiotic time-outs” with the treating clinician and pharmacist, and review antibiotic therapy after 48 hours of treatment. <p>UTI</p> <ul style="list-style-type: none"> -Implement criteria for ordering urine cultures to ensure that positive cultures are more likely to represent infection, rather than bladder colonization. -Establish criteria to distinguish between asymptomatic and symptomatic bacteriuria. -Avoid antibiotic therapy for asymptomatic bacteriuria except in certain clinical situations where treatment is indicated, such as for pregnant women and those undergoing an invasive genitourinary procedure. -Fluoroquinolones are often not optimal empiric therapy. -use the shortest duration of antibiotic therapy that is clinically appropriate

	<p>CAP</p> <ul style="list-style-type: none">-review case at 48 hours to confirm diagnosis-Avoid empiric use of antipseudomonal beta-lactams and/or methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) agents unless clinically indicated.-In most cases, uncomplicated pneumonia can be treated for 5-7 days in the setting of a timely clinical response. <p>Skin and Soft Tissue Infections</p> <ul style="list-style-type: none">-Develop diagnostic criteria to distinguish purulent and non-purulent infections and severity of illness (i.e., mild, moderate and severe) so that skin and soft tissue infections can be managed appropriately according to guidelines.-Avoid empiric use of antipseudomonal beta-lactams and/or anti-anaerobic agents unless clinically indicated.-most cases of uncomplicated bacterial cellulitis can be treated for 5 days if there is a timely clinical response.
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Expert Panel Recommendations

Hospital

- Do not focus on implementing all of the suggestions around this core element; instead, review them and identify strategies pertinent to your organization.
- Preserve the use of broad spectrum or costly antibiotics by requiring providers to confer with an ID specialist. For those who don't have an ID specialist, consider talking to regional center and possibly contract that service for preauthorization of "big gun" antibiotics.
- Pharmacist review for dose optimization is important, especially for drugs that require therapeutic drug monitoring, i.e., vancomycin and aminoglycosides, etc.
- Set-up process for pharmacist review of all antibiotics administered with immediate feedback provided along with friendly suggestions.
- Provider and staff education is important; but, audit and feedback are more effective to create rapid change.
- Track provider-level data and compare them to their peers. This can be a little uncomfortable; but, it can be a very powerful tool to improve utilization.
- Developed guidelines for appropriate use of specific antibiotics; and, enforce appropriate use by programming in the EHR a force-function to select an approved indication from a list. If antibiotic is ordered for an indication other than the approved, require provider to free-text specific rationale. This process has an immediate impact.

Outpatient

- Start with communication skills training for clinicians. A recent national webinar discussed physician-to-patient communication in the clinic setting. Recommend listening to this event with your physician group and follow with a discussion around current communications and how they might go about communication a little differently. Click [here](#) to access the recording of the *National Coordinating Center Antibiotic Stewardship LAN| Understanding Physician-to-Patient Communication Strategies to Avoid Unnecessary Antibiotic Prescribing*
- Involve medical staff in discussions around expanding AS.
- Provide guidance to assure antibiotic appropriateness, i.e., track and report individual antibiotic prescribing practices.

Summary | Antibiotic Stewardship Coaching Call and Facilitated Discussion - November 30, 2017

- Use antibiograms developed on the hospital side as a tool to guide clinical decision making.
- Build capacity and involve nursing, i.e., where appropriate incorporate watchful waiting in triage process.
- Use nationally recognized patient education resources such as the CDC's [Choosing Wisely](#) and Consumer Report's [ConsumerHealthChoices](#).
- It's important for patients to leave the clinic with something in hand. Consider developing patient education materials inclusive of recommended over-the-counter products to alleviate symptoms, such as the NDDoH [Symptom Relief Prescription Pad](#) or the Great Plains QIN [Rx Pad](#).
- Incorporate links to professional and patient education tools in communications distributed widely by partnering entities, i.e., ND Academy of Family Physicians; ND College of Physicians and ND Pediatric Association.

Core Elements | Data and Tracking

Setting	CDC Recommendations Data and Tracking
Outpatient	<ul style="list-style-type: none"> -Self-evaluate antibiotic prescribing practices. (This intervention only applies to solo practitioners or practices with fewer than 5 clinicians as long as all clinicians participate.) -Participation in continuing medical education and quality improvement activities to track and improve antibiotic prescribing. (This intervention only applies if all clinicians in the practice participate in the activity.) -Track and report antibiotic prescribing for one or more high priority conditions. -Track and report the percentage of all visits leading to antibiotic prescriptions. -(If already tracking and reporting one of the above) Track and report, at the level of a health care system, complications of antibiotic use and antibiotic resistance trends among common outpatient bacterial pathogens. -Assess and share performance on quality measures and established reduction goals addressing appropriate antibiotic prescribing from health care plans and payers.
Hospital	<p>Broad</p> <ul style="list-style-type: none"> -adherence to documentation policy (dose, duration and indication) -adherence to facility treatment recommendations -compliance with one or more of the specific interventions <p>Antibiotic Use and Outcome</p> <ul style="list-style-type: none"> -track rates of CDI infections -create an antibiogram <p>Antibiotic Use</p> <ul style="list-style-type: none"> -days of therapy - defined daily dose -expenditures for antibiotics

Expert Panel Recommendations

Hospital

- Keep data focus.
- Review CDC resources; consider the recommendations provided as they pertain to your facility.
- Inquire with key stake holders in your organization to see where they think attention should be focused, where is there opportunity for improvement...can they identify a problem area?
- Determine who should be responsible for data collection; make it an expectation.
- Dove-tail on to current data collection efforts.

Outpatient

- Evaluate your organization's current/past quality measures to see if your facility has been tracking anything that related to antibiotic use; and, if so, look at that first - that's a start.
- Work with QI or IT to retrieve data that's been collected; assess performance.
- Review meaningfulness of data collected and explore ways to make it better. Consider how the data tracking process can be applied to other clinical conditions or topic areas.
- Consider tracking physician level data.
- Review data frequently looking at how and what data is captured, i.e., the numerator and denominator; if it's not yielding desired information modify it and implement it.
- Evaluate how data is taken back to providers - facility specific information is good but provider level data gives individual practitioners a glimpse of how they're doing.

Education and Expertise

Setting	Recommendations Education and Expertise
Outpatient	<p>Patient Education</p> <ul style="list-style-type: none"> -Use effective communications strategies to educate patients about when antibiotics are and are not needed. -Educate about the potential harms of antibiotic treatment. -Provide patient education materials. <p>Clinicians</p> <ul style="list-style-type: none"> -Provide face-to-face educational training (academic detailing). -Provide continuing education activities for clinicians. -Ensure timely access to persons with expertise.
Hospital	<ul style="list-style-type: none"> • Integrate regular (e.g., monthly or at least quarterly) updates on antibiotic stewardship and resistance into communications tools with particular focus on interventions related to CAP, UTI and SSTI (e.g., blogs, website, intranet, and employee newsletters). • Provide targeted in-person or web-based educational presentations and messages to key provider, pharmacist and nursing groups at least annually (e.g., staff meetings for sections). • One-on-one provider education/coaching (e.g., academic detailing). • Incorporate antibiotic stewardship education into orientation for new medical, pharmacist and nursing staff and required annual provider educational programs. • Incorporate antibiotic stewardship into (re)credentialing education • Ask the patient-family advisory committee for input on patient education material. • Develop stories to share how patients' lives are affected by complications of antibiotic use (e.g. C. difficile infection). • Include information on antibiotics in patient education materials.

Expert Panel Recommendations

Hospital

- Develop patient resources and borrow from those that are available.
- Drug Expertise – appoint someone who is accountable and responsible; it doesn't need to be the AS lead.
- Build internal capacity...make education/training available. Consider programs like [MAD-ID](#) in-person training for pharmacists, physicians and other healthcare professionals or the [SIDP](#) Antimicrobial Stewardship Certificate Program (online) for pharmacists.
- Provide CEs as an added incentive to bolster participation in AS education.

Outpatient

- Make resources available through the EHR.
- Include AS information in provider meetings; a champion can be spawned from sharing info in meetings!

Questions and Answers

Question

When a culture comes back with mixed microflora so there's obviously no sensitivity and they're probably on their antibiotic for a few days, what's the right course then?

Answer

This is frequent challenging clinical scenario. What that means is that it's a negative culture. It does not have enough organisms there with a predominant pathogen to suggest that it's a positive culture. It's typically less than a 100,000 colonies, often less than 10,000 colonies, of 2 or more organisms, and that suggests a contaminated specimen. If it's in a female, it usually means a vaginal contamination so technically that's a negative culture. You have to use clinical judgement. If the patient has questionable symptoms, strongly consider stopping therapy because you probably don't have a true UTI. If you have this kind of a culture report and the patient has definitive symptoms – dysuria, frequency, urgency – true UTI symptoms – it's possible that hidden in the mixed microflora was a true pathogen; so, based on the patient's symptoms you should finish the empiric course of therapy.

Question

There has been some recent discussion with providers about Macrobid (nitrofurantoin) for UTIs and a question that has come up is, "... at what kidney function level do you not prescribe it?" The drug was once contraindicated in individuals with a CrCl < 60 mL/min and now the updated Beers Criteria lowered the renal function breakpoint to < 30 mL/min. This is a great first line antibiotic for UTIs but the patient's commonly in question are our elderly patients with decreased kidney function.

Answer

Previous Beers Criteria recommended not using Nitrofurantoin with a CrCl < 60. This excluded many if not most elderly patients. In 2015 that recommendation was changed to allow usage down to a CrCl of 30 or above. This greatly expanded the population eligible for this very good first line drug for uncomplicated UTIs. It should be noted that the previous concern wasn't due to any increased risk of toxicity, but it was because of a perceived decrease in efficacy due to lowered excretion of the drug into the urinary tract with the lowered CrCl. As it turns out, the evidence for that concern was pretty poor, and more recent studies show the drug is safe and effective even with a CrCl as low as 30. It should be noted, however, that nitrofurantoin is best used as a 5 day course, and preferably no longer than 7 days. The risk of serious pulmonary toxicity increases substantially with prolonged use. The use of nitrofurantoin for prolonged urinary prophylaxis should be avoided.