

Ambulatory Care Antimicrobial Stewardship Elements & Order Set Organization

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Objectives

1. Describe the rationale for antimicrobial stewardship efforts and their relevance to ambulatory care practice.
2. Identify pertinent standards of practice and their implications on establishing attainable antimicrobial stewardship goals.
3. Apply currently available evidence to develop practical strategies for achieving antimicrobial stewardship goals.
4. Apply stewardship principles when implementing organized CPOE and clinical decision support tools in EHR

Contents:

1. Purpose

- Background information

2. Goals

- Standards: TJC
- Standards: AAAHC/CDC Core Elements

3. Interventions

- Evidence-based recommendations

1. Order Set Organization

- Evidence Summary
- Examples

2. Conclusions

- Recommendation Summary
- Resources

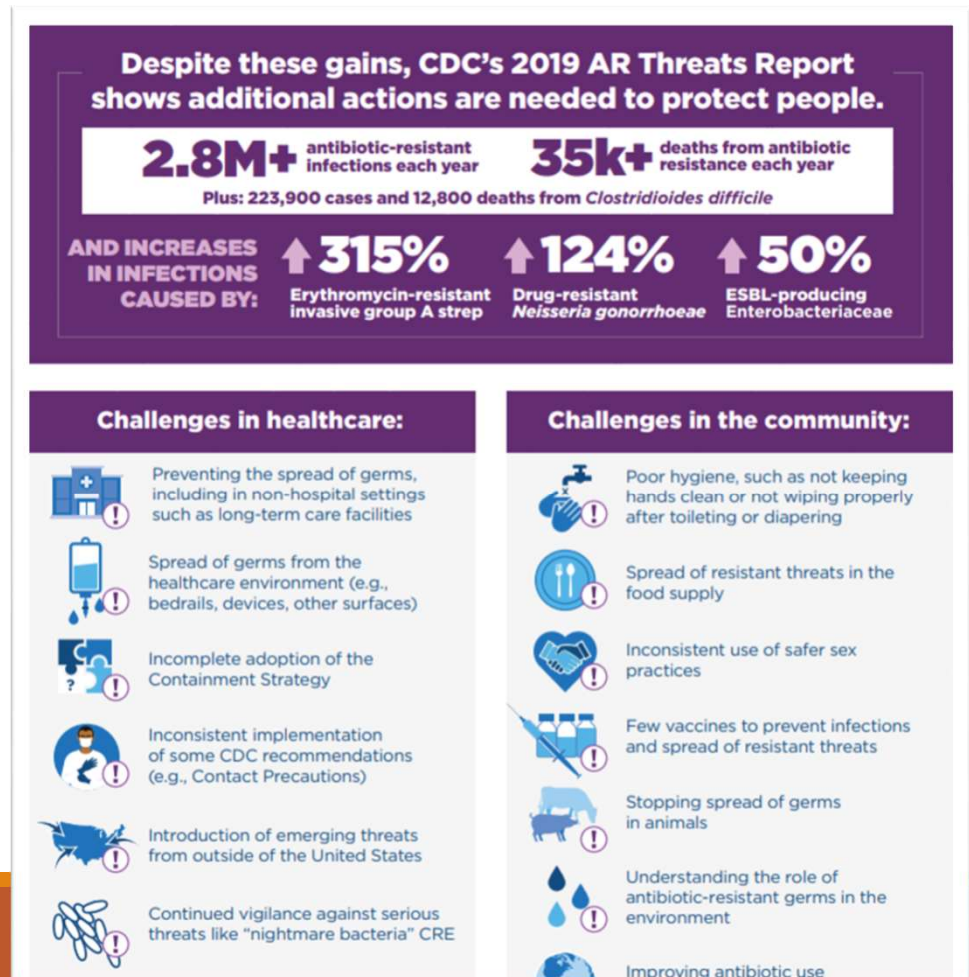
PURPOSE



Background

2019 Antibiotic Resistance Threat Report, CDC¹

- Over 2.8 million antimicrobial-resistant infections occur annually, resulting in >35,000 deaths
- Additionally, *C. difficile* was responsible for 223,900 hospitalizations with 12,800 deaths (2017 data)



Background

Executive Order 13676: *Combating Antibiotic-Resistant Bacteria* (2014)²

- National Strategy for Combating Antibiotic-Resistant Bacteria(2014)³
- National Action Plan for Combating Antibiotic-Resistant Bacteria (2015)⁴

The White House

Office of the Press Secretary

For Immediate Release

September 18, 2014

Executive Order -- Combating Antibiotic-Resistant Bacteria

EXECUTIVE ORDER

COMBATING ANTIBIOTIC-RESISTANT BACTERIA

By the authority vested in me as President by the Constitution and the laws of the United States of America, I hereby order as follows:

Section 1. Policy. The discovery of antibiotics in the early 20th century fundamentally transformed human and veterinary medicine. Antibiotics save millions of lives each year in the United States and around the world. The rise of antibiotic-resistant bacteria, however, represents a serious threat to public health and the economy. The Centers for Disease Control and Prevention (CDC) in the Department of Health and Human Services (HHS) estimates that annually at least two million illnesses and 23,000 deaths are caused by antibiotic-resistant bacteria in the United States alone.

Detecting, preventing, and controlling antibiotic resistance requires a strategic, coordinated, and sustained effort. It also depends on the engagement of governments, academia, industry, healthcare providers, the general public, and the agricultural community, as well as international partners. Success in this effort will require significant efforts to minimize the emergence of antibiotic-

Background

National Action Plan for Combating Antibiotic-Resistant Bacteria (2015) Objectives:⁴

- 1.1.1A: Strengthen antibiotic stewardship in inpatient, outpatient, and long-term care settings by **expanding existing programs, developing new ones, and monitoring progress and efficacy**.
- 1.1.1B: **Strengthen educational programs** such as Get Smart: Know When Antibiotics Work*, which inform physicians, agricultural workers, and members of the public about good antibiotic stewardship.
- 1.1.3: **Implement annual reporting of antibiotic use in inpatient and outpatient settings** and identify geographic variations and/or variations at the provider and/or patient level that can help guide interventions.

*Now named the “Be Antibiotics Aware” initiative¹⁰



Background

National Action Plan for Combating Antibiotic-Resistant Bacteria (2015) Objectives:⁴


- **3.1: Develop and approve new diagnostics**, including tests that rapidly **distinguish between viral and bacterial pathogens and tests that detect antibiotic resistance** that can be implemented in a wide range of settings.
- **3.2: Expand the availability and use of diagnostics to improve treatment of antibiotic resistant bacteria**, enhance infection control, and facilitate outbreak detection and response in healthcare and community settings.

GOALS



Standards – TJC⁵

Antimicrobial Stewardship in Ambulatory Health Care (MM.09.01.03) effective as of January 1, 2020:

- EP 1: The **organization identifies an individual(s) responsible** for developing, implementing, and monitoring activities to promote appropriate antimicrobial medication prescribing practices.
 - EP 2: : The organization sets **at least one annual antimicrobial stewardship goal**.
 - EP 3: The organization uses **evidence-based practice guidelines** related to its annual antimicrobial stewardship goal(s).
- 

Standards – TJC⁵

Antimicrobial Stewardship in Ambulatory Health Care (MM.09.01.03) effective as of January 1, 2020:

- EP 4: The organization provides all clinical staff and licensed independent practitioners with **educational resources related to its antimicrobial stewardship goal(s) and strategies** that promote appropriate antimicrobial medication prescribing practices.
- EP 5: The organization collects, analyzes, and **reports data pertaining to the antimicrobial stewardship goal(s) to organizational leadership and prescribers** (i.e. antimicrobial prescribing patterns, antimicrobial resistance patterns, or an evaluation of the antimicrobial stewardship activities implemented).

Standards – AAAHC: Patient Safety Toolkit^{6,7}

- Currently no official requirements or stated performance measures
- Patient Safety Toolkit: CDC Core Elements of Outpatient Antibiotic Stewardship
- Core Elements checklist for facilities and prescribers
 - Baseline assessment and evaluation of progress



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.

Standards – AAAHC: Patient Safety Toolkit^{6,7}

Core Elements: Commitment

Dedication and accountability for optimized antibiotic prescribing and patient safety:

- Identify and establish an accountable leader to direct activities.
- Stewardship duties are included in position description or evaluation criteria.
- Clinical staff receive appropriate training on setting patient expectations.

Standards – AAAHC: Patient Safety Toolkit^{6,7}

Core Elements: Action

Implementation of policies or practices to improve antimicrobial stewardship:

- Provide communications skills trainings for clinicians.
- Require explicit justification of prescribing practices that deviate from guideline recommendations.
- Provide clinical decision support.
- Triage systems in place to prevent unnecessary visits (i.e. call centers, nurse hotlines, or pharmacist consultation)

Standards – AAAHC: Patient Safety Toolkit^{6,7}

Core Elements: Tracking/Reporting

Monitoring of antibiotic prescribing aspects:

- Antibiotic prescribing for high-priority conditions.
- Percentage of all visits leading to antibiotic prescriptions.
- Antibiotic complications and trends in resistance – reported at the level of the health care system.
- Assess performance on quality measures and established reduction goals addressing antibiotic prescribing from third party payers/health care plans.

Standards – AAAHC: Patient Safety Toolkit^{6,7}

Core Elements: Education and Expertise

Provision of relevant resources to clinicians and patients regarding evidence-based prescribing practices:

- In-person educational training (academic detailing).
- Continuing education activities for clinicians.
- Timely access to reliable subject-matter experts.

Standards – AAAHC: Patient Safety Toolkit^{6,7}

Core Elements: Prescriber Checklist

COMMITMENT

1. Can you demonstrate dedication to and accountability for optimizing antibiotic prescribing and patient safety related to antibiotics? Yes No

If yes, indicate which of the following are in place (select all that apply)

- Write and display public commitments in support of antibiotic stewardship.

ACTION

2. Have you implemented at least one practice to improve antibiotic prescribing? Yes No

If yes, indicate which practices which you use. (Select all that apply.)

- Use evidence-based diagnostic criteria and treatment recommendations.
 Use delayed prescribing practices or watchful waiting, when appropriate.

TRACKING AND REPORTING

3. Do you monitor at least one aspect of antibiotic prescribing? Yes No

If yes, indicate which of the following are being tracked. (Select all that apply.)

- Self-evaluate antibiotic prescribing practices.
 Participate in continuing medical education and quality improvement activities to track and improve antibiotic prescribing.

EDUCATION AND EXPERTISE

4. Do you provide education to patients and seek out continuing education on antibiotic prescribing? Yes No

If yes, indicate how you provide antibiotic stewardship education. (Select all that apply.)

- 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

INTERVENTIONS



Evidence-based Recommendations

Dobson *et al.*: Patient-infection continuum ⁸

Need to seek care

- **Aim to avoid unnecessary clinic visits**
 - Preventative initiatives
 - Patient education
 - Discharge/transitions in care

Decision to prescribe antibiotics

- **Optimize antibiotic use**
 - Point-of-care (POC) diagnostics
 - Prescriber auditing and education
 - Development of regional/local antibiograms
 - Development of medication formulary

Evidence-based Recommendations

Dobson *et al.*: Patient-infection continuum⁸

Dispensing
antibiotics

- **Improve appropriate antibiotic use**
 - Verification of prescribing decisions
 - Pharmacists reinforce education points with prescribers

Post-encounter
care

- **Improve patient safety**
- **Decrease antibiotic overprescribing**
 - Implement “delayed prescribing” strategies
 - 24-48 hr. follow-up as a safety net

Evidence-based Recommendations

Auditing and feedback

Study	Intervention
Meeker, <i>et al.</i> ⁹	Peer comparison (with reinforcement) can result in reduction of unnecessary prescriptions for acute respiratory tract infections.
Gerber, <i>et al.</i> ^{10,11}	Continuous and regular reporting of metrics (prescriber performance) led to a 50% reduction in broad spectrum antibiotics (multiple diagnoses) with regular, quarterly reports. Upon follow-up, this effect was found to not be sustained once reporting ceased.

Evidence-based Recommendations

Education and guideline implementation

Study	Intervention
Mangione-Smith, <i>et al.</i> ¹² ; Coxeter, <i>et al.</i> ¹³	Communication training: focuses on the quality of communication between prescribers and patients. Implementation is shown to have had an 85% reduction in risk of prescribing for viral respiratory tract infections AND improve patient satisfaction. Shared decision making has additionally shown a 38% reduction in prescribing compared to usual care with no reduction in patient satisfaction.

Evidence-based Recommendations

Education and guideline implementation

Study	Intervention
Drekonja, <i>et al.</i> ¹⁴	Systematic review: implementation of antibiotic prescription guidelines were associated with improved outcomes (overall antibiotic usage and appropriateness of selection).

Evidence-based Recommendations

Point-of-care Testing	
Study	Intervention
Klepser <i>et al.</i> : ¹⁵	Collaborative disease management for patients with flu-like illness (55 pharmacies across 3 states); patients were screened for use of flu rapid CLIA-waived test; 11% positive resulting in antiviral treatment under the collaborative practice. No antibiotics were given.
Klepser <i>et al.</i> : ¹⁶	Pharmacy-based pharyngitis management program using GAS RADT screening in adults with S/Sx consistent with pharyngitis. 273 pt seen; only 17.6% positive, receiving antibiotics per the program. Pt testing negative were counseled on supportive care - no negative outcomes were noted in those w/o antibiotic treatment.

Evidence-based Recommendations

Delayed Prescribing

Study	Intervention
Chao <i>et al.</i> : ¹⁷	Prospective randomized trial comparing antibiotic use for AOM at 3 days (primary) and 7-10 days (secondary) between groups with a “delayed antibiotic” prescription and groups without any at all. This study additionally assessed parental visit satisfaction. Observation therapy was well accepted by parents of children with AOM. Observation without an antibiotic prescription led to lower antibiotic use for AOM than observation with a delayed antibiotic prescription without affecting visit satisfaction.

Evidence-based Recommendations

Delayed Prescribing

Study	Intervention
de la Poza <i>et al.</i> : ¹⁸	Randomized clinical trial in adults with acute RTIs comparing four treatment strategies: no prescription given, prescription given immediately , prescription given with instructions for delayed fill , and a prescription available for pick up at a return visit . Antibiotic utilization rates were 12%, 91%, 33% and 23% respectively – supporting that delayed strategies result in nominally less antibiotic use .

Order Set Organization



Order Set Organization: Evidence Summary

Order Sets		
Study	Intervention	Outcomes
Ourghanlian, <i>et al.</i> ¹⁹	Retrospective Observational multicenter study. Network of hospitals analyzed impact of antimicrobial stewardship measures on overall antibiotic consumption before and after implementation with linear regression. Measures included CPOE with treatment protocols , use of “stop-orders” and mandatory treatment indication .	Antibiotic consumption (defined as daily dose/1,000 patient days) reduced by -21.3% (P=0.04) and -22.3% (P=0.02) for CPOE utilization in $\geq 80\%$ and 100% of beds respectively.
Patros, <i>et al.</i> ²⁰	Retrospective analysis of the implementation of UTI treatment order sets for spinal cord injury patients at a VA medical center. Implementation was paired with educational in-services for providers.	Appropriate antimicrobial treatment (defined by empiric antibiotic choice, dose, duration, symptomatology, and timing and review of urine cultures) rose from 47.9% pre-implementation to 71.8% post-implementation (P=0.015) .

Order Set Organization: Evidence Summary

Order Sets		
Study	Intervention	Outcomes
Leo, <i>et al.</i> ²¹	Evaluation of a CPOE-based antimicrobial stewardship intervention (soft-stop order) effects on use and duration of antibiotics.	Mean antibiotic duration decreased significantly from 9.59 to 7.25 days (P<0.001) . The proportion of patients treated in accordance with guidelines increased from 35.8% to 69.3% (P<0.001) .

Order Set Organization: Evidence Summary

Clinical Decision Support

Study	Intervention	Outcomes
Jenkins <i>et al.</i> : ²²	Prospective, randomized trial assessing the effects of an intervention including clinical pathways in addition to education materials on antibiotic prescribing.	Percent of antibiotic prescriptions/visit were significantly decreased for non-pneumonia acute respiratory infections (11.2% RR; P<0.001) and overall percentage of broad-spectrum antibiotic regimens decreased significantly (14.4% RR; P<0.001)
Buehrle, et al. ²³	Prospective, observational study of the impact of an intervention (including clinician education, peer performance review and computer decision support order sets) on antibiotic prescribing habits.	Mean antibiotic prescription rates significantly decreased from baseline to intervention and to post intervention (35.6% and 26.8% P<0.001).

Order Set Organization: Evidence Summary

Clinical Decision Support

Study	Intervention	Outcomes
Haas, et al. ²⁴	Prospective study on the implementation of paired clinical guidelines and order sets to reduce fluoroquinolone use in CAP and shorten duration of therapy.	Median duration of therapy decreased from 10 to 7 days (P<0.0001) and total prescriptions of levofloxacin decreased from 60% to 27% (P<0.0001) . There was no difference in the frequency of clinical failure.

Order Set Organization:

Providers & Prescribers

- Buy-in/Ownership
- Customer Service

PHARMACY MAIN MENU	
<u>ARTHRITIC DISORDERS</u> Gout/Hyperuricemia... Musculoskeletal Inflammation/Spasm... Rheumatology...	<u>GASTROINTESTINAL DISORDERS</u> Upper GI/Ulcer Disorders... Lower GI Disorders... [] Nausea and Antiemetics Menu
<u>CARDIAC & VASCULAR DISORDERS</u> Angina/Arrhythmia... Anticoagulation/Antiplatelet... [] Hyperlipidemia Guideline Menu Hypertension...	<u>GENITOURINARY DISORDERS</u> Urinary Tract/Flow/Renal Disorders...
<u>DERMATOLOGICAL DISORDERS</u> Acne/Antimicrobial... Fungal/Viral/Warts... Topical Steroids/Other... Wound Care	<u>HEMATOPOIETIC DISORDERS</u> Anemia/Other Disorders...
<u>ENDOCRINE DISORDERS</u> Androgens/Anabolics... Diabetes... Glucocorticoids... Thyroid Disorders...	<u>ANTI</u> Antibiotic Guideline Anti Infectives [] STI Guideline Menu *BETA TESTING: VERIFY**
<u>ENT DISORDERS</u> Mouth/Nasal/Throat Disorders... Ophthalmic Medications Otic Disorders...	<u>MEN'S HEALTH</u> Men's Health...
<u>DENTAL DISORDERS</u> Dental...	<u>NEOPLASTIC DISORDERS</u> Organ Transplant/Other Disorders...
<u>COVID19 Therapeutics ~Restricted Use~</u> <u>Antiviral</u> GFR greater or equal to 60: Paxlovid 3 tabs PO BID x 5days GFR 30 to 60: Paxlovid 2 tabs PO BID x 5days GFR less or equal to 30: DO NOT USE	<u>NEUROLOGICAL DISORDERS</u> Autoimmune/Spinal Disorders... Headache... [] Pain Management Guideline Parkinson's Disease/Alzheimer's Dementia... Seizure Disorders... <u>Hepatic C Medications "Restricted Use"</u> Mavyret

Order Set Organization:

Anti Infectives			Done
<p><u>Anti Fungals</u></p> <ul style="list-style-type: none"> Fluconazole 150mg po once Fluconazole 200mg po once Clotrimazole vaginal HS Clotrimazole 1% apply BID Nystatin 100 000 units/mL 5ML QID x7 days Nystatin 100000unit cream BID x7 days <p><u>Anti Malaria</u></p> <ul style="list-style-type: none"> Hydroxychloroquine 200mg po BID <p><u>Antituberculosis</u></p> <ul style="list-style-type: none"> Isoniazid 300mg po QDAY Rifampin 600mg po QDAY Pyridoxine 50mg po QDAY <p><u>Antivirals</u></p> <ul style="list-style-type: none"> Valacyclovir 1gm po tid x7days (shingles) Valacyclovir 1gm po bid x10 days (Genital Herpes initial) Valacyclovir 500mg po bid x3 days (Gen. Herpes recurrent) Valacyclovir 1gm po daily (Gen. Herpes suppression) 	<p><u>1st Generation Cephalosporin</u></p> <ul style="list-style-type: none"> Cephalexin 500mg po QID x 7 days Cephalexin 250mg/5ml po QID x 7 days <p><u>2nd Generation Cephalosporin</u></p> <ul style="list-style-type: none"> Cefuroxime 500mg po BID 10 days <p><u>3rd Generation Cephalosporin</u></p> <ul style="list-style-type: none"> Cefdinir 250mg/5ml po BID Cefdinir 300mg po BID x7 days <p><u>Macrolides</u></p> <ul style="list-style-type: none"> Azithromycin 200mg/5ml 400mg today then 200mg qday x 4 days Azithromycin 500mg day 1 then 250mg x 4 days Azithromycin 500mg PO Daily x3 days Azithromycin 1 gm po now Erythromycin 250mg po QID x 14 days Erythromycin Ethylsucc 200mg/5mL 200mg po QID x 10 days <p><u>Penicillins</u></p> <ul style="list-style-type: none"> Amoxicillin 400mg/5ml po TID x10 days Amoxicillin 500mg po TID #30 Augmentin 500mg po bid x10 days (Renal CrCl 10 to 30ml/min) Augmentin 875mg po BID #20 Augmentin 400mg/5ml 400mg po BID X 10 Days Augmentin 600mg/5ml po BID x10 days Penicillin 250mg/5mL 250mg po QID x 10 days Penicillin 500mg po QID x 7 days 	<p><u>Quinolones</u></p> <ul style="list-style-type: none"> Levofloxacin 500mg po QDAY x 7 days Ciprofloxacin 500mg po BID <p><u>Sulfonamides</u></p> <ul style="list-style-type: none"> Sulfamethoxazole/Trimethoprim DS (800MG/160MG) 1 Tab Po BID x 7 Sulfamethoxazole/Trimethoprim DS (800mg/160mg) x 10 days Sulfameth/Trimeth 200mg/40mg/5ml po BID x 10 days <p><u>Tetracyclines</u></p> <ul style="list-style-type: none"> Doxycycline 100mg po BID x 10 days <p><u>* Other antimicrobials</u></p> <ul style="list-style-type: none"> Clindamycin 300mg po TID x 10 days Metronidazole 500mg po BID x 7 days Mupirocin 2% oint apply BID x7 days Nitrofurantoin (Macrobid) 100mg po BID x7 days (not for males) <p><u>INFLUENZA (Children >40KG AND Adults)</u></p> <ul style="list-style-type: none"> Tamiflu (Oseltamivir) 75mg po BID x 5 days (for treatment) Tamiflu (Oseltamivir) 75mg po daily x 10 days (for prophylaxis) 	

Order Set Organization



Patient exam/interview → Diagnosis → Treatment Plan

Order Set Organization

Acute Otitis Media...

2 MONTHS TO 2 YEARS OLD

First Line:
Amoxicillin 45mg/kg/dose BID x 10 days (max 4g/day)

If beta lactam in previous 30 days:
Augmentin 45mg/kg/dose BID x 10 days (max 4g/day)

If allergic to penicillin:
Cefdinir 7mg/kg/dose BID x 10 days (max 600mg/day)

2 TO 5 YEARS OLD

First Line:
Amoxicillin 45mg/kg/dose BID x 7 days (max 4g/day)

If beta lactam in previous 30 days:
Augmentin 45mg/kg/dose BID x 7 days (max 4g/day)

If allergic to penicillin:
Cefdinir 7mg/kg/dose BID x 7 days (max 600mg/day)

6 YEARS OLD AND UP

First Line:
11 Amoxicillin 45mg/kg/dose BID x 5 days (max 4g/day)

If beta lactam in previous 30 days:
Augmentin 45mg/kg/dose BID x 5 days (max 4g/day)

If allergic to penicillin:
Cefdinir 7mg/kg/dose BID x 5 days (max 600mg/day)

Order Set Organization

Medication Order

AMOXICILLIN/CLAVULANATE 400MG/5ML PwDR,RENST-ORAL Change

Pt Wt on 09/24/2021 120 lb (54.43 kg)
Pt Ht on 09/24/2021 63 in (160.02 cm)

Dosage Complex

Dosage	Route	Schedule
5 ML AMOXICILLIN/CLAVULANATE 400MG/5ML SUSP	ORAL	BID <input type="checkbox"/> PRN
5 ML AMOXICILLIN/CLAVULANATE 400MG/5ML SUSP	ORAL	BID
10 ML AMOXICILLIN/CLAVULANATE 400MG/5ML SUSP		BIDQID
3 ML AMOXICILLIN/CLAVULANATE 400MG/5ML SUSP		BIDTID
4 ML AMOXICILLIN/CLAVULANATE 400MG/5ML SUSP		BIW
7.5 ML AMOXICILLIN/CLAVULANATE 400MG/5ML SUSP		DAY 1
1.1 ML AMOXICILLIN/CLAVULANATE 400MG/5ML SUSP		FR
1.6 ML AMOXICILLIN/CLAVULANATE 400MG/5ML SUSP		MO
2.3 ML AMOXICILLIN/CLAVULANATE 400MG/5ML SUSP		MO-TH
0.5 ML AMOXICILLIN/CLAVULANATE 400MG/5ML SUSP		MO-TU-WE-TH-FR
0.8 ML AMOXICILLIN/CLAVULANATE 400MG/5ML SUSP		MO-WE

Patient Instructions: WITH FOOD FOR 10 DAYS FOR INFECTION *KEEP REFRIGERATED*

>> Quantity Dispensed: 1 BOTTLE = 75 mL <<

Days Supply: 0 Qty (ML): 0 Refills: 0 Clinical Indication: Chronic Med Dispense as Written

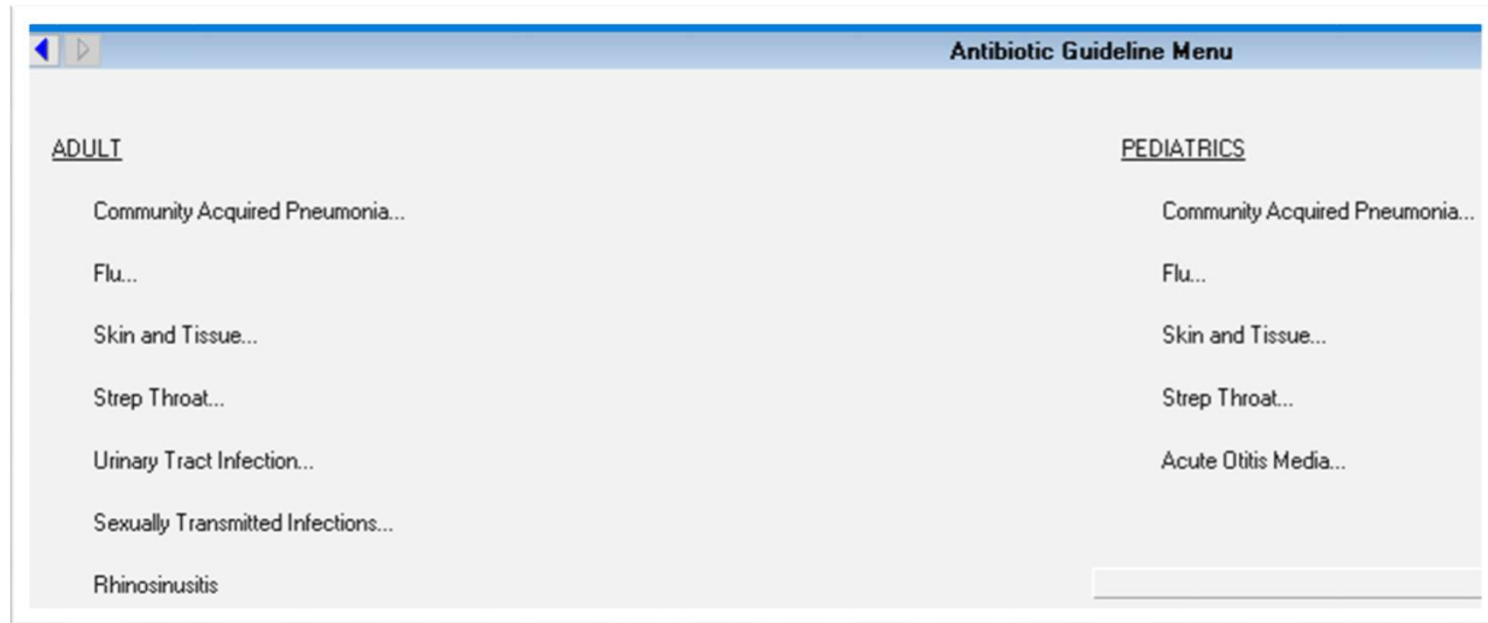
Pick Up: Clinic Mail Window Outside Pharmacy - eRx Outside Pharmacy - Print

Priority: ROUTINE Discharge Medication

Notes to Pharmacist:

AMOXICILLIN/CLAVULANATE 400MG/5ML SUSP
SHAKE WELL AND TAKE FIVE (5) ML BY MOUTH TWICE A DAY WITH FOOD FOR 10 DAYS FOR INFECTION *KEEP REFRIGERATED*
Quantity: 0 Days: 0 Refills: 0 *Chronic Med: NO Dispense as Written: NO

Order Set Organization



Order Set Organization

RHINOSINUSITIS

ADULT

Treat with antibiotics if
Persistent Symptoms > 10 days OR
Fever >101.9F (39C) OR
Purulent nasal discharge/facial pain > 3 days

Low risk for antibiotic resistance
 Amoxicillin 500 mg TID x 5 days

Use of amoxicillin in last 30 days
 Amox/Clav 500/125MG TID x 5 Days
 Amox/Clav 875/125 MG BID x 5 Days

Penicillin Allergy
 Cefuroxime 500MG BID x 5 Days

Cephalosporin Allergy
 Doxycycline 100 MG BID x 5 Days

Order Set Organization

UTI...	
<u>NON PREGNANT PATIENTS</u>	<u>PREGNANT PATIENTS</u>
Asymptomatic Bacteriuria: Do not treat	Asymptomatic bacteria or cystitis: <input type="checkbox"/> Nitrofurantoin 100mg BID x 5 days
Acute cystitis: <input type="checkbox"/> <u>1st line (CrCL>30): Nitrofurantoin 100mg BID x 5 days</u> <input type="checkbox"/> 2nd line: Cephalexin 500mg QID x 7 days	If 1st trimester or >35 weeks gestation: <input type="checkbox"/> Cephalexin 500mg po QID x 7 days
Complicated UTI/Pyelonephritis: <input type="checkbox"/> Cefuroxime 500mg BID x 7 days <input type="checkbox"/> 1st line (Pyelonephritis only): Cefuroxime 500mg BID x 14 days <input type="checkbox"/> 2nd line: Ciprofloxacin 500mg BID x 7 days	Pyelonephritis: <input type="checkbox"/> Cefuroxime 500mg BID x 14 days
Urinary analgesic: <input type="checkbox"/> Phenazopyridine 200mg TID x 2 days (#12)	

Order Set Organization

NON PREGNANT PATIENTS

Asymptomatic Bacteriuria:
Do not treat

Acute cystitis:
 1st line (CrCl>30): Nitrofurantoin 100mg BID x 5 days
 2nd line: Cephalexin 500mg QID x 7 days

Complicated UTI/Pyelonephritis:
 Cefuroxime 500mg BID x 7 days
 1st line (Pyelonephritis only): Cefuroxime 500mg BID x 7 days
 2nd line: Ciprofloxacin 500mg BID x 7 days

Urinary analgesic:
 Phenazopyridine 200mg TID x 2 days (#1)

Medication Order

NITROFURANTOIN CAP,SA Change

[Display Restrictions](#) Pt Wt on 09/24/2021 120 lb (54.43 kg)
[/ Guidelines](#) Pt Ht on 09/24/2021 63 in (160.02 cm)

Dosage Complex

Dosage	Route	Schedule
100MG	ORAL	BID <input type="checkbox"/> PRN
100MG 0.0941	ORAL	BID
200MG 0.1882		BIDQID
		BIDTID
		BIW
		DAY 1
		FR
		MO
		MO-TH
		MO-TU-WE-TH-FR
		MO-WE

i *avoid use in geriatrics or in patients with CrCl<30*

Patient Instructions: WITH FOOD UNTIL ALL TAKEN FOR INFECTION

Days Supply: 5 Quantity: 10 Refills: 0 Clinical Indication: Chronic Med
 Dispense as Written

Pick Up: Clinic Mail Window Outside Pharmacy - eRx Outside Pharmacy - Print

Priority: ROUTINE Discharge Medication

Notes to Pharmacist:

NITROFURANTOIN CAP,SA 100MG
 TAKE ONE (1) CAPSULE BY MOUTH TWICE A DAY WITH FOOD UNTIL ALL TAKEN FOR INFECTION
 Quantity: 10 Days: 5 Refills: 0 *Chronic Med: NO Dispense as Written: NO

CONTRAINDICATIONS

bacteria or cystitis:
100mg BID x 5 days

or >35 weeks gestation:
100mg po QID x 7 days

100mg BID x 14 days



Order Set Organization

NON PREGNANT PATIENTS

Asymptomatic Bacteriuria:
Do not treat

Acute cystitis:
 1st line (CrCl>30): Nitrofurantoin 100mg BID x 5 days
 2nd line: Cephalexin 500mg QID x 7 days

Complicated UTI/Pyelonephritis:
 Cefuroxime 500mg BID x 7 days
 1st line (Pyelonephritis only): Cefuroxime 500mg BID x 7 days
 2nd line: Ciprofloxacin 500mg BID x 7 days

Urinary analgesic:
 Phenazopyridine 200mg TID x 2 days (#1)

Medication Order

NITROFURANTOIN CAP,SA Change

Pt Wt on 09/24/2021 120 lb (54.43 kg)
Pt Ht on 09/24/2021 63 in (160.02 cm)

[Display Restrictions / Guidelines](#)

Dosage Complex

Dosage	Route	Schedule
100MG	ORAL	BID <input type="checkbox"/> PRN
100MG	ORAL	BID
200MG		BID QID BID TID BIW DAY 1 FR MO MO-TH MO-TU-WE-TH-FR MO-WE

i *avoid use in geriatrics or in patients with CrCl<30*

Patient Instructions: WITH FOOD UNTIL ALL TAKEN FOR INFECTION

Days Supply: 5 Quantity: 10 Refills: 0 Clinical Indication: Chronic Med Dispense as Written

Pick Up: Clinic Mail Window Outside Pharmacy - eRx Outside Pharmacy - Print

Priority: ROUTINE Discharge Medication

Notes to Pharmacist:

NITROFURANTOIN CAP,SA 100MG
TAKE ONE (1) CAPSULE BY MOUTH TWICE A DAY WITH FOOD UNTIL ALL TAKEN FOR INFECTION
Quantity: 10 Days: 5 Refills: 0 *Chronic Med: NO Dispense as Written: NO

ENTERS

bacteria or cystitis:
100mg BID x 5 days

or >35 weeks gestation:
100mg po QID x 7 days

100mg BID x 14 days



Order Set Organization

The screenshot displays a clinical information system interface for creating a medication order. On the left, a panel titled "NON PREGNANT PATIENTS" lists several order sets for urinary tract infections, including Asymptomatic Bacteriuria, Acute cystitis, and Complicated UTI/Pyelonephritis. The main window shows a "Medication Order" form for Nitrofurantoin CAP,SA. A "Restrictions/Guidelines" dialog box is open, providing specific criteria for use: "ONLY use for uncomplicated cystitis for 5-7 days", "CONTRAINDICATED in pregnancy >38 weeks", and "AVOID use in geriatrics with CrCl < 30mL/min". The medication order form includes fields for patient instructions, days supply (5), quantity (10), refills (0), and pick-up location (Window). The final order summary at the bottom reads: "NITROFURANTOIN CAP,SA 100MG TAKE ONE (1) CAPSULE BY MOUTH TWICE A DAY WITH FOOD UNTIL ALL TAKEN FOR INFECTION Quantity: 10 Days: 5 Refills: 0 *Chronic Med: NO Dispense as Written: NO".

NON PREGNANT PATIENTS

Asymptomatic Bacteriuria:
Do not treat

Acute cystitis:
[] 1st line (CrCl>30): Nitrofurantoin 100mg BID x 7 days
[] 2nd line: Cephalexin 500mg QID x 7 days

Complicated UTI/Pyelonephritis:
[] Cefuroxime 500mg BID x 7 days
[] 1st line (Pyelonephritis only): Cefuroxime 500mg BID x 7 days
[] 2nd line: Ciprofloxacin 500mg BID x 7 days

Urinary analgesic:
[] Phenazopyridine 200mg TID x 2 days (#1)

Medication Order

NITROFURANTOIN CAP,SA
[Display Restrictions / Guidelines](#)

Dosage: 100MG
100MG
200MG

*avoid use in geriatrics with CrCl < 30mL/min

Restrictions/Guidelines

Criteria for Use

ONLY use for uncomplicated cystitis for 5-7 days
CONTRAINDICATED in pregnancy >38 weeks
AVOID use in geriatrics with CrCl < 30mL/min

Font Size: 9

Print... Close

Patient Instructions: WITH FOOD UNTIL ALL TAKEN FOR INFECTION

Days Supply: 5 Quantity: 10 Refills: 0

Clinical Indication: [] Chronic Med [] Dispense as Written

Pick Up: [] Clinic [] Mail [x] Window [] Outside Pharmacy - eRx [] Outside Pharmacy - Print

Priority: ROUTINE [] Discharge Medication

Notes to Pharmacist:

NITROFURANTOIN CAP,SA 100MG
TAKE ONE (1) CAPSULE BY MOUTH TWICE A DAY WITH FOOD UNTIL ALL TAKEN FOR INFECTION
Quantity: 10 Days: 5 Refills: 0 *Chronic Med: NO Dispense as Written: NO

Order Set Organization

Medication Order

PERSERIS CFU <RISPERIDONE TAB >

[Display Restrictions / Guidelines](#) [Restrictions/Guidelines](#)

Dosage Complex S:\Pharmacy\Pharmacy and Therapeutics\ATTACHMENTS\FY2022\PsT ATTACHMENTS - APRIL 2022\review\Criteria For Use\Drug Class

0.25MG
0.5MG
1MG
2MG
3MG
4MG
6MG

Font Size: 9

0.067
0.3684
0.134

Patient Instructions: AS DIRECTED **MAY CAUSE DROWSINESS** **NO ALCOHOL

Days Supply: 0 Quantity: 0 Refills: 0 Clinical Indication:

Pick Up: Clinic Mail Window Outside Pharmacy - eRx Outside Pharmacy

Notes to Pharmacist:

RISPERIDONE TAB
TAKE BY MOUTH TWICE A DAY AS DIRECTED **MAY CAUSE DROWSINESS WITH THIS DRUG**
Quantity: 0 Days: 0 Refills: 0 *Chronic Med: NO Dispense as Written: NO

Psychotropics.pdf 3 / 9 100%

Summary of Current Guideline recommendations				
Agent	Guidelines			
	APA	VA/DoD	NICE	AACAP
First Generation Antidepressant: TCA				
Amirtriptiline		MDD, PTSD (AGAINST)	GAD (NOT Recommended)	
Doxepin		MDD		
Nortriptyline		MDD		
Imipramine		MDD, PTSD		
Second Generation Antidepressant: SSRI/SNRI/DNRI				
Bupropion	BPD, MDD, OCD	BPD, MDD		
Buspirone	BPD, MDD, OCD	BPD, MDD		
Citalopram	BPD, MDD, OCD	BPD, MDD, PTSD (AGAINST)		
Duloxetine	MDD, OCD	BPD, MDD		
Escitalopram	BPD, MDD, OCD	BPD, MDD	GAD	
Fluoxetine	BPD, MDD, OCD, PTSD	BPD, MDD, PTSD		
Paroxetine	BPD, MDD, OCD, PTSD	BPD, MDD, PTSD	GAD	
Sertraline	BPD, MDD, OCD, PTSD	BPD, MDD, PTSD	GAD	
Trazodone	BPD, MDD, OCD	BPD, MDD		
Venlafaxine	MDD, OCD, PTSD	BPD, MDD, PTSD	GAD	
First Generation Antipsychotics: Typical				
Fluphenazine	SCHZ		GAD (NOT Recommended)	
Fluphenazine decanoate (LAI)	SCHZ			
Haloperidol	SCHZ	BPD		SCHZ
Haloperidol decanoate (LAI)	SCHZ			SCHZ (refractory)
*Chlorpromazine (Thorazine)	SCHZ			
Second Generation Antipsychotics: Atypical				
Aripiprazole	BPD, SCHZ	BPD, MDD	GAD (NOT Recommended)	SCHZ
Aripiprazole lauroxil (LAI)	SCHZ			
*Brexiprazole (Rexulti)	BPD, SCHZ	MDD		
*Cariprazine (Vraylar)	BPD, SCHZ	MDD		
*Lurasidone (Latuda)	BPD, SCHZ			

Quit

Order Set Organization

STD Medications		Done
CHLAMYDIA TREATMENT		
First line treatment		
<input type="checkbox"/>	Doxycycline 100 mg bid x 7 days [PATIENT ONLY]	
<input type="checkbox"/>	Doxycycline 100 mg BID x 7 days [PT & PARTNER]	
If pt is pregnant or allergic to doxycycline		
<input type="checkbox"/>	Azithromycin 1 gram [Patient only]	
<input type="checkbox"/>	Azithromycin 1 gram once [for Pt] and Doxy 100 mg BID x 7 days [[for Partner]	
GONORRHEA TREATMENT		
Test of cure for pharyngeal gonorrhea 7 to 14 days after treatment		
<input type="checkbox"/>	cefTRIAxone 500 mg IM with 1% lidocaine [Pt only]	
<input type="checkbox"/>	cefTRIAxone 500mg IM [for Pt] & Cefixime 800 mg PO [Partner]	
If pt greater than or equal to 150 kg		
<input type="checkbox"/>	cefTRIAxone 1 gram M with lidocaine 1% [for Pt]	
<input type="checkbox"/>	cefTRIAxone 1 gram IM [for Pt] & Cefixime 800 mg PO [for Partner]	
If pt has cephalosporin allergy		
<input type="checkbox"/>	Gentamicin 240 mg IM + Azithromycin 2 gram PO x1 dose [Pt only]	
<input type="checkbox"/>	Gentamicin 240 mg IM/Azith 2 gm PO [for Pt] & Cefixime 800 mg PO ONCE [Partner]	
GONORRHEA/CHLAMYDIA TREATMENT		
<input type="checkbox"/>	cefTRIAxone 500 mg IM + Doxycycline 100 mg BID x 7 days [Pt only]	
<input type="checkbox"/>	cefTRIAx 500MG/Doxycycline [for Pt] + Cefixime/Doxycycline [for Partner]	
If pt greater than or equal to 150 kg		
<input type="checkbox"/>	cefTRIAxone 1 gram IM + Doxycycline 100 mg BID x 7 days [for Pt]	
<input type="checkbox"/>	cefTRIAxone 1 gram/Doxycycline [for Pt] & Cefixime/Doxycycline [for Partner]	
If pt is pregnant		
<input type="checkbox"/>	cefTRIAxone 500 mg IM + Azithromycin 1 gram PO x1 dose [Pt only]	
<input type="checkbox"/>	cefTRIAxone 500 mg/Azith [Pt] & Cefixime/Doxycycline [Partner]	
If pt has a cephalosporin allergy		
<input type="checkbox"/>	Gentamicin 240 mg IM + Azithromycin 2 gm PO x1 [Pt only]	
<input type="checkbox"/>	Gentamicin 240 mg IM/Azith 2 gm PO [Pt] & Cefixime/Doxycycline [Partner]	
SYPHILIS TREATMENT		
Primary/Secondary/Early Latent (<1 year)		
<input type="checkbox"/>	Pen G (Bicillin LA) 2.4 million units INJ x 1 dose	
Late latent (>1 year) of unknown duration		
<input type="checkbox"/>	Pen G (Bicillin LA) 2.4 million units INJ Q/WK x 3 doses	
Penicillin Allergy Primary/Secondary/Early Latent		
<input type="checkbox"/>	Doxycycline 100 mg BID x 14 days	
Penicillin Allergy Tertiary/Late latent of unknown duration		
<input type="checkbox"/>	Doxycycline 100 mg BID x 28 days	
TRICHOMONIASIS TREATMENT		
First line *FOR WOMEN*		
<input type="checkbox"/>	metronIDAZOLE 500 mg BID x 7 days	
First line *FOR MEN*		
<input checked="" type="checkbox"/>	metronIDAZOLE 2 grams x1 dose	
Second line treatment if adherence problematic with first line		
<input checked="" type="checkbox"/>	metronIDAZOLE 2 grams x 1 dose	
<input type="checkbox"/>	Tinidazole 2 grams x1 dose	
GENITAL HERPES TREATMENT		
First episode		
<input type="checkbox"/>	valACYclovir 1 gram BID x 10 days	
Recurrent episodes		
<input type="checkbox"/>	valACYclovir 1 gram daily x 3 days	
Suppressive therapy for recurrent HSV2		
<input type="checkbox"/>	valACYclovir 500 mg daily	
ORAL HERPES TREATMENT		
First episode		
<input type="checkbox"/>	valACYclovir 1 gram BID x 10 days	
Suppressive treatment for recurrent symptoms		
<input type="checkbox"/>	valACYclovir 500 mg daily	

Order Set Organization

The screenshot displays three overlapping windows from a medication order system:

- Left Window (Title: fTRIAxone 500 mg IM Now with 1% Lidocaine):**
 - Display Name Missing
 - Stop Order Set
 - Order List:
 - [] Doxycycline 100mg BID x 7 days OR *If pregnant: Azithromycin 1 Gram PO Once x 1
 - [] Azithromycin 1 gm po now
- Middle Window (Title: Medication Order):**
 - CEFTRIAXONE 500 MG INJ (NB) INJ.SOLN
 - Dosage Complex: 2ML (500 MG) 500MG/VIAL, 2 ML (500 MG) 500MG/VIAL
 - Route: INTRAMUSCULAR, INTRAVENOUS
 - Patient Instructions: "GIVEN IN CLINIC" _
 - Days Supply: 1, Quantity: 1, Refills: 0
 - Pick Up: Clinic Mail Window Outside Pharmacy - eRx Outside Pharmacy - Print
 - Notes to Pharmacist: "**Reconstitute with 1.8 ml of Lidocaine 1% solution (for a concentration of 250 mg/ml)**"
 - Summary: CEFTRIAXONE 500 MG INJ (NB) INJ.SOLN INJECT 2ML (500 MG) 500MG/VIAL INTRAMUSCULARLY ONCE AS DIRECTED IN CLINIC. Quantity: 1 Days: 1 Refills: 0 *Chronic Med: NO Dispense as Written: NO Notes to Pharmacist: "**Reconstitute with 1.8 ml of Lidocaine 1% solution (for a concentration of 250 mg/ml)**"
- Right Window (Title: Medication Order):**
 - LIDOCAINE 1% INJ
 - Patient: Pt Wt on 09/24/2021 120 lb (54.43 kg) Pt Ht on 09/24/2021 63 in (160.02 cm)
 - Dosage Complex: 1.8ML 1% (selected), 3.6 ML 1%, 2.1 ML 1%, 0.9 ML 1%, 1.8 ML 1%
 - Route: INTRAMUSCULAR (selected), INTRAMUSCULAR, INTRAVENOUS, SUBCUTANEOUS
 - Schedule: NOW (selected), DAY 1, FR, MO, MO-TH, MO-TU-WE-TH-FR, MO-WE-FR, MO-WE-FR-SA, MO-WE-FR-SU
 - Patient Instructions: "FOR IN-CLINIC USE"
 - Days Supply: 1, Quantity: 1.8, Refills: 0
 - Pick Up: Clinic Mail Window Outside Pharmacy - eRx Outside Pharmacy - Print
 - Priority: ROUTINE
 - Notes to Pharmacist: Reconstitute 500mg ceFTRIAXone with 1.8ml 1% lidocaine Concentration is 250 mg/ml
 - Summary: LIDOCAINE 1% INJ INJECT 1.8ML 1% INTRAMUSCULARLY NOW "FOR IN-CLINIC USE" Quantity: 1.8 Days: 1 Refills: 0 *Chronic Med: NO Dispense as Written: NO Notes to Pharmacist: Reconstitute 500mg ceFTRIAXone with 1.8ml 1% lidocaine Concentration is 250 mg/ml
 - Buttons: ADR's, Accept Order, Quit

CONCLUSIONS



Recommendation Summary

Establish Appropriate Goals:

- Identify local barriers and areas of opportunity to prioritize interventions.
- Determine which outcomes and elements are the most critical and feasible at your site.
- Developing interventions (AAAHC/CDC Core Elements):^{6,7}
 - Target **high priority conditions** (acute respiratory tract infections).
 - Utilize **existing resources/support** networks, quality improvement.
 - Identify **local barriers**.
 - Establish/measure **antibiotic use benchmarks** to track progress.
 - Establish clear **evidence-based standards** (clinical practice guidelines).

Recommendation Summary

Establish Appropriate Goals:

Over-prescribing⁷

- (Acute otitis media, acute respiratory tract infections, bronchitis, influenza, sinusitis, rhinitis, pharyngitis, perioperative dental use)
- Patient satisfaction
- Concern for “undetected” bacterial infections
- Perception of no harm with overuse

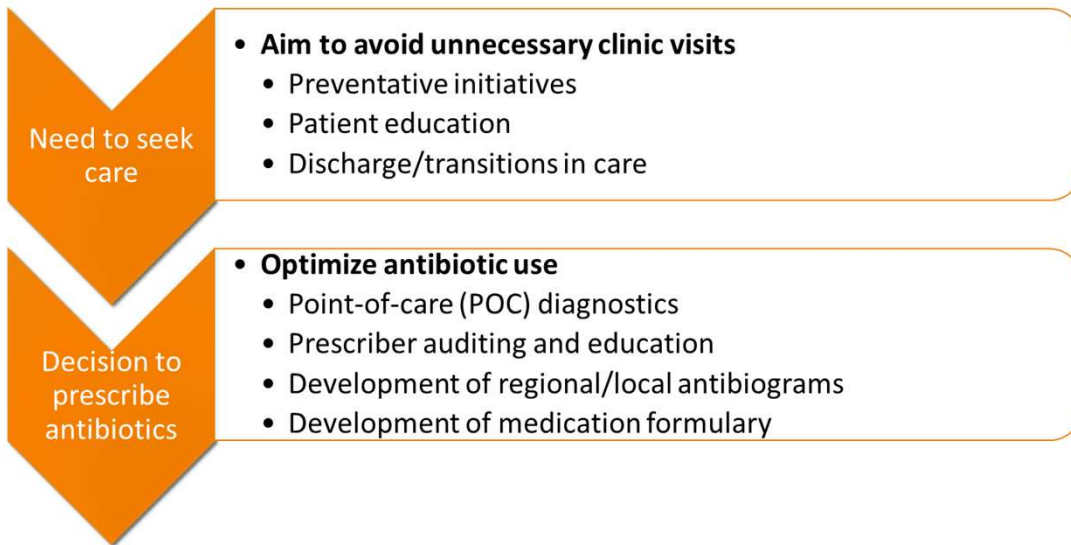
Inappropriate antibiotic selection⁷

- (Sinusitis, rhinitis, pharyngitis, UTIs)
- Misconception broader-spectrum = better spectrum
- Perception of “better pharmacokinetics” for non-recommended indications
- Gaps in familiarity with practice guidelines or knowledge of antimicrobial coverage

Recommendation Summary

Implement Sustainable Interventions:

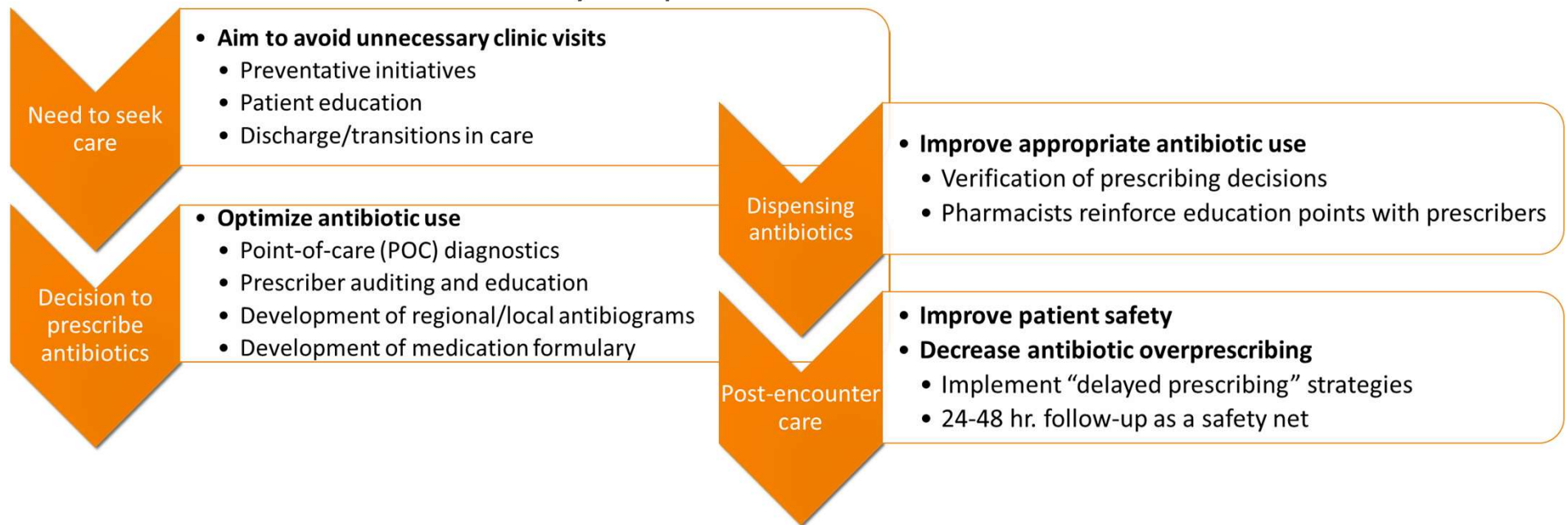
- Consider potential interventions on patient continuum of care that are most relevant to your practice site.



Recommendation Summary

Implement Sustainable Interventions:

- Consider potential interventions on patient continuum of care that are most relevant to your practice site.



Recommendation Summary

Implement Sustainable Interventions:

Interventions

Low resource demand

- Identify at least one accountable leader for assessing practice site and establishing feasible goals
- Clinical decision support: develop guideline-based order sets
- Work with lab partners to develop site-specific antibiogram (consider regional partners if local data is insufficient)
- Develop and promote “delayed prescribing” strategies (template)
- Report prescriber performance audit at least once annually
- Promote prescriber-focused educational resources through local in-services or published continuing education programs

Recommendation Summary

Implement Sustainable Interventions:

Interventions


Moderate-High resource demand

- Establish interdisciplinary antimicrobial stewardship committee with regular meetings (ideally FTEs/PD devoted to stewardship goals)
- Frequent and regular review of prescriber performance audits
- Local antibiogram updated annually
- Coordinate regular in-services for prescribers and continuing education programs
- Consider pursuing advanced collaborative practice procedures to utilize POC testing and monitor outcomes data (supplemental, true effect on antimicrobial stewardship is yet to be established)








Resources

CDC's "Be Antibiotics Aware": <https://www.cdc.gov/antibiotic-use/>²⁵


Be Antibiotics Aware is a national effort to help fight antibiotic resistance and improve antibiotic prescribing and use.



Antibiotics can save lives, but any time antibiotics are used, they can cause side effects and contribute to the development of antibiotic resistance. In U.S. doctors' offices and emergency departments, at least 28% of antibiotic courses prescribed each year are unnecessary, which makes improving antibiotic prescribing and use a national priority.

 About Antibiotic Use	 Improving Antibiotic Use
 Patient Resources and Education	 Core Elements of Antibiotic Stewardship
 Healthcare Professional Resources and Training	U.S. Antibiotic Awareness Week
 Health Department Resources	 Prescripción y uso de antibióticos


Antibiotic Prescribing and Use in the U.S.



2021 UPDATE
ANTIBIOTIC USE IN THE UNITED STATES
Progress and Opportunities

[Antibiotic Use in the United States, 2021 Update: Progress and Opportunities](#)

CDC's Initiative to Fight Antibiotic Resistance



Combating antimicrobial resistance, a global threat

CDC is working to combat the threat of antibiotic resistance through its [Antibiotic Resistance Solutions Initiative](#). Find out how you can help.

Treatment for Common Illnesses

Causes, symptoms, treatment, and how to feel better. See [Treatment for Common Illnesses](#).

Resources

CDC's "Be Antibiotics Aware": Prescriber Training

Antibiotic Use

- About Antibiotic Use +
- Patient Resources and Education +
- Healthcare Professional Resources and Training** -
- Educational Resources for Healthcare Professionals
- CE and Training**
- Treatment Recommendations +
- Health Department Resources
- Improving Antibiotic Use +
- Core Elements of Antibiotic Stewardship +
- U.S. Antibiotic Awareness Week +

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[What's this?](#)

Continuing Education and Informational Resources

Several organizations, including the Centers for Disease Control and Prevention, provide continuing education (CE) opportunities related to antibiotic resistance and appropriate antibiotic prescribing practices.

Healthcare Professionals

Below are continuing education opportunities for healthcare professionals regarding judicious antibiotic prescribing and antibiotic resistance.

CDC Training on Antibiotic Stewardship

[CDC Training on Antibiotic Stewardship](#)


This online training course offers participants over 10 hours of free continuing education (CE). It is accessible in multiple modules that can be taken in any order.

Course objectives include:

- Updating healthcare professionals on current antibiotic resistance threats
- Informing healthcare professionals about proper antibiotic prescribing
- Encouraging open discussion among physicians and patients about appropriate antibiotic prescribing

Course highlights include educational content on:

- Antibiotic resistance threats in the United States
- Benefits of antibiotic stewardship
- Risks and benefits of antibiotics
- Epidemiology of outpatient antibiotic use in the U.S. and opportunities for improvement
- Communication training for clinicians to improve outpatient antibiotic prescribing and use
- Antibiotic stewardship considerations for the management of common outpatient conditions
- Antibiotic stewardship in the outpatient setting, dentistry, emergency departments, hospitals, and nursing homes



While this course is primarily for clinicians who prescribe antibiotics, CDC recognizes that everyone plays an important role in improving antibiotic use. Physicians, nurse practitioners, physician assistants, certified health education specialists, nurses, pharmacists, and public health practitioners with a master's degree in public health are eligible to receive over 10 hours of free continuing education.

This course fulfills Improvement Activities (IA) Patient Safety and Practice Assessment (PSPA)_23 and PSPA_24 under the Centers for Medicare & Medicaid Services (CMS) Merit-Based Incentive Programs, or MIPS.

On This Page

- Healthcare Professionals
- Medical Students

Webinars

- [Tune in to Safe Healthcare: A CDC Webinar Series](#)
- [COCA Call: What Clinicians, Pharmacists, and Public Health Partners Need to Know about Antibiotic Prescribing and COVID-19](#)

Resources

CDC's "Be Antibiotics Aware": Patient Education Resources

Watchful Waiting for Ear Infections



Your child's ear infection may go away on its own, so your healthcare professional may suggest watching and waiting for 2-3 days to see if your child needs an antibiotic. **They will not receive a prescription today.** Many ear infections will resolve on their own, and it's safer not to use antibiotics if they aren't needed.

To help your child feel better in the meantime, they should:

- Rest.
- Drink extra water and fluids.
- Use over-the-counter medicines as needed for relief of pain and fever:
Ibuprofen. Dose and Frequency: _____
Acetaminophen. Dose and Frequency: _____

If your child is feeling better over the next 2-3 days, no further treatment should be needed.

Call your healthcare professional to discuss whether your child needs a recheck or antibiotics if your child does not feel better or still has ear pain after 2-3 days.

Call your healthcare professional right away if your child has any of the following:

- Fever of 102.2°F (39°C) or higher.
- Fluid draining from the ear.

Antibiotics should be used only when needed. When they aren't needed, they won't help your child, and the side effects could still cause harm. Common side effects include:

- Rashes
- Dizziness
- Nausea
- Diarrhea
- Abdominal pain
- Diaper rashes

Antibiotics can save lives, and when your child needs antibiotics, the benefits usually outweigh the risks of side effects and antibiotic resistance, which occurs when bacteria develop the ability to defeat the drugs designed to kill them. Your healthcare professional can help you know when antibiotics are needed.

What Is Delayed Prescribing?



WAIT. DO NOT FILL YOUR PRESCRIPTION JUST YET.

Your healthcare professional believes your illness may resolve on its own.

First, follow your healthcare professional's recommendations to help you feel better without antibiotics. Continue to monitor your own symptoms over the next few days.

- Rest.
- Drink extra water and fluids.
- Use a cool mist vaporizer or saline nasal spray to relieve congestion.
- For sore throats in adults and older children, try ice chips, sore throat spray, or lozenges.
- Use honey to relieve cough. Do not give honey to an infant younger than 1 year.

If you **do not feel better** in ____ days/hours or **feel worse**, go ahead and fill your prescription.

If you **feel better**, you **do not need the antibiotic**, and do not have to risk the side effects.


Waiting to see if you really need an antibiotic can help you take antibiotics only when needed. When antibiotics aren't needed, they won't help you, and the side effects could still hurt you. Common side effects of antibiotics can include rash, dizziness, nausea, diarrhea, and yeast infections.

Antibiotics save lives, and when a patient needs antibiotics, the benefits outweigh the risks of side effects. You can protect yourself and others by learning when antibiotics are and are not needed.

Resources

CDC's "Be Antibiotics Aware": Patient Education Resources

What Is Watchful Waiting?



WAIT. DO NOT FILL YOUR PRESCRIPTION JUST YET.

Your healthcare professional believes your illness may go away on its own. You should watch and wait for ____ days/hours before deciding whether to take an antibiotic.

In the meantime, follow your healthcare professional's recommendations to help you feel better and continue to monitor your own symptoms over the next few days.

- Rest.
- Drink extra water and fluids.
- Use a cool mist vaporizer or saline nasal spray to relieve congestion.
- For sore throats in adults and older children, try ice chips, sore throat lozenges.
- Use honey to relieve cough. Do not give honey to an infant younger than 1 year.


If you **feel better, no further action is necessary. You don't need antibiotics.** If you **do not** feel better, experience **new symptoms**, or have **other concerns**, your healthcare professional will recommend a **recheck or antibiotics.**

It may not be convenient to visit your healthcare professional multiple times, but it is critical to take antibiotics only when needed. When antibiotics aren't needed, they won't help you and the side effects could still hurt you. Common side effects of antibiotics can include rash, dizziness, nausea, diarrhea, and yeast infection.

Antibiotics save lives, and when a patient needs antibiotics, the benefits outweigh the risks of side effects. You can protect yourself and others by learning when antibiotics are and are not needed.

To learn more about antibiotic prescribing and use, visit [www.beantibioticsaware.gov](#)

Symptom Relief for Viral Illnesses



1. DIAGNOSIS

- Cold or cough
- Middle ear fluid (Otitis Media with Effusion, OME)
- Flu
- Viral sore throat
- Bronchitis
- Other: _____

You have been diagnosed with an illness caused by a virus. Antibiotics do not work on viruses. When antibiotics aren't needed, they won't help you, and the side effects could still hurt you. The treatments prescribed below will help you feel better while your body fights off the virus.

2. GENERAL INSTRUCTIONS

- Drink extra water and fluids.
- Use a cool mist vaporizer or saline nasal spray to relieve congestion.
- For sore throats in older children and adults, use ice chips, sore throat spray, or lozenges.
- Use honey to relieve cough. Do not give honey to an infant younger than 1 year.

3. SPECIFIC MEDICINES

- Fever or aches: _____
- Ear pain: _____
- Sore throat and congestion: _____

Use medicines according to the package instructions or as directed by your healthcare professional. Stop the medication when the symptoms get better.

4. FOLLOW UP

- If not improved in ____ days/hours, if new symptoms occur, or if you have other concerns, please call or return to the office for a recheck.
- Phone: _____
- Other: _____

Signed: _____

Resources

Simple, Modular, RPMS Reporting Tool (SMRRT):

<https://ihs.verdegraphics.com/>

- LT Nicholas Stauffer
- Automation of RPMS data extraction and report synthesis
- Modules: bronchitis (cellulitis, UTI, med adherence, diagnosis coding)

CDC Core Elements of Outpatient Antibiotic Stewardship:

- Clinician Checklist: https://www.cdc.gov/antibiotic-use/community/pdfs/16_268900-A_CoreElementsOutpatient_check_1_508.pdf
- Facility Checklist: https://www.cdc.gov/antibiotic-use/community/pdfs/16_268900-A_CoreElementsOutpatient_check_2_508.pdf

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Ambulatory Care Antimicrobial Stewardship Elements & Order Set Organization

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