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KDHE-KHC Antibiotic Stewardship Series

- | | |
|---------|--|
| April 7 | What is Antibiotic Stewardship:
Emphasis on Accountability and Leadership |
| May 5 | Antibiotic Stewardship Measurement and Metrics |
| June 2 | Antibiotic Stewardship Metrics: How and what to report |
| July 7 | Antibiotic Stewardship Activities:
Implementing practical interventions tailored to your facility |

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To receive continuing nursing education, you must:

1. Complete sign-in sheet located at the back of today's handouts and return to hcourson@khconline.org.
2. Participate in all polling questions.
3. Complete the evaluation at the end of the presentation.

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Presenters



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Objectives

1. Review the types of antimicrobial stewardship interventions/actions
2. Describe examples of interdisciplinary programs, avoiding disciplinary silos
3. Provide resources for varied antibiotic interventions and actions discussed today

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Interventions

No one size fits all strategy or policies

Antibiotic overuse occurs as a result of

- Policies
- Knowledge
- Awareness
- Culture

Facilities differ greatly in

- Provider types
- Culture, social norms, hierarchy
- Patient population
- Resistance patterns
- Resources, support

Barlam T et al CID 2016; 15(62):e51-77.
Flodgren G. Cochrane Database Syst Rev 2019;24:6.
Grol R et al Lancet 2003;362(9391):1225-30

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Question 1

What are the 2 **priority** antibiotic stewardship interventions recommended by the CDC?

- A. Audit & feedback + preauthorization
- B. Antibiotic timeouts + penicillin allergy assessments
- C. Guidelines + formulary restrictions
- D. Peer comparison + de-escalation

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7 Core Elements

CDC updated Core Hospital Stewardship Elements in 2019, **prioritizing specific interventions**

Audit & feedback
Prior authorization

Core Element	2014	2019
Leadership Commitment	Dedicate necessary human, financial and information technology resources.	
Accountability	Appointing a single leader responsible for program outcomes. Experience with successful programs show that a physician leader is effective .	Appoint a leader or co-leaders, such as a physician and pharmacist , responsible for program management and outcomes.
Pharmacy Expertise (formerly Drug Expertise)	Appointing a single pharmacist leader responsible for working to improve antibiotic use.	Appoint a pharmacist, ideally as the co-leader of the stewardship program , to help lead implementation efforts to improve antibiotic use.
Action	Implementing at least one recommended action , such as systemic evaluation of ongoing treatment need after a set period of initial treatment (i.e. "antibiotic time out" after 48 hours).	Implement interventions, such as prospective audit and feedback or preauthorization , to improve antibiotic use.
Tracking	Monitoring antibiotic prescribing and resistance patterns	Monitor antibiotic prescribing, impact of interventions , and other important outcomes, like CDI and resistance patterns.
Reporting	Regular reporting information on antibiotic use and resistance to doctors, nurses and relevant staff	Regularly report information on antibiotic use and resistance to prescribers, pharmacists , nurses, and hospital leadership .
Education	Educating clinicians about resistance and optimal prescribing	Educate prescribers, pharmacists, nurses, and patients about adverse reactions from antibiotics, antibiotic resistance, and optimal prescribing.

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Conceptualizing Varied Actions

One way to conceptualize varied strategies is to place them into 4 categories based on 2 factors

- Do they occur **BEFORE** or **AFTER** prescribing
- Do they require **ACTIVE** or **PASSIVE** interaction with prescribers
- A mix of passive & active approaches, before and after prescribing is likely to have the greatest impact

Passive	Active	
Indirect interactions in which prescribers seek out information on prescribing decisions if they choose to do so	Direct interactions in which AS team or interventions engage clinicians at point of prescribing, restricting or persuading prescribing practices	
<ul style="list-style-type: none"> • Guidelines • Education 	<ul style="list-style-type: none"> • Preauthorization • Prospective audit + feedback • Clinical decision pathways, order sets • Peer comparisons/provider feedback • Antibiotic time-outs • Automatic stop orders 	<ul style="list-style-type: none"> • Dose optimization protocols • IV to PO conversions • ASP rounds/hand-shake rounds • Allergy initiatives • Cascading or tiered abx susceptibility reports

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Guidelines

Institution-specific treatment guidelines

- High priority for all ASPs
- National guidelines are a good starting point
 - National g/I do not take into account local factors
 - **Adapt to epidemiologic risk factors, local population served, resistance patterns, local formularies**

TJC 1/1/23 standards – implement at least 2 evidence-based guidelines to improve antibiotics for the most common indications

- Community acquired pneumonia
 - Urinary tract infections
 - Skin & soft tissue infections
 - *C. diff* infection
 - Asymptomatic bacteriuria
 - Surgical prophylactic antibiotics
 - Parenteral to oral antibiotic conversions
- (links to national guidelines on resources page)

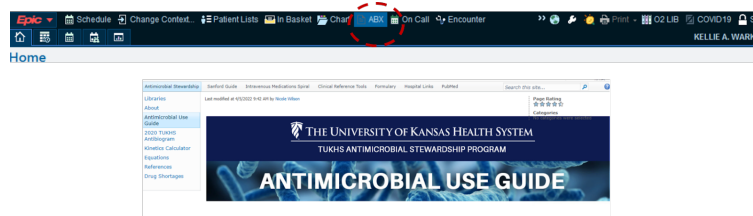
<https://www.jointcommission.org/-/media/jointcommission/standards/republications/effective-2023/jac-jan2023-republication-report-antibiotic-stewardship.pdf>
<https://www.jointcommission.org/-/media/jointcommission/standards/republications/effective-2023/cab-jan2023-republication-report-antibiotic-stewardship.pdf>

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Institution-specific treatment guidelines

- Streamlines & standardizes antibiotic-decision making
- Used as the **standard reference** when developing clinical decision pathways, order sets, one-on-one interventions, assessing adherence to local criteria
- Consider how g/I will be promoted & delivered
 - Highlight during formal educational sessions
 - Post on hospital intranet
 - Integrate into decision support systems



Review regularly to incorporate local data, national g/I updates and keep them relevant and useful for clinicians and the ASP

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Education

- Provider-focused, abx & infectious-disease principles
- Any major AS intervention will require some education or informational communication to clinicians

Advantages

- Reinforce key principles of AS
- Provide “face time” for AS leaders to est. role as local experts

Limitations

- Without ongoing active interventions, education alone does not reliably result in sustained change
- Negative feedback, lack of participation or acceptance

Avenues

- Didactics (grand rounds, CME presentations)
- Point of care access (e.g. intranet, mobile devices, pocket cards)
- Convenient locations (faculty lounges, physician work stations) and times (web-based modules or webinars)
- Strong preference for workshops among clinician respondents

Ohl C & Luther V. J Hosp Med 2011;6 Suppl 1: S4-S15
Drew R., White R., et al. Pharmacotherapy 2009;29 (5): 593-607

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Multidisciplinary Educational Examples

URI outpatient clinic RCTs

- Education alone - 5-20% reduction
- Education + Audit/Feedback of prescriber-specific aggregate abx use - 50-75% reduction

Double-passive Interventions effective

Guideline + Education of guidelines (inpatient)

- abx consumption declined 26%
- appropriate use improved 26%

Guideline + Education (academic detailing, presentations)

- 10% increase in g/l adherence → 8% reduction 30-d mortality, improved patient outcomes, shorter LOS

Gerber J., et al. JAMA 2013; 309(22):2345-52
Cisneros J., et al. CID 2014;20(1):82-88.
Dean et al Chest 2006;130:794-99

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Prior Authorization Priority Action Element

Requirement for providers to seek out pharmacy or AS team to review & approve antibiotics

Benefits

- Improves abx selections
- Improves clinical outcomes
- Decreased abx expenditures
- “mini-consult” with directed education for requesting providers
- Decreased collateral damage (e.g., restricted FQ use -> decreased *C.diff*)

Challenges

- Perceived loss of prescriber autonomy
- Disputes b/w stewards and prescribers
- Time intensive
- Difficult to cover 24h/7d a week
- Unintended increases in non-restricted abx “squeezing the balloon”
- Increased levels of education + skill
- Circumvented (e.g., providers can falsely identify indications for use or able to enter indications outside predefined set of criteria)

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Prior Authorization

- Longest standing stewardship activity
- Designating high cost, new, infrequently used abx
- Non-formulary agents will be needed, so the non-formulary process should include reasonable expectations to obtain those abx
- Regularly reviewed by multidisciplinary group of pharmacists, physicians (P&T)
- Influenced by local AMR/antibiograms and abx use

Formulary Restriction

- Restricted to certain providers (e.g., daptomycin to ID) or disease state/clinical scenario

Prior authorization

- Most time intense, b/c restricted abx requires prescriber to obtain AS/pharmacy pre-auth before agent dispensed from pharmacy
- Stewards have the authority to approve/deny requests through hospital policies
- Ensure appeals process (disputes arise)

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Overcoming Barriers

- Influence P&T decisions by assigning ASP members as part of P&T voting members
- Obtain appropriate authority from institutional policy & committees
- Work to establish positive, personal rapport w/ prescribers
- Establish a streamlined approval process to minimize prescribers time & effort
- Monitor patient outcomes, abx use rates to identify unintended consequences (and report back outcomes, savings to leadership)

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Question 2

Audit and feedback is the process of reviewing antibiotics utilized (for clinical scenario/infections) and providing feedback to prescribers in order to improve antibiotic use.

True / False?

- A. True
- B. False

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Prospective Audit & Feedback

Review of patients on select abx after initiation, directed feedback to provider

May also review clinical syndromes (e.g., CAP abx mgmt) or infections (e.g., C.diff, (+) blood cultures, enterococcus vs non-VRE)

Benefits

- Improves abx selections
- Improves clinical outcomes
- Directed education
- Corrects drug-bug mismatches
- Encouraged de-escalation
- Team based approach, improves AS visibility

Challenges

- Recommendations are voluntary, may not be accepted
- Increased level of education & skill needed
- Labor intense (improved w/ software)
- Notification system (for infection-specific audit)
- IT to reliably identify and target patients and abx for review

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Prospective Audit & Feedback

Choosing What to Audit

- Abx based on potential for misuse:
 - Spectrum (e.g. piperacillin/tazobactam)
 - Toxicities (vancomycin)
 - High consumption (daptomycin, linezolid)
 - IV to PO
 - Coverage (double anaerobic)
- Clinical scenarios
 - *S. auris* bacteremia, candidemia
 - Ventilator or community acquired pneumonias

Operationalize

- AS physician or pharmacist performs audit
- Combination review (if pharmacist providing feedback, reviews w/ physician)
- Manual review vs software (provides real-time review of targeted abx, scenarios)
- Provides direct feedback via
 - Rounds
 - Pager
 - Phone
 - EMR
 - Written
- Method of feedback take into consideration personnel availability, institutional culture/norms, size of facility/feedback needed, consider certain days of the week

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Audit & Feedback Success Examples

Small community hospital, prospective auditing

- Chose multiple, prolonged or high-cost abx
- Initial perceptions of loss of autonomy, work w/ P&T took into considerations (legal liability if providers rejected AS's recommendations, so chose not to enter into chart not subject to legal discovery), no suggestions made if data insufficient for comfortable decision and went after "low-hanging abx fruit" not complicated mgmt issues
- Pharmacist spent ~8h / wk, reached out three times weekly
- 69% recommendations accepted & implemented, 26% were rejected and 5% cancelled
- Cost savings enabled support of pharmacist + ID physician part-time

ASPs using clinical decision support software

- Decreased number of patients requiring review by 84%
- Decreased abx use up to 37%
- Decreased expenditures by \$400/patient
- Decreased LOS

LaRocco A., et al. CID 2003;37(5):742-43.
Glowacki R., et al CID 2003;37(1):59-64
Fraser G., et al. Arch Intern Med 1997;157(15):1689-94
Solomon D., et al Arch Intern Med 2001;161(15):1897-1902.

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Pharmaceutical Interventions

Antibiotic “time-outs”: Providers review, document abx choice, dose, duration, micro data, indication

IV to PO conversions: Auto-conversion for IV to PO formulations w/ high bioavailability

Dose Optimization

Automatic Stop orders: Use of abx permitted for a defined period, then requires approval for continuation

Benefits

- Improves abx selections, dosing
- Improved patient outcomes (dose optimization)
- Awareness to abx/durations
- Improves lab monitoring/follow-up
- Minimal resources required
- Integrated into EMR

Challenges

- Ongoing educational efforts, routine assessments, pharmacy workflow integration (dose optimization, stop orders)
- Inadvertent discontinuation (stop orders)
- “Alert fatigue” or providers may complete documentation but not change abx decisions (time-outs)

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Antibiotic Optimization Interventions

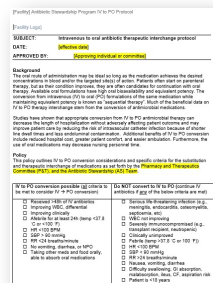
Dose Optimization

- Want to ensure not just correct abx but also optimal DOSE

Time Dependent (T>MIC)	Concentration Dependent (C_{max}/MIC)	Concentration and Time dependent (AUC/MIC)
Penicillins	Aminoglycosides	Aminoglycosides
Cephalosporins	Fluoroquinolones	Vancomycin
Carbapenems		Fluoroquinolones
Aztreonam		Daptomycin
Linezolid		Polymyxins
		Tigecycline
		Linezolid
		Tetracyclines
		Macrolides

IV to PO conversion protocols

- PO conversions should be those w/ high bioavailability (e.g., metronidazole, fluoroquinolones, clindamycin, rifampin)
- Pharmacists act on approved protocols containing defined criteria for conversions



Download

<https://www.kdhe.ks.gov/DocumentCenter/View/14466/Template-4---ASP-IV-to-PO-Protocol-DOCX>

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Pharmaceutical Continuing Education

MAD-ID

- \$500 per physician, pharmacist, nurse
- \$350 per trainee
- discounts for larger groups
- online, teleconference and practical components included

<https://mad-id.org/>



SIDP - Antibiotic Stewardship Certificate

- \$750 per pharmacist
- \$500 per trainee
- Phase 1 is self-study
- Phase 2 is live webinar
- Phase 3 includes a skills component at the practice site

<https://sidp.org/Stewardship-Certificate>

KS Reimbursement Program :

<https://www.khconline.org/14-khc-initiatives/402-hai-ar#SIDP>



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Peer Comparison

Comparison of provider antibiotic prescribing to their peers

- Behavior change is a major challenge for ASPs, especially when prescribers don't realize their prescribing patterns differ from standard or optimal practice
- Being an "outlier" or "not a top performer" are very motivating

Benefits

- Improves abx prescribing
- Identifies specific prescribers to target educational efforts & interventions
- Provides positive reinforcement to top performers as well as incentives to change behavior in poor performers

Challenges

- Standardized EMR to collect, analyze data confidential for feedback
- Requires adequate sample of prescribers or practices for valid comparisons
- Request development of accepted definition of "appropriate use"
- Prescriber or institutional push-back

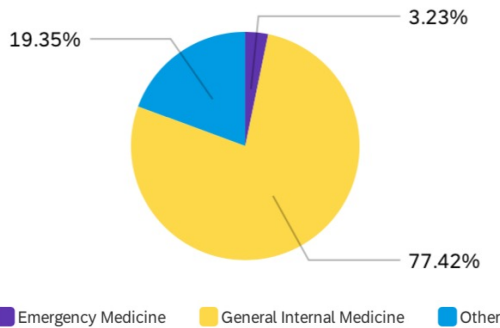
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Peer Comparison

Prescribers Perceptions / Interest in Peer Comparison

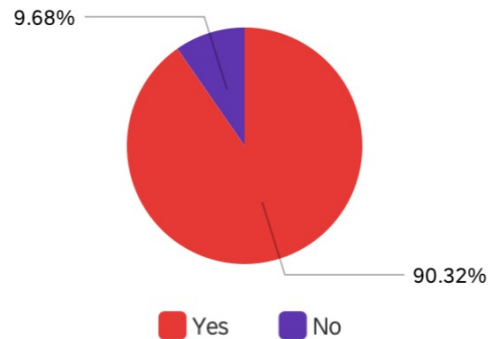
Specialty Respondents (N=31)



Emergency Medicine General Internal Medicine Other

Wark & Vocekka, 2019 Patient Survey, unpublished

Would you be interested in receiving comparison of your antibiotic- prescribing rates compared to your peers?



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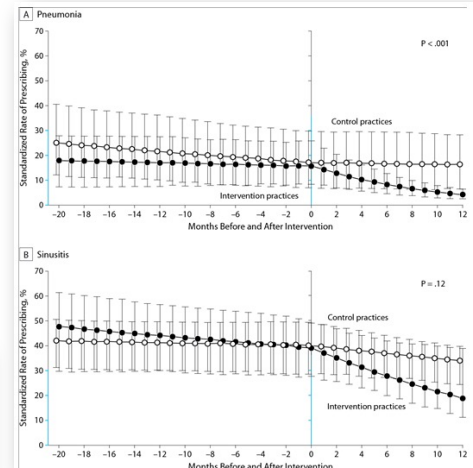
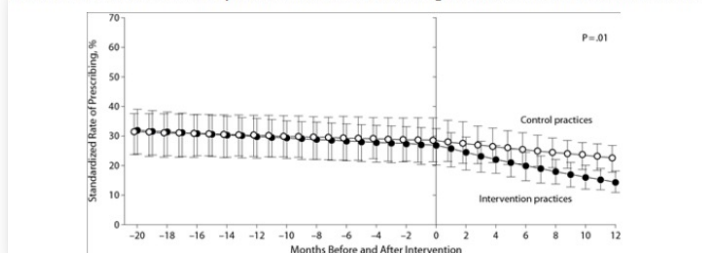
27

Peer Comparison Success Examples

Outpatient - feedback reports for URIs

- RCT 42 clinics, 169 providers
- 1 hour on-site educational session & introduction to reports
- 1 year, every 4 mos reports of rates of broad-spectrum (off-guideline) abx for viral ARTIs and bacterial ARTIs
- 12.5% reduction in broad-spectrum abx prescriber
- 11% reduction in guideline-discordant Rx for pneumonia

Standardized Rates of Broad-Spectrum Antibiotic Prescribing at Acute Care Office Visits Over Time



Gerber J., et al. JAMA 2013;309(22):2345-52

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Question 3

Ms. Wark reports that she had childhood itching and rash with amoxicillin. She is diagnosed with strep pharyngitis of which the preferred antibiotic is amoxicillin. What is the best next step?

- A. Start clindamycin
- B. Start amoxicillin
- C. Assess prior reaction, discuss pros/cons of retri al amoxicillin
- D. Refer to allergy for skin testing

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Question 4

Ms. Wark reports prior hives, lip swelling with rash with amoxicillin. She is diagnosed with strep pharyngitis of which the preferred antibiotic is amoxicillin. What is the best next step?

- A. Prescribe amoxicillin
- B. Assess prior reaction, discuss pros/cons of retri al amoxicillin
- C. Retrial amoxicillin but do so in clinic
- D. Refer to allergy for skin testing

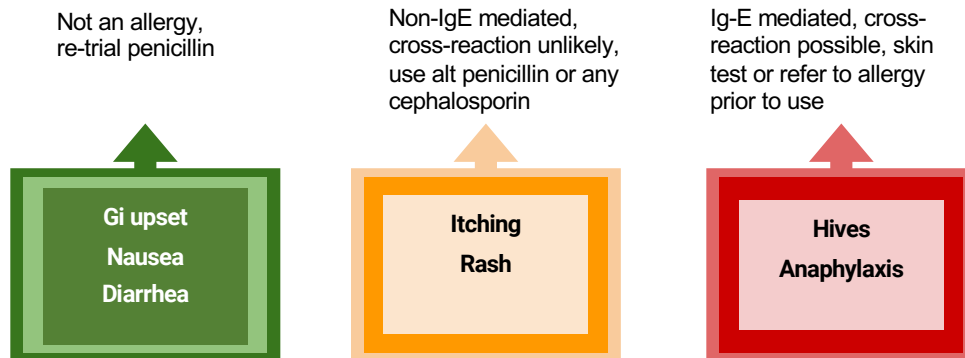
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Penicillin Allergies

10% of patients report penicillin (or beta-lactam [BL]) allergies, however upon evaluation up to 90% are not true allergies and can safely tolerate penicillins, or the issue was remote and more related to formulations

- BLs often preferred, those w/ allergy tx w/ non-BL associated w/ higher treatment failures, greater risk C.diff, possibly greater risk colonization w/ MRSA, VRE



Macy E et al CID 2017;64(4): 531-32
Macy E et al J Allergy Clin Immunol. 2014; 133(3):790-96

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Penicillin Allergy Initiatives

ASP-led initiatives to improve penicillin allergy assessments

Benefits

- Improves abx selections
- Improved patient outcomes
- Reduced non-beta-lactam alt. (e.g., vancomycin, clindamycin, fluoroquinolones)

Challenges

- Education intense (at all levels: patient, nursing, pharmacy, providers)
- Additional resources/specialties (skin testing)
- May require IT support



PCN allergy protocol
<https://www.kdhe.ks.gov/DocumentCenter/View/14467/Template-5-ASP-PCN-Allergy-Protocol-DOCX>

Penicillin Allergy Protocol

Version: 1.0

DATE: 10/1/2014

REVISIONS: 1.0

Background: Penicillin is a beta-lactam antibiotic. It is the most commonly used antibiotic in the world. It is effective against a wide range of bacteria. However, some patients develop an allergic reaction to penicillin. This reaction can range from a mild rash to a severe anaphylactic reaction. The purpose of this protocol is to provide guidance for the management of penicillin allergies.

Policy: The purpose of this protocol is to provide guidance for the management of penicillin allergies. It is intended to be used by healthcare providers in the management of patients with penicillin allergies.

Procedures:

1. Allergy testing should be performed for all patients with a penicillin allergy.
2. Allergy testing should be performed for all patients with a penicillin allergy.
3. Allergy testing should be performed for all patients with a penicillin allergy.
4. Allergy testing should be performed for all patients with a penicillin allergy.
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8. Allergy testing should be performed for all patients with a penicillin allergy.
9. Allergy testing should be performed for all patients with a penicillin allergy.
10. Allergy testing should be performed for all patients with a penicillin allergy.

Medical Director/ Administrator (Printed Name and Signature) _____ Date _____

Director of Nursing (Printed Name and Signature) _____ Date _____

Facility's Lead ABX Champion (Printed Name and Signature) _____ Date _____

Penicillin Allergy Protocol

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Facility's Lead ABX Champion (Printed Name and Signature) _____ Date _____

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Syndrome based guidance for abx selection, diagnostics at the time of order entry (e.g., order sets, best practice alerts, embedded tools)

- Integrate guideline and awareness
- Integrates dose optimization and abx selections
- Standardizes abx selections

- Declining order set use
- IT to design, implement, maintain updates

[illegible]

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Diagnostic technologies which provide rapid ID and/or susceptibility info compared to traditional micro methods: for best effect, integrate into active ASP initiatives (e.g., audit & feedback)

Antibiogram /guidelines

- Improves time to diagnosis
- Improved patient outcomes (e.g., rapid blood cx ID)
- Improved abx selections
- More rapid de-escalation (e.g., procalcitonin/viral URIs)

- Provider frustration (e.g., cascading)
- Inaccurate assumptions of susceptibilities for agents not reported

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Hide certain antibiotics (e.g., may be susceptible but less preferred, or hide susceptible broader agents)

MODERATE SERRATIA MARCESCENS
SERRATIA MARCESCENS MAY DEVELOP RESISTANCE UPON EXPOSURE TO THIRD GENERATION CEPHALOSPORINS OR
PIPERACILLIN/TAZOBACTAM. FOR SERIOUS INFECTIONS, CEFEPIME, CARBAPENEM, OR NON-BETA-LACTAM AGENT
SHOULD BE CONSIDERED.

Susceptibility		Serratia marcescens	
		MIC	
	Ampicillin	> 16	Resistant
	Ampicillin/sulbactam	> 16/8	Resistant
	Cefazolin	> 16	Resistant ¹
	Cefepime	<= 2	Susceptible
	Ceftazidime	<= 1	Susceptible
➡	Ceftioxone	<= 1	Susceptible
	Cefuroxime	> 16	Resistant
	Ciprofloxacin	<= 1	Susceptible
	Ertapenem	<= 0.5	Susceptible
	Gentamicin	<= 1	Susceptible
	Levofloxacin	<= 0.25	Susceptible
➡	Piperacillin/Tazob	<= 4	Susceptible
	TMP SULFA	<= 2/38	Susceptible

Summary	
<ul style="list-style-type: none"> Staphylococcus 1.00 Detected meaA 1.00 Detected 	<ul style="list-style-type: none"> S. aureus 1.00 Detected

Detail	
<ul style="list-style-type: none"> Staphylococcus 1.00 Detected S. epidermidis Not Detected meaA 1.00 Detected S. epiglottidis Not Detected S. pneumoniae Not Detected S. locustalis Not Detected vrrA Not Detected Listeria Not Detected 	<ul style="list-style-type: none"> S. aureus 1.00 Detected S. lugdunensis Not Detected Streptococcus Not Detected S. pyogenes Not Detected Enterococcus sp. Not Detected E. faecium Not Detected vrrB Not Detected

EHR

Specimen Type: BLOOD, VENOUS

Special Handling: NONE

Gram Stain Result: GRAM POSITIVE COCCI RESEMBLING STAPHYLOCOCCUS AFTER 0.50 DAYS

OTHER ANALYSES TESTED. SEE TEST DIRECTORY FOR ASSAY INFORMATION.

Organism 1: METHICILLIN RESISTANT STAPHYLOCOCCUS AUREUS

IPC

<p>Allergies: No Known Allergies</p> <p>Code: FULL</p> <p>Adv Dir: None</p>	<p>HCA: None</p> <p>Language: English</p> <p>Infection: MRSA</p> <p>Isolation: Contact</p>
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<https://clsi.org/media/3503/education-beyond-sir.pdf>

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Diagnostic Stewardship

Technologic advancements, many tests but need to determine how best to use them

Advantages	Disadvantages
Increased diagnostic yields (1 sample, multiple targets)	False positive (cross-reactivity or nonspecific amplification caused by mult. primers/target present in reaction)
Conserve & optimize analysis of samples difficult to obtain (e.g., synovial, csf)	Overly sensitive - positive results of unclear significance
Simplifies ordering algorithm as only 1 test needs requested	High cost of commercial kits & instruments
Potential saving in reagents by testing mult. organisms at once compared to testing each separately	Added costs of testing targets may not be necessary
Standardizes testing	



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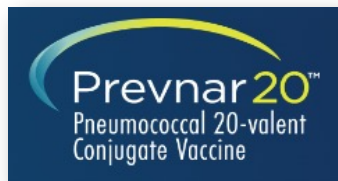
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Vaccination Initiatives

Excellent strategy to couple AS efforts with prevention

As vaccinations prevent infections, they contribute to the overarching goal of less antibiotics

- Incorporate into bundles (e.g., sepsis, CAP)
- Tag into vaccination education (new pneumococcal vaccinations)



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Question 5

What ways are you currently implementing to improve antibiotics in your facility (all that apply)?

- | | |
|---|-------------------------------------|
| A. Treatment guidelines | I. Clinical Decision support tools |
| B. Formulary restrictions | J. Vaccinations |
| C. Dose optimization/IV to PO conversions | K. Microbiology reporting/cascading |
| D. Time sensitive abx stop orders | |
| E. Audit & feedback | |
| F. Peer comparison | |
| G. Education | |
| H. Penicillin assessments | |

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Resources



LTC AS Toolkit:
<https://www.kdhe.ks.gov/DocumentCenter/View/14470/Long-Term-Care-Facility-Antimicrobial-Stewardship-Program-Toolkit-PDF>

Download



CAH AS Toolkit:
<https://www.kdhe.ks.gov/DocumentCenter/View/14468/Antimicrobial-Stewardship-Programs-a-Toolkit-for-Critical-Access-Hospitals-in-Kansas-PDF>

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Resources

Guidelines

CAP (2019)
<https://www.atsjournals.org/doi/full/10.1164/rccm.201908-1581ST>

C. diff (2021)
<https://doi.org/10.1093/cid/ciab549>

HAP/VAP (2016)
<https://doi.org/10.1093/cid/ciw353>

SSTI (2014)
<https://doi.org/10.1093/cid/ciu296>

Surgical prophylaxis
IDSA: <https://doi.org/10.2146/ajhp120568>
ASHP: <https://www.ashp.org/surgical-guidelines>

UTI & ASB (2019)
<https://doi.org/10.1093/cid/ciq257>

Tools

Needs Assessment / Current State
<https://www.kdhe.ks.gov/DocumentCenter/View/14462/Table-14---Current-State-Assessment-DOCX>

Most common facility antibiotics assessemnt
<https://www.kdhe.ks.gov/DocumentCenter/View/14459/Table-11---Summary-of-Facility-Antibiotics-DOCX>

Protocols

IV to PO protocol
<https://www.kdhe.ks.gov/DocumentCenter/View/14466/Template-4---ASP-IV-to-PO-Protocol-DOCX>

PCN allergy
<https://www.kdhe.ks.gov/DocumentCenter/View/14467/Template-5---ASP-PCN-Allergy-Protocol-DOCX>

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Resources & More Information

KDHE wants to help with AS/AR, contact:

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785-296-4167

24/7 Epidemiology Hotline

KDHE.EpiHotline@ks.gov

877-427-7317

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Thank You/Questions



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We invite your feedback.

Please complete our brief feedback survey

<https://www.surveymonkey.com/r/F229JZK>

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