KDHE-KHC Infection Prevention Learning Action Network for Outpatient Settings

Kansas Department of Health and Environment
Division of Public Health

Kansas Healthcare Collaborative

Session 8 — June 3, 2021

Antimicrobial Stewardship

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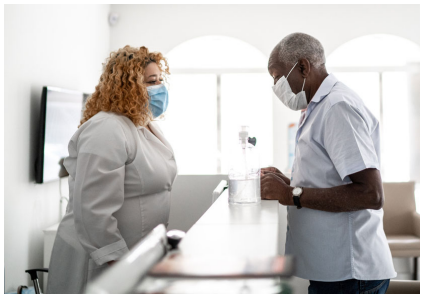
KDHE-KHC Infection Prevention LAN for Outpatient Settings

KDHE-KHC Learning Action Network



February 25	IP Program Development
March 11	Surveillance and Reporting
March 25	Occupational Health
April 8	Personal Protective Equipment
April 22	Hand Hygiene
May 6	Environmental Cleaning & Disinfection
May 20	Device Reprocessing
June 3	**Antimicrobial Stewardship**
June 17	Bringing It All Together

Recordings and handouts are available online. Visit www.khconline.org/LAN

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Feedback Summary from Previous Session

Session #7: Device Reprocessing

The most useful thing presented included:

- Information on high-level disinfection, training and competency
- Auditing tools provided and frequency of audits.
- Reprocessing reusable medical equipment.
- I'm new(ish) in this role and it was all great information.
- LOVED the resources

Next steps identified by participants:

- Review our training documentation. Make sure that competencies are done and documented.
- Implementing a minimum of HLD rounding.
- Use the audit tools provided to develop tracers and perform more frequently.
- Share evidence-based guidelines with our reprocessing department and surgical services manager.
- Share colonoscope cleaning tool with person in charge of cleaning it.
- Hang time risk assessment.
- Look into our access to IFUs per department.
- Gap analysis.
- Check for AER routine maintenance.
- QA in CS processing.

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Session #8: Antimicrobial Stewardship

Presenters

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Session #8: Antimicrobial Stewardship

Session Objectives

1. Review the state of antimicrobial stewardship in the clinic setting
2. Evidence in support of antimicrobial stewardship
3. Review the core elements of outpatient stewardship
4. Identify and strategize how to overcome some of the outpatient stewardship challenges

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Session #8: Antimicrobial Stewardship

Polling Question

Does your facility have an antimicrobial stewardship program?

- ❑ Yes - program is well established
- ❑ Yes - still building
- ❑ Will soon – we're actively working toward it
- ❑ No – need information
- ❑ A What?

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Timeline

1942 PCN
'43 Resistant MSSA
1960 Methicillin
'62 MRSA
1970s Hospitals start multidisciplinary efforts to improve abx use
1992 No VRE, no ESBL, no CA-MRSA, pneumococcus –susc. just starting to be performed
1995
- CDC launches
  - National Campaign for Appropriate Abx Use (now "be abx aware")
  - National Nosocomial Surveillance System (now NHSN)

2007
- IDSA & SHEA published 1st AS guidelines
- SHEA, IDSA, PIDS called for mandatory implementation of ASPs in healthcare facilities

2014
- Obama's Nat'l Strategy for combating AR bacteria outlines framework
- CDC framework "**7 Core Elements**"

2015 WHO Global Action Plan on AR adopted by the World Health assembly

2016 CDC 4 core elements **outpatient** stewardship

9/2019 CMS adopts condition of participation requiring all CAHs having ASP

1/2020 The Joint Commission mandates participating outpatient centers develop ASP

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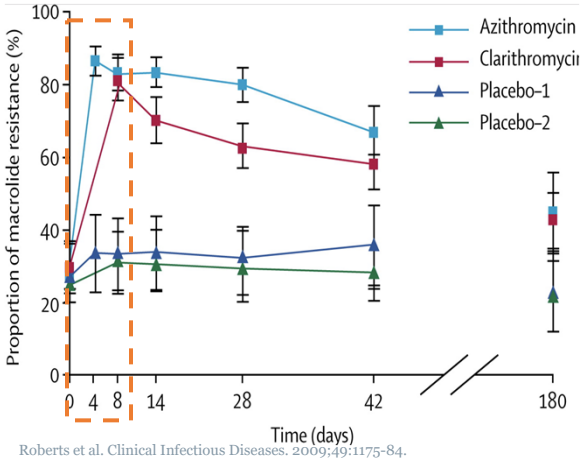
Antimicrobial Resistance

- Antibiotic use contributes to
  - Antibiotic resistance (AR) :
    use it AND lose it?
    - In as quickly as 4 days, 3x increase resistance pneumococcus in throat swabs while on macrolide vs. control
    - AR = increased costs (MDROs compared to susceptible **prolong hospitalizations 24%, costs 29%**)
  - Adverse events (e.g., #1 cause ED visits from meds)
  - Collateral damage (e.g., *C.diff*)

Pennsylvania HealthCare Cost Containment Council. Jan 2010
http://www.phc4.org/reports/hai/10/docs/hai2010report.pdf
Maudlin et al. Antimicrobial Agents and Chemotherapy. 2010; 54(109-15.

Changes in macrolide-resistant pneumococcus while on macrolides compared to placebo (no abx)



Roberts et al. Clinical Infectious Diseases. 2009;49:1175-84.
Malhotra-Kumar S, et al Lancet 2007;369(9560):482-90.

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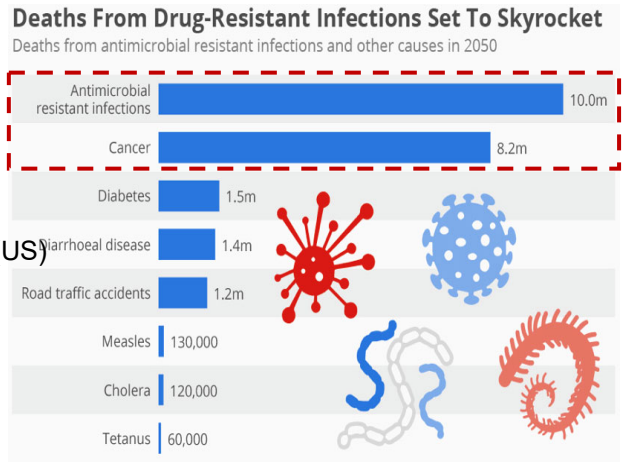
Antimicrobial Resistance's Toll

AR annually contributes to:

- Deaths
  - 23,000 (US)
  - 700,000 (global)
- Infections (MDROs)
  - 2 million (US)
  - 10 million (global)
  - 453,000 *C.diff* infections → 30,000 deaths (US)
- Costs
  - $55 billion added costs (US)
  - $100 trillion (global)

  equiv. to a 2008 financial crisis every year



Worldbank; Smith R, Coast J., The true cost of antimicrobial resistance. BMJ 2013(346)
O'neill J. Tackling drug-resistant infections globally - AMR review. 2016; https://amr-review.org/sites/default/files/160518_Final%20paper_with%20cover.pdf

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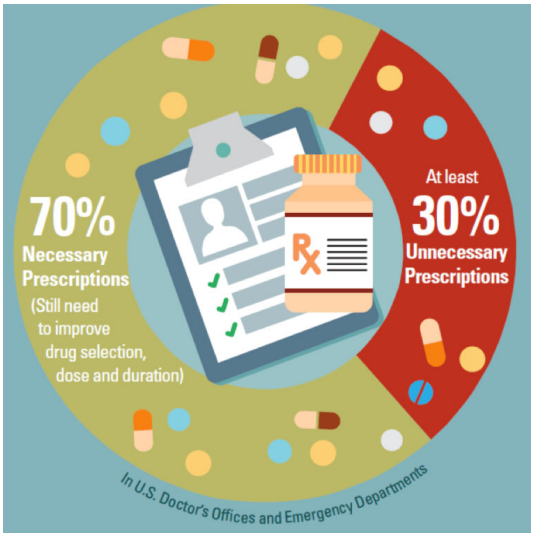
Ambulatory Prescribing

- Ambulatory Antimicrobials:
  - 30-40% of abx unnecessary
  - Abx most commonly Rx'd medicine **(15% all visits)**
  - **60% of total US abx expenditures** ($10.7 billion)



Talkington K, et al. Pew Charitable Trusts, May 2016
Parente D., et al. Antimicrob Resist Infect Control, 2017; (6)33.
Havers, et al., *JAMA*, 1(2), 2018 Jun 1
Suda K,et al. J Antimicrob Chemother. 2013;68(3)

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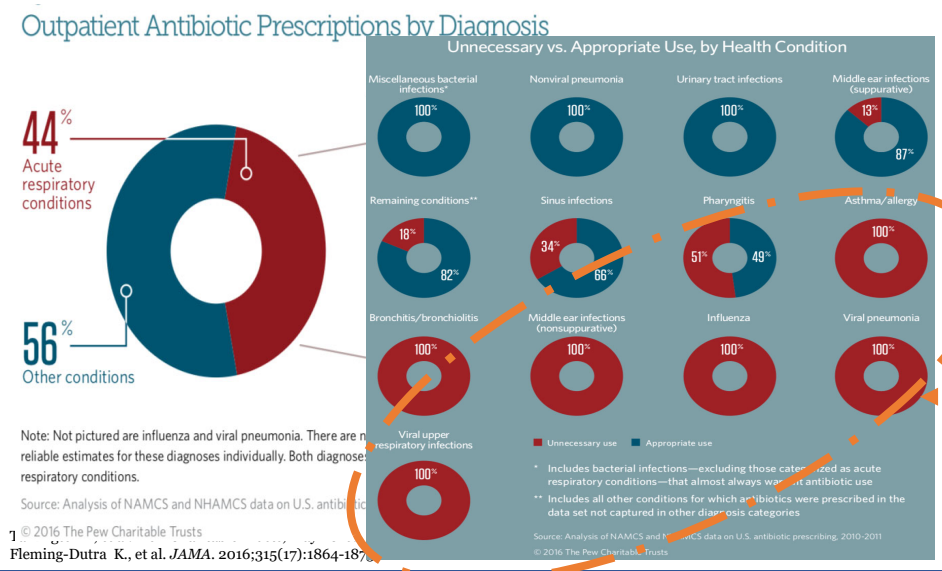
Ambulatory Prescribing



Note: Not pictured are influenza and viral pneumonia. There are n… reliable estimates for these diagnoses individually. Both diagnose… respiratory conditions.

Source: Analysis of NAMCS and NHAMCS data on U.S. antibi…

© 2016 The Pew Charitable Trusts

Fleming-Dutra K., et al. *JAMA*. 2016;315(17):1864-187…

40% of <u>all</u> outpatient antibiotics prescribed for:

- sinusitis
- pharyngitis
- otitis media
- Bronchitis

56% of these abx are broad-spectrums

…UTIs are a whole other problem

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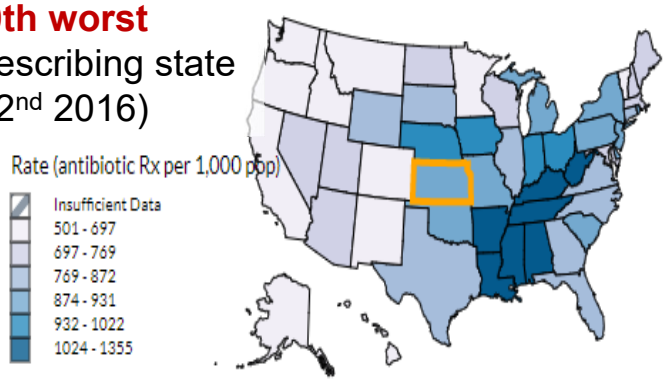
Ambulatory Prescribing

Antibiotic Prescriptions Dispensed in U.S. Community Pharmacies
Per 1000 Population | 2017

Kansas is the **40th worst** prescribing state (42nd 2016)



National

821

Antibiotic prescriptions dispensed per 1000 population

Kansas

931

Antibiotic prescriptions dispensed per 1000 population

Over the course of 1 year - **<u>931 out of 1000 Kansans</u> receive an antibiotic course**

CDC Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

AR PATIENT SAFETY ATLAS

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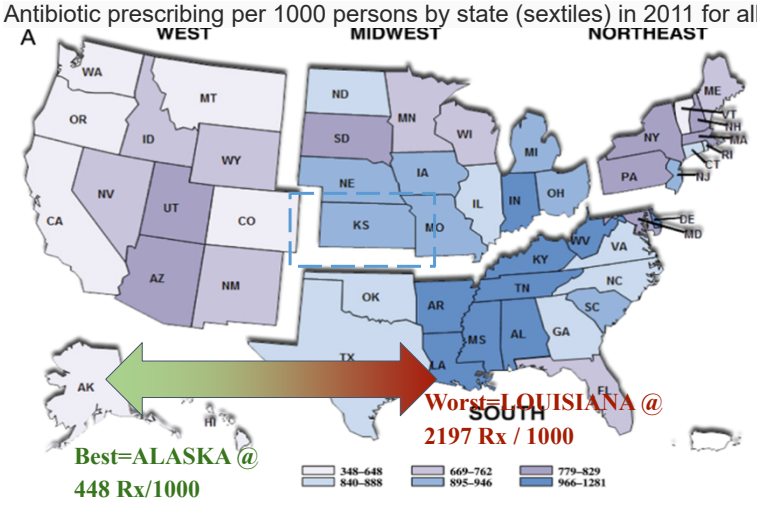
Dental Prescribing

Kansas

All ages: **2nd top quintile**
(895-946 abx / 1000)

Antibiotic prescribing per 1000 persons by state (sextiles) in 2011 for all ages



Roberts R, et al. J Am Dent Assoc 2017;148(3):172-78.

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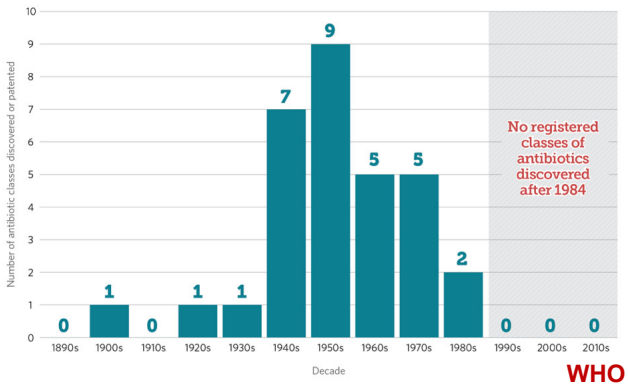
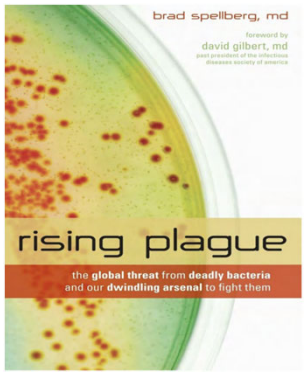
Why Target Antibiotics?

Combined with a **dwindling** pipeline

Figure 1
More than 30-Year Void in Discovery of New Types of Antibiotics



Source: Adapted from Lynn L. Silver, "Challenges of Antibacterial Discovery," *Clinical Microbiology Review* (2011)
© 2016 The Pew Charitable Trusts



WHO warns entering a 'post-antibiotic' era
CDC warns AMR is one of the biggest public health threats of our time

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How Much Could COVID-19 Drive Antimicrobial Resistance?

BACTERIAL coinfection in COVID-19 infected ....yet.... Received ANTIBIOTICS

3.5-3.9% in moderately ill	59.4%
8.3-14.3% severely ill	83.3%
34.5% critically ill	92.9%

How much **can** antibiotics increase antibiotic resistance?

Ceftriaxone	Fluoroquinolones	Carbapenems
↑15-fold ESBL*	↑8-fold ESBL	↑6-fold CRE
↑ 4-fold ampC*	↑4-fold CRE*	↑28-fold CRAB*

*ESBL=extended spectrum beta-lactam
*ampC=ampC beta-lactamase
*CRE=carbapenem resistant enterobacterales
*CRAB=carbapenem resistant *A.baumannii*

Langford et al. Microbiol Infect 2020
Feng Y et al. Am J Respir Crit Care Med 2020
Zhu X., et al Virus Res 2020
Goyal D et al Open Forum Infect Dis 2019
Zerr D et al Antimicrob. Agents & Chemotherapy 2016
Jeon M. et al . Diagn Microbiol Infect Dis 2008
Falagas J Antimicrob Chemother. 2007

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Ambulatory Prescribing

- Infectious Disease Society of America & Society for Healthcare Epidemiology of America:

  "coordinated program that promotes the appropriate use of antimicrobials, improves patient outcomes, reduces microbial resistance, and decreases the spread of infections caused by multidrug-resistant organisms"

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What is Antibiotic Stewardship

Targets:

- Improve abx prescribing
- Measure prescribing
- Minimize mis-dx or delayed diagnostics contributing to abx overuse
- Ensure the right drug, right dose & right duration are selected when an abx is needed

Goals:

- More prudent abx use → less resistance
- Reduce adverse events
- Reduce morbidity
- Reduce mortality

Barlam T., et al . CID 2016; 15(62)(10): e51-77. 51
MacDougall C et al. Clin Micro Rev 2005; 18(4): 638-56
Dellit T., et al. CCID 2007; 44:159-177

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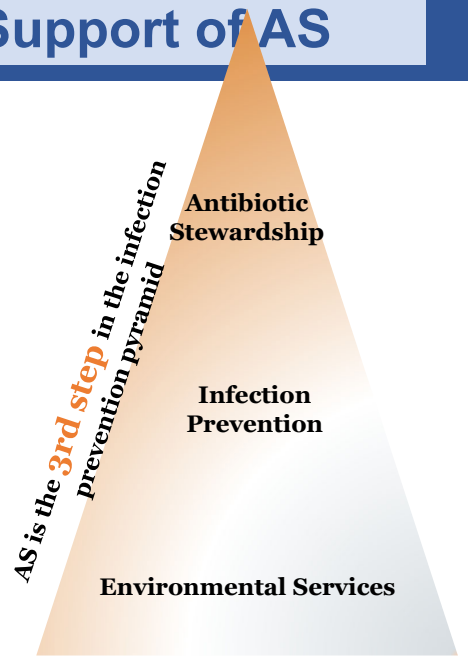
Evidence in Support of AS

- 81% reported decrease in antibiotic use (60 programs, Cochrane Review)
- 22-36% reduction in abx usage
- 25% average cost reduction (27/29 studies)
- Positive effects on resistance (i.e., reductions)
- $200,000 – 900,000 savings (large-medium hospitals) …clinics (?)



Cochrane Database Syst Rev. 2005(4):CD003543.
Patel D., et al. Expert Review of Anti-Infective Therapy. 2008;6:209-22.

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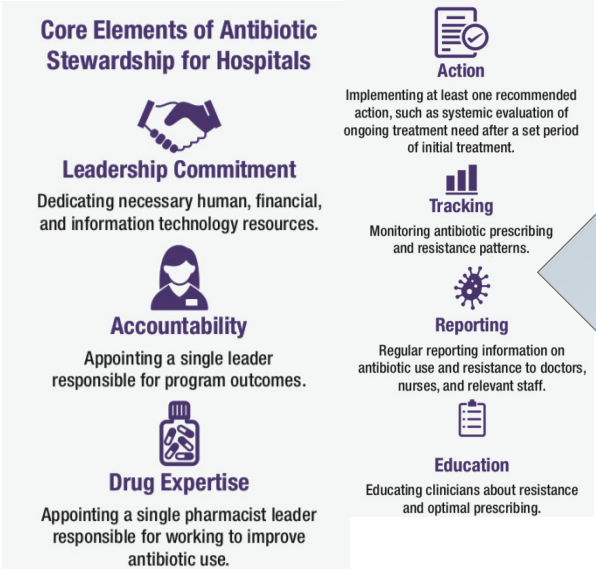
The 7 Core Elements of (Inpatient) Antimicrobial Stewardship



4 Core Elements (Outpatient)

1. Commitment
2. Action
3. Tracking & Reporting
4. Education & Expertise

Sanchez G, et al. Core elements of outpatient stewardship. MMWR 2016;65(RR-6):1-12; CDC core elements acute care hospital stewardship https://www.cdc.gov/antibiotic-use/healthcare/pdfs/hospital-core-elements-H.pdf.

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Core Element 1: Commitment

Leadership support

Dedicate necessary human, financial, & IT resources

Owners, governing boards, admin., medical, pharmacy & nursing directors

Single greatest predictor of whether or not KS facilities have an established ASP

- Barriers
  - Financial/resources
  - Lack of awareness
- Goal of AS leader to emphasize value (costs + outcomes) & once est. important to remind leadership of AS values, gains

Barlam T et al CID 2016; 15(62):e51-77.
Kansas Department of Health and Environment. 2018 Hosp AS workshop survey. 2019, unpublished.

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Examples of Commitment

Priority examples

- Provider leaders **time** to manage program & conduct interventions
- **Resource** allocation (staff, IT, marketing, education)
- **Formal statements** of commitment (e.g., include in annual reports)
- Appoint hospital or clinic executive to be **AS "champion"**, ensure med director participates

Other examples

- Set clear ASP leadership & staffing **expectations** (include in contracts, job descriptions upon hire)
- Set **clear expectations** for responsibilities & outcomes
- **Create a culture** around optimal abx use (messages, newsletters, emails, ongoing communique)
- Allocation of educational time & r**esources to clinicians, staff, patients**

Social Medial Toolkit:
https://www.khconline.org/files/USAAW-2020-images.zip

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"Nudging"

- Display commitment posters, subtle nudge providers to improve abx use, hold accountable when faced with pressure for abx during visit
  - 20% reduction in inappropriate abx (RCT of 5 clinics)

Meeker D et al JAMA. 2014;174(3):425-31.
Kufel W, Open Forum Infect Dis 2018;5(suppl1:S527.

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English customizable poster: http://www.khconline.org/files/POSTER-UseAntibioticsWisely11x17.pdf
Spanish poster: https://www.khconline.org/files/POSTER-UseAntibioticsWisely24x36_SPANISH.pdf

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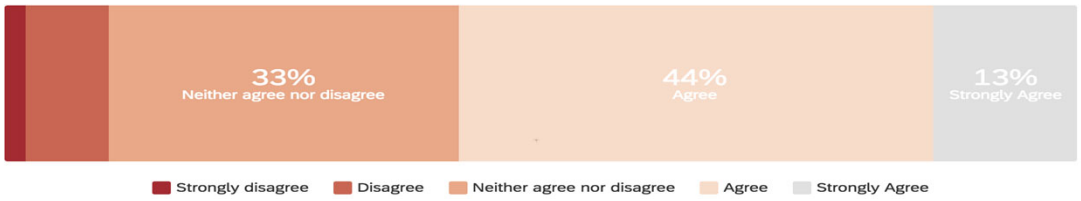
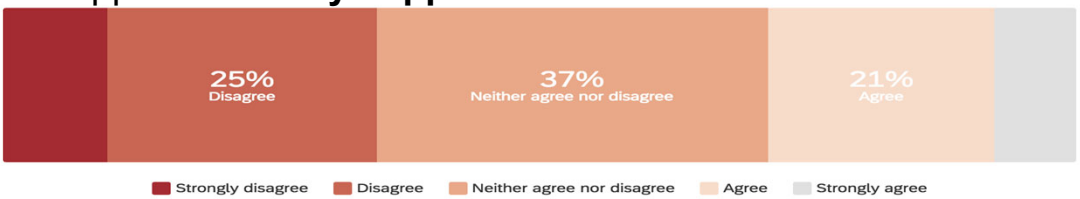
Challenges

- Kansas facilities perceptions of **leadership commitment**



- Support for **salary support** dedicated to AS activities



KDHE CAH ASP survey, 2018. Unpublished

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Core Element 1: Accountability

Appoint a leader & co-leaders
(physician/dentist/nurse practioner/PA/pharmacist + practice manager, nurse manager)

Responsible for program management & outcomes

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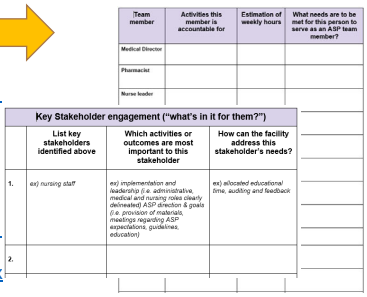
Stakeholder identification: https://www.kdheks.gov/epi/hai/CAH_Toolkit/Table_2_Stakeholder_Engagement.docx

Member's duties & assignments: https://www.kdheks.gov/epi/hai/CAH_Toolkit/Table_3_Members_and_Duties.docx



Team member	Activities this member is accountable for	Estimation of weekly hours	What needs are to be met for this person to serve as an ASP team member?
Medical Director			
Pharmacist			
Nurse leader			

Key Stakeholder engagement ("what's in it for them?")

	List key stakeholders identified above	Which activities or outcomes are most important to this stakeholder	How can the facility address this stakeholder's needs?
1.	ex) nursing staff	ex) implementation and leadership (i.e. administrative, medical and nursing roles clearly delineated) ASP direction & goals (i.e. provision of materials, meetings regarding ASP expectations, guidelines, education)	ex) allocated educational time, auditing and feedback
2.			

- Identify leader & members
  - Respected, esteemed
    - Infectious disease or abx knowledge
    - Co-led, ensure clearly delineated roles
    - Core members: clinicians, micro, pharm, nursing, admin, IT
- Informal leaders
  - Influence peers' attitudes & behaviors
  - Can make or break your program

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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Examples of Accountability

- Oversight by governing body (e.g., QI or P&T)
- **Leadership training**
- Med director sets **standards for prescribing** *(e.g., no intervention in asymptomatic bacteriuria, no C.diff test of cure)*
- Nursing director ensures staff engaged, aware of ASP activities & goals
- Pharmacist reviews & audits
- Micro provides surveillance data (i.e., antibiogram)
- Consider hospital or clinical quality measures as AS goals

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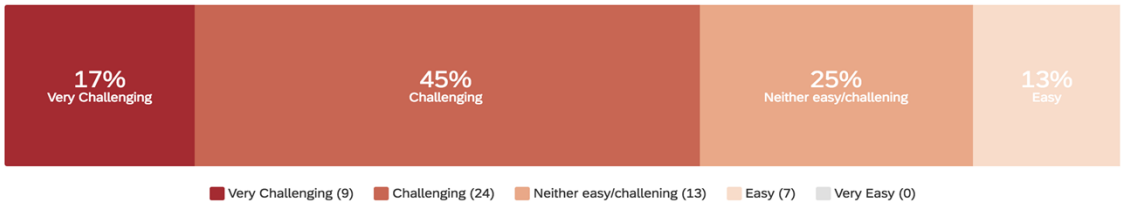
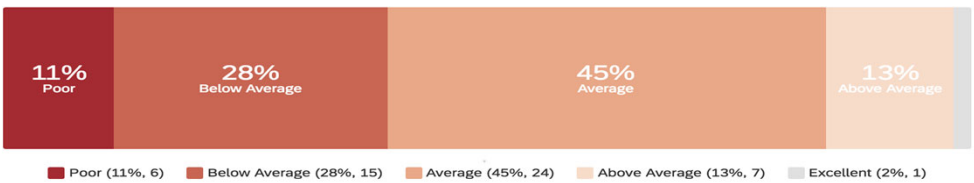
Challenges

- Kansas facilities perceptions of **establishing** an ASP



- Perceptions of **implementation**



KDHE CAH ASP survey, 2018. Unpublished

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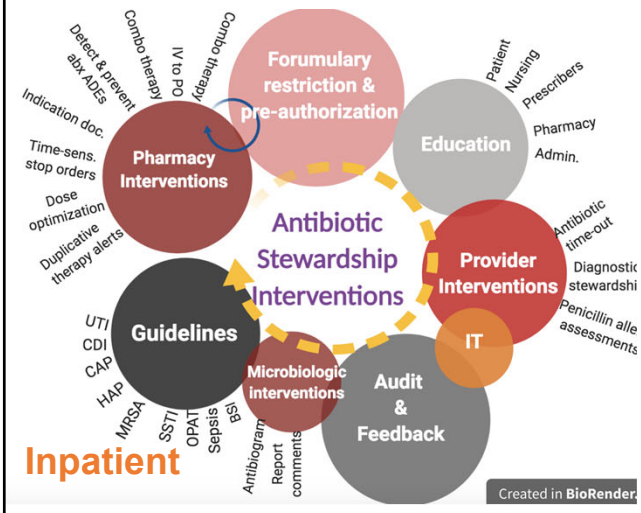
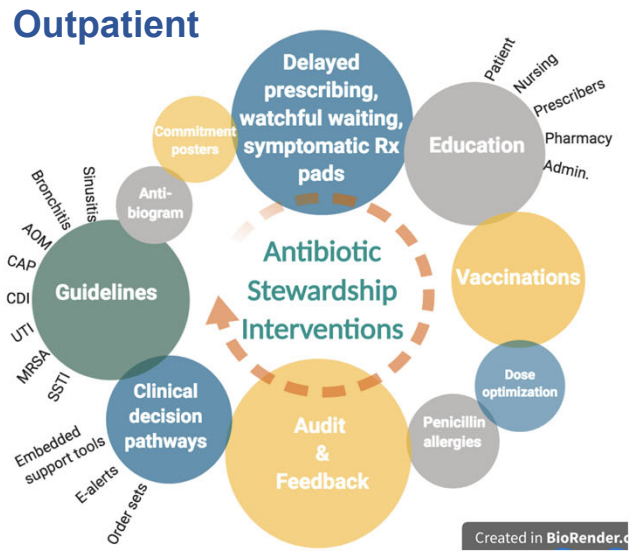
Core Element 2: Action

Actions to Improve Antibiotic Use





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Core Element 2: Action

No one size fits all strategy or policies -overuse occurs as 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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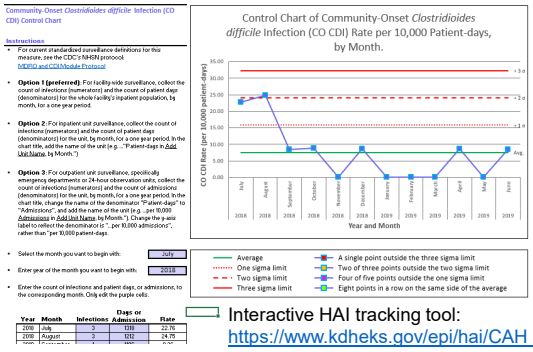
Core Element 3: Tracking & Reporting

Monitoring antibiotic use

Goal: determine whether interventions impacted abx, reduced resistance

- Peer comparison (e.g. compare 1 high priority condition such as rate of abx for acute bronchitis)
- Monitor adverse events (*C.diff* rates)
- Pharmacist audits abx use
- Micro provides surveillance data (e.g., antibiogram, local resistant rates)
- Outcome monitoring (antibiotic resistance, mortality, morbidity)



Interactive HAI tracking tool:
https://www.kdheks.gov/epi/hai/CAH_Toolkit/Spreadsheet_2_Interactive_HAI_Tracking_Tools.xlsx

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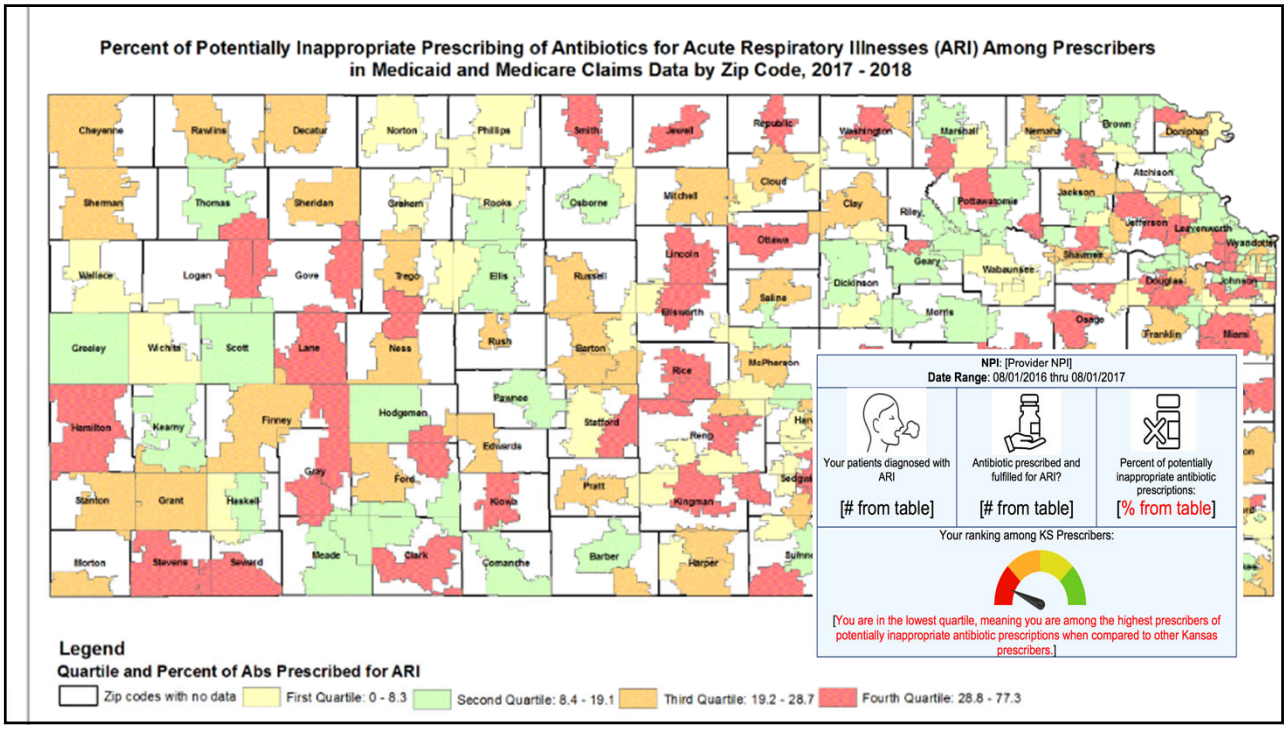

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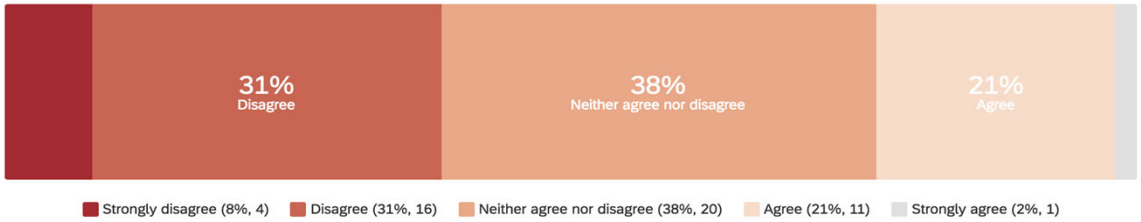
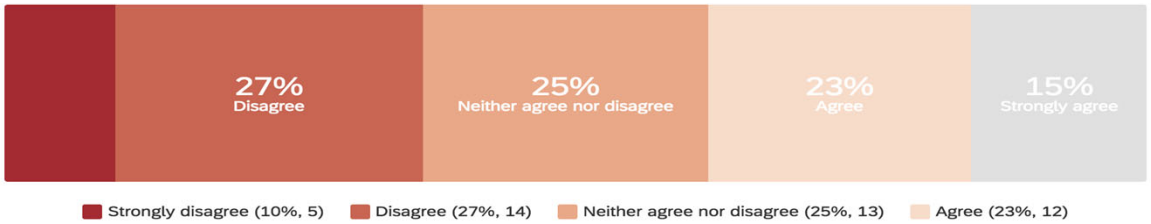
Challenges

- Programs which regularly monitor abx prescribing / guideline adherence



- Monitor total abx consumption



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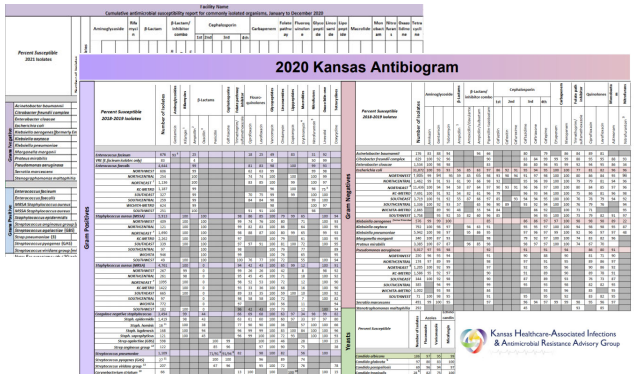
Core Element 3: Tracking & Reporting

Reporting information on improvements (or worsening) antibiotic use and resistance



- Report above information tracked to individuals and prescriber
- Facility at large tracks/reports adverse events, complications of abx
- Include AS activity goals & outcomes in quality dashboards
- Report to leadership regularly status of program, success stories, changes
- Include AS performance measures in annual evaluations

Statewide Antibiogram: https://www.kdheks.gov/epi/download/Entire_a_gram.pdf
Antibiogram template https://www.kdheks.gov/epi/hai/CAH_Toolkit/Spreadsheet_1_Antibiogram_Template.xlsx

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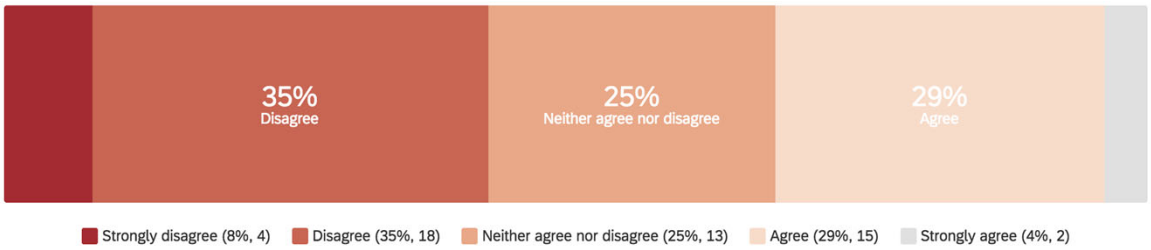
Challenges

- Feedback is provided to clinicians



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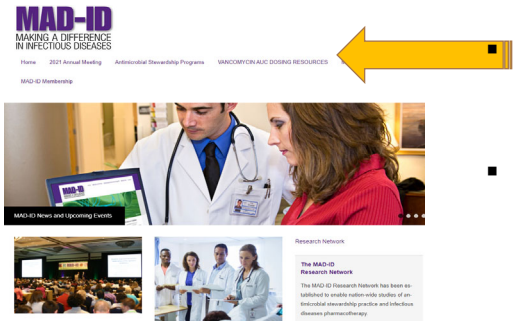
Core Element 4: Expertise

Appoint a leader with antibiotic expertise, or dedicate education

Helps lead implementation efforts to improve abx use



Examples of actions to improve expertise

- Pharmacist &/or physician/surgeon/dentist /APP champion partner to develop & set standards of abx prescribing
- CME / continuing pharmacy education (MAD-ID, https://mad-id.org/ or SIDP https://sidp.org/Home)
- Engage ID physicians, contract expert services (conjunction with other facilities) or use telemedicine

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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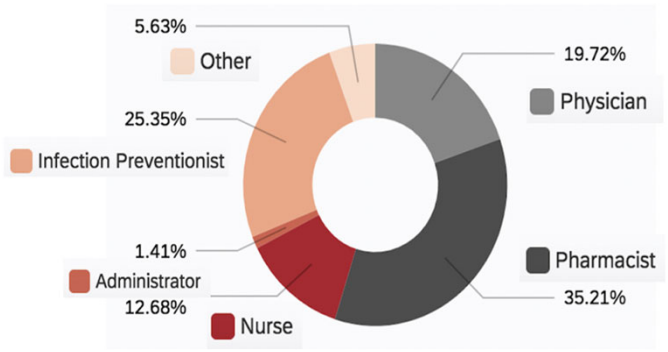
Challenges

- Among KS facilities: a general shortage of infectious disease and pharmaceutical experts



KDHE CAH ASP survey, 2018. Unpublished

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Core Element 4: Education

- Education initiatives alone without focusing on behavioral changes, social norms have small and non-sustained effects
- Passive less effective than active (i.e., interactive didactics, small groups)
- One-on-one "academic detailing" is more resource intense although more influential
- Educate nursing staff (e.g., response to patients calls w/ URIs, setting expectations, avoiding unnecessary tests)
- Don't neglect patient education

Kicking off Midwest Antimicrobial Stewardship Collaborative VIRTUAL and quarterly, One Health + Inpatient + Ambulatory + Critical

@MidwestAntimic1

Join!!

Abbo et al CID 2013;57(5):631-38.
Grol & Grimshaw 2003
Fleming et al 2013

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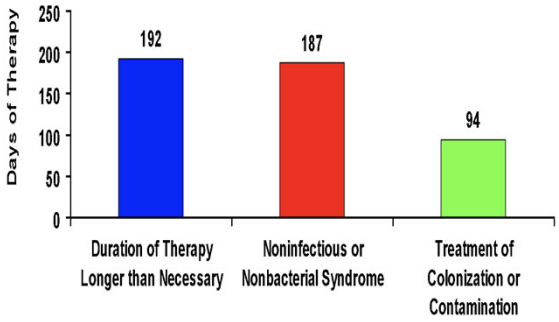
De-escalation

- Most common reason for **inpatient** abx overuse, failure to de-escalate
  - Durations longer than necessary
  - Diagnostic uncertainty
    - Colonization
    - Lack of micro (e.g. CAP pathogens identified only 7.6% of time)
  - Insecurity (e.g., non-infectious syndromes associated w/ fevers, immunocompromised)

Unnecessary Abx in Hospitalized:
Most common reasons



Bartlett et al CID 2013;56.

Hecker et al. Arch Intern Med. 2003; 163; 972-78.

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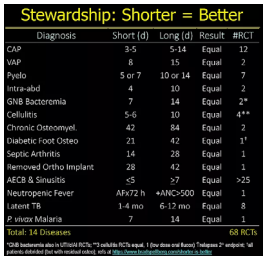
Education / Antibiotic Optimization

2014 IDSA Skin & Soft Tissue Infection Guidelines	
Cellulitis	5 days
Recurrent abscesses	5-10 days
MRSA SSTI in hospitalized (2010 MRSA guidelines)	7-14 days


Stewardship: Shorter = Better

Diagnosis	Short (d)	Long (d)	Result	#RCT
CAP	3-5	5-14	Equal	12
VAP	8	15	Equal	2
Pyelo	5 or 7	10 or 14	Equal	7
Intra-abd	4	10	Equal	2
GNB Bacteremia	7	14	Equal	2*
Cellulitis	5-6	10	Equal	4**
Chronic Osteomyel.	42	84	Equal	2
Diabetic Foot Osteo	21	42	Equal	3†
Septic Arthritis	14	28	Equal	1
Removed Ortho Implant	28	42	Equal	1
AECB & Sinusitis	≤5	>7	Equal	>25
Neutropenic Fever	AFx72 h	+ANC>500	Equal	1
Latent TB	1-4 mo	6-12 mo	Equal	8
P. vivax Malaria	7	14	Equal	1
Total: 14 Diseases				68 RCTs

https://www.bradspellberg.com/shorter-is-better

Community Acquired Pneumonia		
CAP	5 days	
Double-blind RCT CAP dc abx 3 vs 8 days	3 days tx	8 days tx
Clinical cure at 10 days	93%	88%
Clinical cure at 28 days	90%	88%
Adverse events	11%	21%

Stevens D, et al CID> 2014; 59:e10.
Liu et al. CID 2011;52(3):e18.
Moussaoui R, et al BMJ 2006;332:1355

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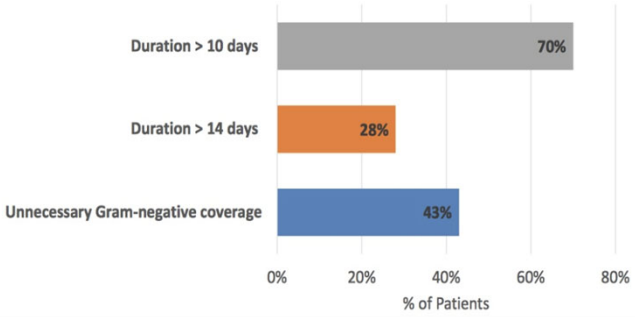
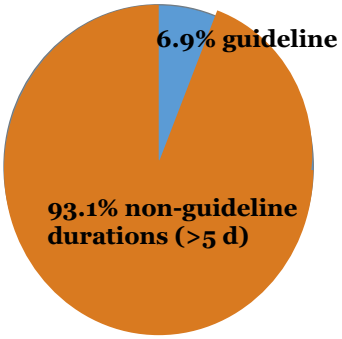
What Actually Happens?

Multicenter, retrospective evaluation (inpatient) skin-soft tissue infections



Retrospective review of VA (inpatient) CAP treatment duration



Jenkins T., et al Infect Control Hosp Epidemiol 2014;35(10).

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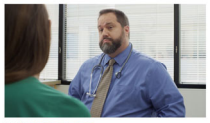
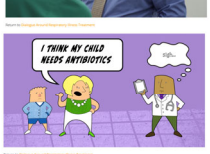
Behavioral Approaches

- Low-cost, high-impact interventions
- **Communication training**
  - Decision aids, infographics
  - Shared decision making
    - **Address pt's' expectations** (e.g.. *"take this instead to soothe symptoms")*
    - **Negative tx recommendations** (e.g., *"this infection is viral so abx won't help")*

Outcomes
- shorter visits
- less abx prescribing
- high family satisfaction





DART

Mangione-Smith et al. Ann Fam Med. 2015;13(3)
Drekonga et al. Infect Control Hosp Epidemiol 2015;36(2):142-52
Coxeter et al Cochrane Database Syst Rev 2015

Dialogue Around Respiratory Illness Treatment
https://www.uwimtr.org/dart/

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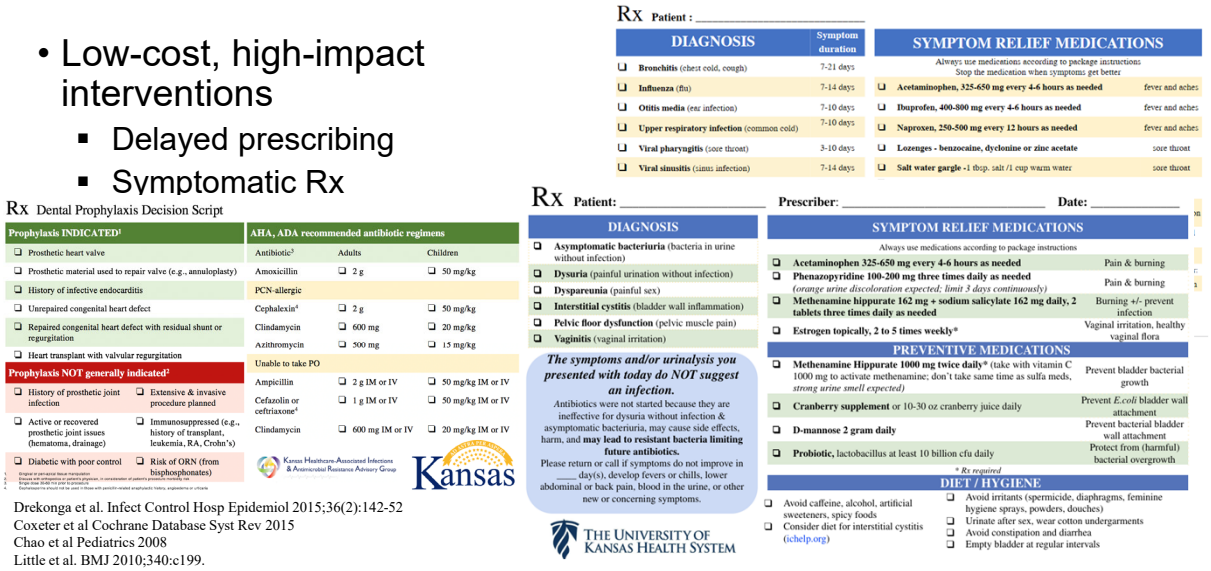
Clinical Decision Support

- Low-cost, high-impact interventions
  - Delayed prescribing
  - Symptomatic Rx



Rx Dental Prophylaxis Decision Script

Prophylaxis INDICATED[1]
❑ Prosthetic heart valve
❑ Prosthetic material used to repair valve (e.g., annuloplasty)
❑ History of infective endocarditis
❑ Unrepaired congenital heart defect
❑ Repaired congenital heart defect with residual shunt or regurgitation
❑ Heart transplant with valvular regurgitation
Prophylaxis NOT generally indicated[2]
❑ History of prosthetic joint infection ❑ Extensive & invasive procedure planned
❑ Active or recovered prosthetic joint issues (hematoma, drainage) ❑ Immunosuppressed (e.g., history of transplant, leukemia, RA, Crohn's)
❑ Diabetic with poor control ❑ Risk of ORN (from bisphosphonates)

AHA, ADA recommended antibiotic regimens		
Antibiotic[3]	Adults	Children
Amoxicillin	❑ 2 g	❑ 50 mg/kg
PCN-allergic		
Cephalexin[4]	❑ 2 g	❑ 50 mg/kg
Clindamycin	❑ 600 mg	❑ 20 mg/kg
Azithromycin	❑ 500 mg	❑ 15 mg/kg
Unable to take PO		
Ampicillin	❑ 2 g IM or IV	❑ 50 mg/kg IM or IV
Cefazolin or ceftriaxone[4]	❑ 1 g IM or IV	❑ 50 mg/kg IM or IV
Clindamycin	❑ 600 mg IM or IV	❑ 20 mg/kg IM or IV

Kansas Healthcare-Associated Infections & Antimicrobial Resistance Advisory Group

Drekonga et al. Infect Control Hosp Epidemiol 2015;36(2):142-52
Coxeter et al Cochrane Database Syst Rev 2015
Chao et al Pediatrics 2008
Little et al. BMJ 2010;340:c199.

Rx Patient : _____

DIAGNOSIS	Symptom duration	SYMPTOM RELIEF MEDICATIONS (Always use medications according to package instructions. Stop the medication when symptoms get better)	
❑ **Bronchitis** (chest cold, cough)	7-21 days		
❑ **Influenza** (flu)	7-14 days	❑ **Acetaminophen, 325-650 mg every 4-6 hours as needed**	fever and aches
❑ **Otitis media** (ear infection)	7-10 days	❑ **Ibuprofen, 400-800 mg every 4-6 hours as needed**	fever and aches
❑ **Upper respiratory infection** (common cold)	7-10 days	❑ **Naproxen, 250-500 mg every 12 hours as needed**	fever and aches
❑ **Viral pharyngitis** (sore throat)	3-10 days	❑ **Lozenges - benzocaine, dyclonine or zinc acetate**	sore throat
❑ **Viral sinusitis** (sinus infection)	7-14 days	❑ **Salt water gargle** -1 tbsp. salt /1 cup warm water	sore throat

Rx Patient: _____ Prescriber: _____ Date: _____

DIAGNOSIS
❑ **Asymptomatic bacteriuria** (bacteria in urine without infection)
❑ **Dysuria** (painful urination without infection)
❑ **Dyspareunia** (painful sex)
❑ **Interstitial cystitis** (bladder wall inflammation)
❑ **Pelvic floor dysfunction** (pelvic muscle pain)
❑ **Vaginitis** (vaginal irritation)

The symptoms and/or urinalysis you presented with today do NOT suggest an infection.

Antibiotics were not started because they are ineffective for dysuria without infection & asymptomatic bacteriuria, may cause side effects, harm, and **may lead to resistant bacteria limiting future antibiotics.**

Please return or call if symptoms do not improve in ____ day(s), develop fevers or chills, lower abdominal or back pain, blood in the urine, or other new or concerning symptoms.

THE UNIVERSITY OF KANSAS HEALTH SYSTEM

SYMPTOM RELIEF MEDICATIONS (Always use medications according to package instructions)	
❑ **Acetaminophen 325-650 mg every 4-6 hours as needed**	Pain & burning
❑ **Phenazopyridine 100-200 mg three times daily as needed** *(orange urine discoloration expected; limit 3 days continuously)*	Pain & burning
❑ **Methenamine hippurate 162 mg + sodium salicylate 162 mg daily, 2 tablets three times daily as needed**	Burning +/- prevent infection
❑ **Estrogen topically, 2 to 5 times weekly***	Vaginal irritation, healthy vaginal flora
PREVENTIVE MEDICATIONS	
❑ **Methenamine Hippurate 1000 mg twice daily*** (take with vitamin C 1000 mg to activate methenamine; don't take same time as sulfa meds, *strong urine smell expected*)	Prevent bladder bacterial growth
❑ **Cranberry supplement** or 10-30 oz cranberry juice daily	Prevent *E.coli* bladder wall attachment
❑ **D-mannose 2 gram daily**	Prevent bacterial bladder wall attachment
❑ **Probiotic,** lactobacillus at least 10 billion cfu daily	Protect from (harmful) bacterial overgrowth

* Rx required

DIET / HYGIENE

- ❑ Avoid caffeine, alcohol, artificial sweeteners, spicy foods
- ❑ Consider diet for interstitial cystitis (ichelp.org)
- ❑ Avoid irritants (spermicide, diaphragms, feminine hygiene sprays, powders, douches)
- ❑ Urinate after sex, wear cotton undergarments
- ❑ Avoid constipation and diarrhea
- ❑ Empty bladder at regular intervals

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Multidisciplinary Approach

Local guidelines common infections (available on intranet, pocket cards, posters)

Prior auth (PA) (req. select broad spectrum or new abx, fulfill special forms prior dispensed)

Education

Individual feedback (peer comparison)

- 35% total reduction abx use (PA + educ + bi-annual feedback)
- 30% increase in appropriate abx (PA + guidelines)
  - ✦86% decrease in **select** abx (PA)
- 39% increase appropriate abx (guidelines + audit-feedback)
- Stopping ASP 32% increase in abx costs w/in 2 yrs

White A, CID 1997; 25:230-39.
Ruttimann et al. CID 2004.
Kisuule et al, J Hosp Med 2008

Camins et al, Infect Control Hosp Epi 2009
Lautenbach et al, CID 2003
Standiford et al. Infect control hosp epi 2012

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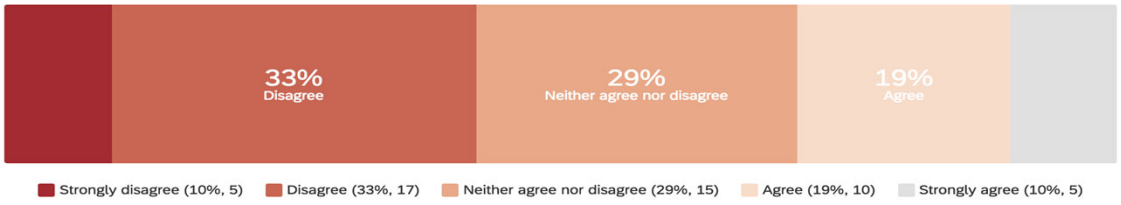
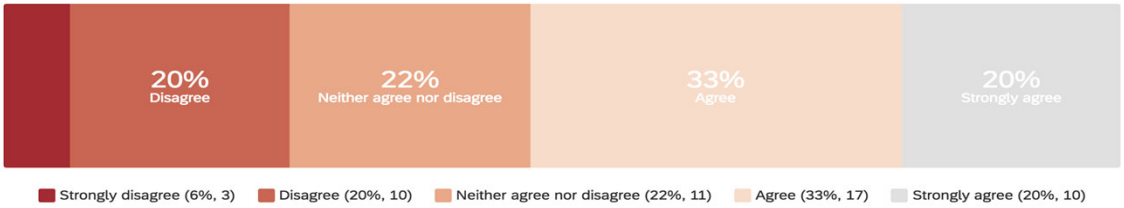
Challenges

- Broad, multidisciplinary interventions are implemented



- Pharmaceutical interventions are implemented (IV to PO conversions, dose adjustments/optimizations, alerts duplicative tx, automatic stop orders)



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Don't Forget the Social Determinants

- Physician-physician relationships
  - 3x as likely to prescribe guideline-aligned if clinic partners are aligned & 1.3 times more likely to prescribe poorly if share practice w poor prescribers
- Attitudes
  - "Comfort" of over-prescribing, broad spectrum abx feel "safer"
  - Resistance not felt applicable to locale or personal responsibility
- Litigious factors
- Patient pressures (may over-estimate)
- Time of day

Barlam et al. Infect Control Hosp Epidemiol. 2015;36(2):153-59
Butler et al. BMJ 1998:317;
Sharpiro Clin Ther 2002:24

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Resources

- KDHE HAI/AR: https://www.kdheks.gov/epi/hai.htm
- KS 2020 antibiogram: https://www.kdheks.gov/epi/download/Entire_a_gram.pdf
- Antibiotic Stewardship CAH Toolkit: https://www.kdheks.gov/epi/download/CAH_ASP_Toolkit_Digital.pdf
- Know the facts posters: English https://www.khconline.org/files/POSTER-UseAntibioticsWisely11x17.pdf, Spanish https://www.khconline.org/files/POSTER-UseAntibioticsWisely24x36_SPANISH.pdf
- Interactive HAI tracker: https://www.kdheks.gov/epi/hai/CAH_Toolkit/Spreadsheet_2_Interactive_HAI_Tracking_Tools.xlsx
- Stakeholder identifier: https://www.kdheks.gov/epi/hai/CAH_Toolkit/Table_1_Key_Stakeholder_Identification.docx
- Members duties: https://www.kdheks.gov/epi/hai/CAH_Toolkit/Table_3_Members_and_Duties.docx
- Social media toolkit: https://www.khconline.org/files/USAAW-2020-images.zip

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CAH ASP Survey

MPH Internship Project

- 46 responses from IPs in community hospitals in KS
- Most facilities were <50 beds
- Everyone had 1 or less IPs and most reported their IP had between 1-5 years of experience
- IPs in these facilities wear MANY hats!
  - Staff RNs, Employee/Occupational Health, Lab, Risk Mgmt, Quality, Education, Housekeeping manager, Pharmacy staff….
- Everyone has an electronic medical record but only 67% report AU/AUR to NHSN
- 87% reported having an ASP which was led mostly by either a pharmacist, the IP or a physician or combination of them
- What is the role of the IP in the ASP? Myriad of answers!
  - Lead the program, monitor the effectiveness of the program, serve as a supportive role, collect and provide data, develop policy, educate staff, MDRO prevention through IPC program, monitoring culture results, looking for bug/drug mismatch, unsure and not a clear role

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Kansas Department of Health and Environment | Kansas Healthcare Collaborative

Session #8: Antimicrobial Stewardship

Lessons from the Field

- Review resources
- Identify key stakeholders and identify roles and responsibilities within scope
  - Leverage expertise, resources and time
- Perform a Gap Analysis using the CDC's Core Elements and KDHE's toolkit
- Identify data needs
- Pick a place to start and get going!

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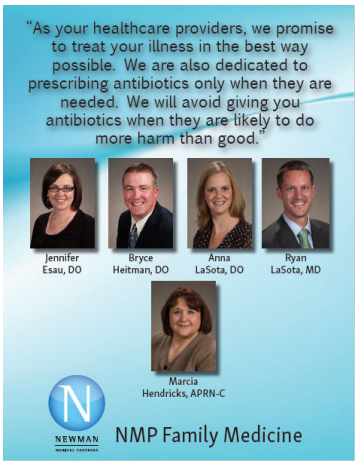
Kansas Department of Health and Environment | Kansas Healthcare Collaborative

Session #8: Antimicrobial Stewardship

Lessons from the Field

1. Commitment
2. Action for policy and practice
3. Tracking and reporting
4. Education and expertise



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Session #8: Antimicrobial Stewardship

It's not enough to stare up the steps, you must step up the stairs!

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Session #8: Antimicrobial Stewardship

Session #8 Quiz

Which of the following is NOT one of the 4 elements of Outpatient Antimicrobial Stewardship?

- ❑ Commitment
- ❑ Tracking and reporting
- ❑ Action for policy and practice
- ❑ Accountability
- ❑ Education and expertise

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Session #8: Antimicrobial Stewardship

Next steps

- ❑ Review the KDHE CAH toolkit and other resources.
- ❑ Identify a next step to advance your antimicrobial stewardship program.
- ❑ Complete the Core Elements survey (~7 min.) by June 17:
  https://kdheks.co1.qualtrics.com/jfe/form/SV_1zfKZD6h9mtdEsS

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Session #8: Antimicrobial Stewardship

Q&A

Please type your questions or comments in the Q&A window.

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KDHE-KHC Infection Prevention LAN for Outpatient Settings

Final Session

- **June 17 Bringing it all together**
  (1 hour)
  In our final session of the LAN, learn from scenarios presented in a "day in the life of" an infection preventionist.

Recordings and handouts of past sessions can be located here:

www.khconline.org/LAN

Use our LIST-SERV

- Connect with your faculty and peers
- LAN communications will come through listserv

Address emails to:
KANSAS-OUT-IP@LIST.KHCONLINE.ORG
(must be all caps)

All LAN enrollees are included.
See listserv information sheet.

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KDHE-KHC Infection Prevention LAN

Questions?

Contact:

KDHE
Healthcare-Associated Infections and Antimicrobial Resistance (HAI/AR) Program
Phone: (785) 296-4167
Email: kdhe.HAIARProgram@ks.gov

Kansas Healthcare Collaborative
Michele Clark
Senior Director of Quality Initiatives & Special Projects
(785) 231-1321 or mclark@khconline.org

Kansas Department of Health & Environment
Bryna Stacey
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Kansas Department of Health and Environment Healthcare-Associated Infection/Antimicrobial Stewardship Program

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Infection Preventionist

Cassandra (Casey) Cristini
Infection Preventionist

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Administrative Specialist

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Senior Director of Health Initiatives & Special Projects

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Ester Knobloch, MLS(ASCP)^{CM} *
Quality Manager, Infection Preventionist

Citizens Medical Center
Monique Cheatum, RN*
Infection Prevention, Quality, Policy, Education

Americare Senior Living, Skilled Nursing Division
Cynthia Pendleton, RN, BSN, LNHA*
Regional Nurse Consultant

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