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2. Participate in all polling questions.
3. Complete the evaluation at the end of the presentation.

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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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Presenters



Kellie Wark, MD MPH

Antimicrobial Stewardship Co-Lead
Kansas Department of Health and Environment
Asst. Professor of Infectious Disease
The University of Kansas Health Systems
kwark@kumc.edu / kellie.wark@ks.gov

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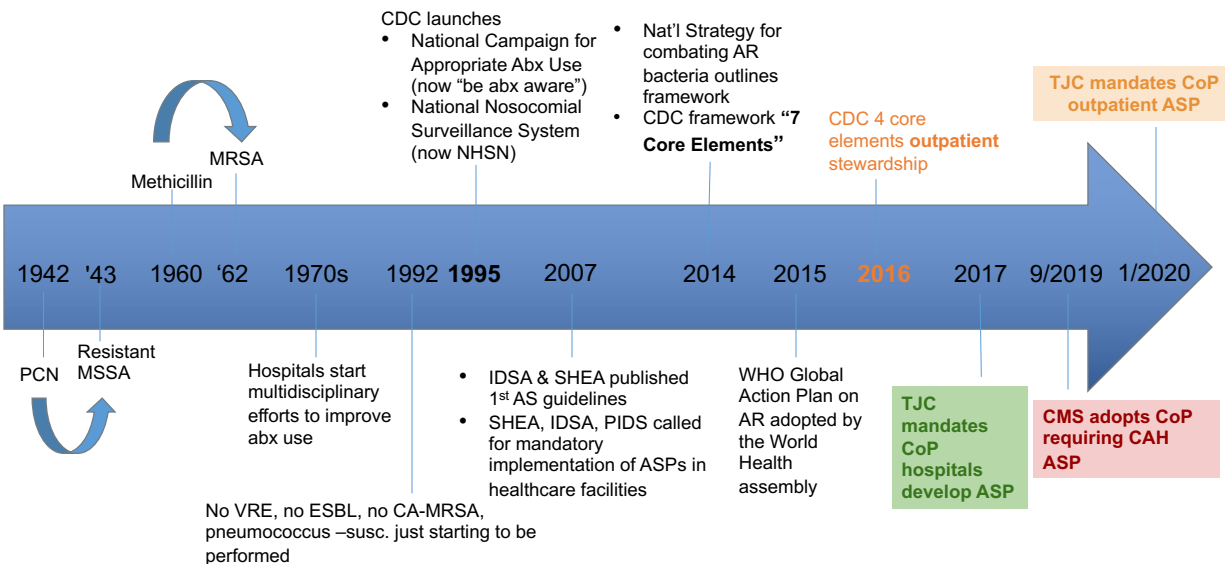
Objectives

1. Review the state of antimicrobial stewardship programs in KS
2. Define antimicrobial stewardship (AS), and review the evidence in support of AS
3. Review the core elements of inpatient stewardship
4. Review the importance of leadership and/or commitment challenges
5. Identify and strategize how to overcome leadership and/or commitment challenges

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Timeline of Antimicrobial Stewardship



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Joint Commission and Antibiotic Stewardship

- 2017 - Joint Commission started tracking outpatient abx use
- 2018 - proposed requirements for ambulatory antimicrobial stewardship (AS)
- **Jan. 2020 - require ambulatory care centers to have a program to maintain accreditation**
- Joint commission framework intends for facilities to:
 - Identify an antibiotic stewardship leader
 - Establish an annual stewardship goal
 - Implement evidence-based practice guidelines
 - Provide clinical staff with educational resources
 - Collect, analyze, report data related to goal

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Question 1

For critical access hospitals participating in Medicare Beneficiary Quality Improvement Project (MBQIP), what is the deadline for **full** implementation of an Antibiotic Stewardship Program following the CDC's 7 Core Elements?

- A. Jan 1, 2022
- B. August 31, 2022
- C. Jan 1, 2023
- D. August 31, 2023

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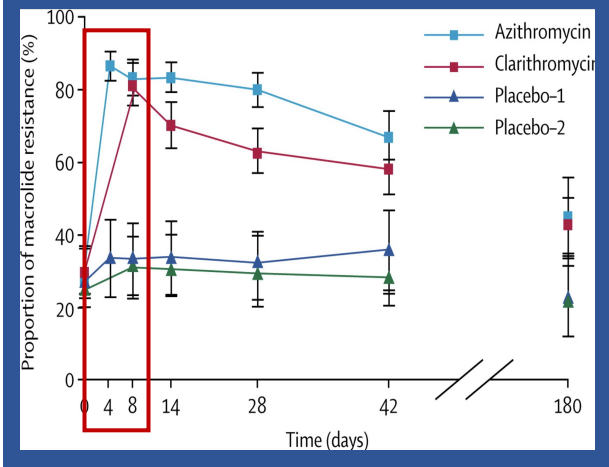
Why Focus on Antibiotics?

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/dpcs/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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Toll of Antimicrobial Resistance

AR annually contributes to:

Deaths

- 30k (CDC 2019) to 186,000 (2022 Sys Rev.)
- 10% all infxn- deaths attributable to AR
- 4.95 mil. assoc./directly 1.27 mil. (global)

Infections associated w/ AMR

- 2.8 million (US)
- 4.95 million (global)
- 453,000 *C.diff* infections → 30,000 deaths (US)

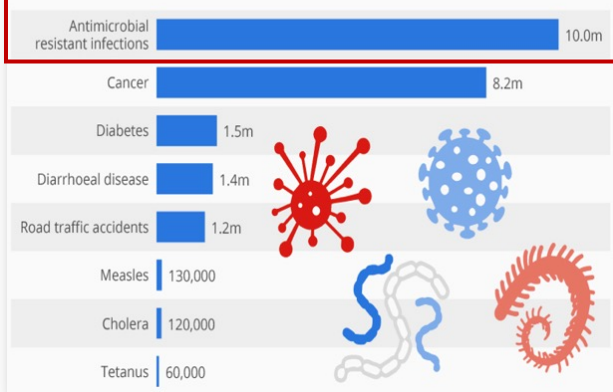
Costs

- \$55 billion added costs (US)
- \$100 trillion (global)

equiv. to a 2008 financial crisis every year

Deaths From Drug-Resistant Infections Set To Skyrocket

Deaths from antimicrobial resistant infections and other causes in 2050



Murray C., et al. Lancet 2022; 339; 10325: p629-55.
 Worldbank; Smith R, Coast J. 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
 CDC Threats Report 2019; <https://www.cdc.gov/drugresistance/pdf/threats-report/2019-ar-threats-report-508.pdf>.

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Antibiotic Resistance Impact

Carbapenem Resistant Enterobacterales (CRE) (e.g., E.coli, Klebsiella, Proteus, Enterobacter)

- 3-4 fold increased mortality (vs susceptible infections)
- 60% mortality for CRE BSI
- 2 fold higher risk discharge to SNF
- \$22-66k per CRE infection (hospitals, \$37k-83k societal costs)
- \$130 million attributable HC costs

Gasink L., et al. ICHE 2009;30(12):1180-85
 Tamma P., et al. CID 2017;64(3):257-64
 Antonanzas F., et al. 2015;33(4):285-325
 Bartsch S., et al. CID 2017;23(1):48:e9-48.

Carbapenem Resistant Acinetobacter baumannii (CRAB)

Ubiquitous in nature, can survive for surfaces on wks → prolonged outbreaks, patient-staff movements b/w HCWs

WHO critical pathogen for abx development

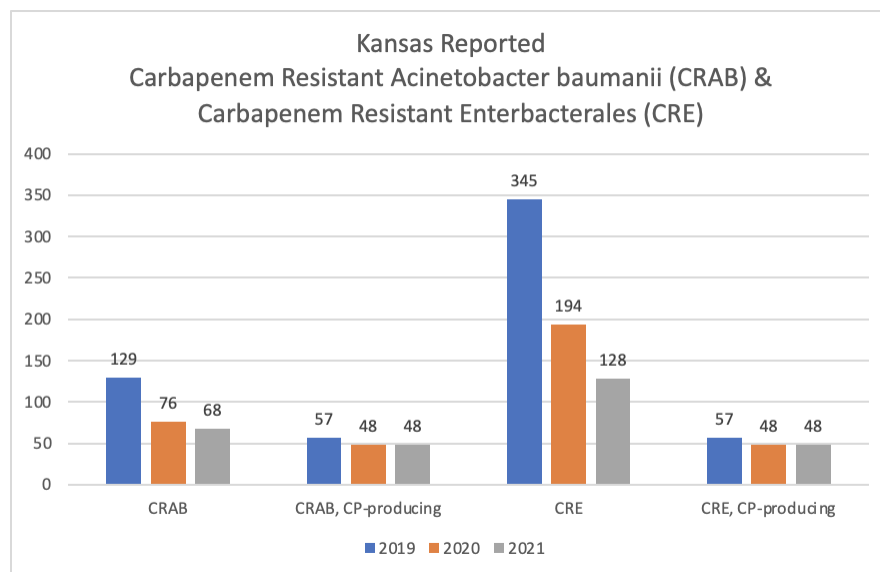
- 5 fold increase mortality risk
- 70% mortality for CRAB BSI (28-day)
- 50% Acinetobacter infections are MDR
- \$130,000 (2016 est.) additional per infection

Nelson R., et al. ICHE 2016;37(10):1212-18.
 Spellberg B., et al Nat Rev Drug Discov 2013;12:963
 Kim T., et al. Medicine. 2018;97(43):e12984.

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Regional Antibiotic Resistance Trends



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Question 2

True or False:

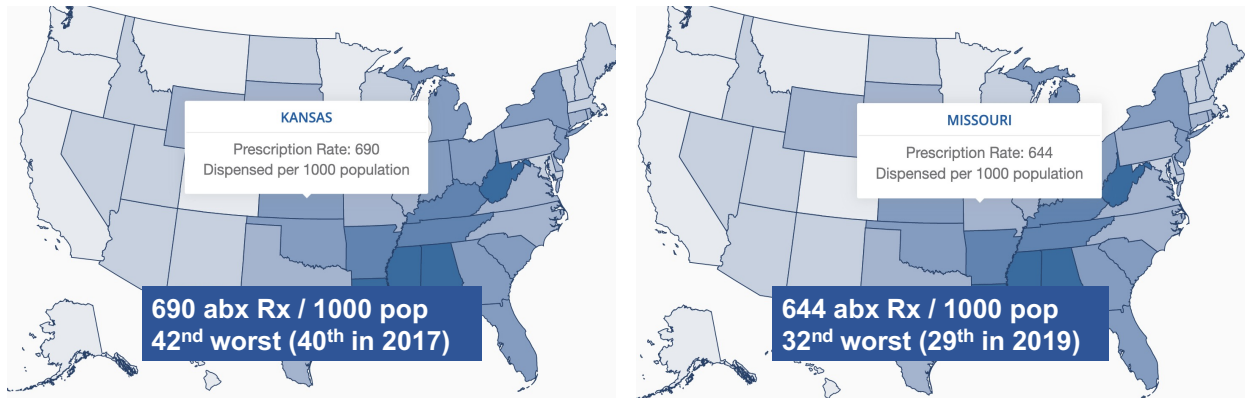
The use of antibiotics is the #1 most modifiable risk factor contributing to antibiotic resistance

- A. True
- B. False

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Current State(s): Outpatient Antibiotic Use



All Antibiotic Classes Prescriptions Dispensed per 1,000 Population



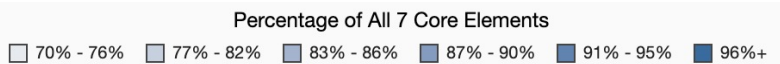
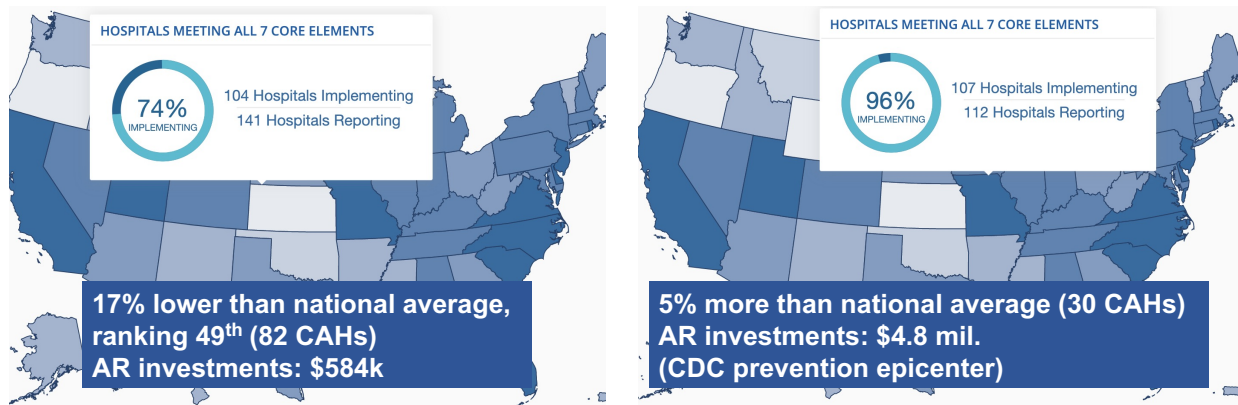
National: 613 abx Rx /1000 population

<https://arosp.cdc.gov/profile/antibiotic-use/all-classes>

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Current State(s): ASP Core Elements Fulfilled



National: 91% of all reporting hospitals implementing all 7 core

<https://arisp.cdc.gov/profile/stewardship>
<https://arinvestments.cdc.gov/>

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Evidence in Support of AS: Antibiotics & Savings

- 81% reported decrease in antibiotic use (60 programs, Cochrane)
- 22-36% reduction in antibiotic usage
- 25% average cost reduction (27/29 studies)
- \$200,000 – 900,000 savings (large-medium hospitals)

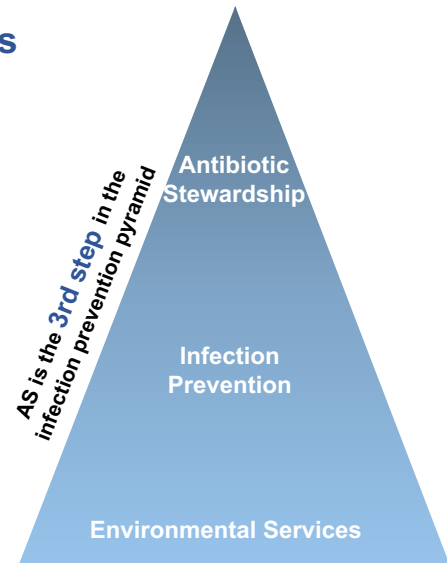
Cochrane Database Syst Rev. 2005(4):CD003543.
Patel D., et al. Expert Review of Anti-Infective Therapy. 2008;6:209-22.

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Evidence in Support of AS: AMR & Outcomes

Outcome	No. studies	% Reduction (IR, 95% CI range)
Meta-analysis of 32 studies of ASPs in 20 countries from 1960-2016		
MDR-Gram Negative Incid.	19	51% (0.49, 0.35-0.68)
CR-A.baumannii (CRAB)		56% (0.44, 0.17-1.13)
CR-K.pneumoniae (CRE)		48% (0.52, 0.13-2.09)
MRSA Infection & Colonization	17	37% (0.63, 0.45-0.88)
C.diff infections	11	32% (0.68, 0.53-0.88)
Systematic review of 145 studies		
Mortality (guideline-adherence empiric tx)	19	35% (0.65, 0.54-0.80)
Mortality (de-escalation interventions)	19	56% (0.44, 0.30-0.66)
Nephrotoxicity	13	50% (0.50, 0.29-0.80))



Baue D., et al. Lancet Infect Dis 2017;(17): 990-1001.
Schuts E., et al. Lancet Infect Dis. 2016;16:857-56.

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Question 3

Which of the following is NOT a goal of an antibiotic stewardship program:

- A. Promote appropriate antibiotic use
- B. Reduce antibiotic-related adverse events
- C. Improve access to diagnostic tests
- D. Reduce antibiotic resistance
- E. Provide cost-effective care

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Antibiotic Stewardship Program Goals

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:

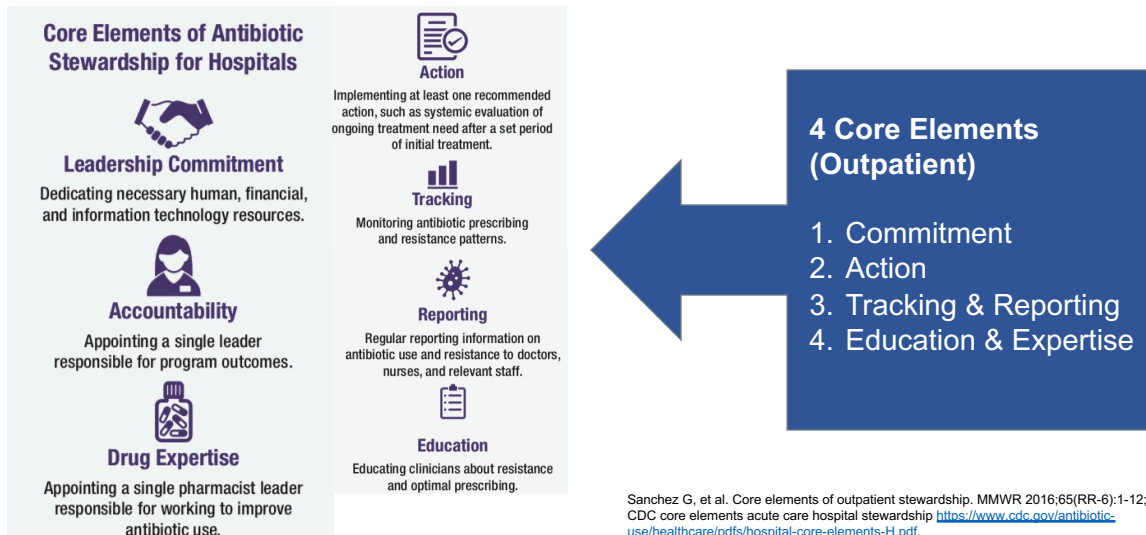
- More prudent abx use → less resistance
- Reduce adverse events
- Reduce morbidity
- Reduce mortality

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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Core Elements: 7 Inpatient & 4 Outpatient (and basically the same)



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/pdf/hospital-core-elements-H.pdf>.

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Question 4

True or False:

Leadership commitment is the single greatest predictor of whether or not facilities have an established ASP?

- A. True
- B. False

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Core Element 1: Leadership 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

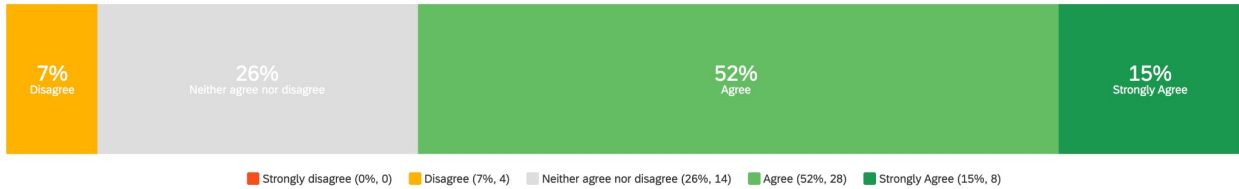
Barlam T et al CID 2016; 15(62):e51-77.
Kansas Department of Health and Environment. 2018 Hosp
AS workshop survey. 2018, unpublished.

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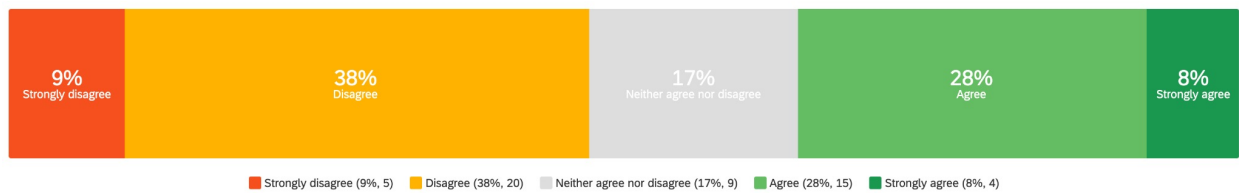
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Challenges

KS CAH ASP's perceptions that leadership has shown commitment



KS CAH leadership which provided ASP salary support



KDHE CAH ASP survey, 2019. Unpublished

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Examples: Commitment

Priority examples

- Leader given **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 expectations for **leadership & staffing** (include in contracts, job descriptions upon hire) & **responsibilities & outcomes**
- **Create a culture** around optimal abx use (messages, newsletters, emails, ongoing communicate)
- Allocation of **educational time & resources** to clinicians, staff, patients



Download

Social Media Toolkit:

<https://www.khconline.org/files/USAAW-2020-images.zip>

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Nudging

- Commitment posters
 - Accountability when faced with pressure during the visit
 - 20% reduction in inappropriate abx (RCT of 5 clinics)

English customizable poster:

<http://www.khconline.org/files/POSTER-UseAntibioticsWisely11x17.pdf>

Spanish poster:

https://www.khconline.org/files/POSTERUseAntibioticsWisely24x36_SPANISH.pdf

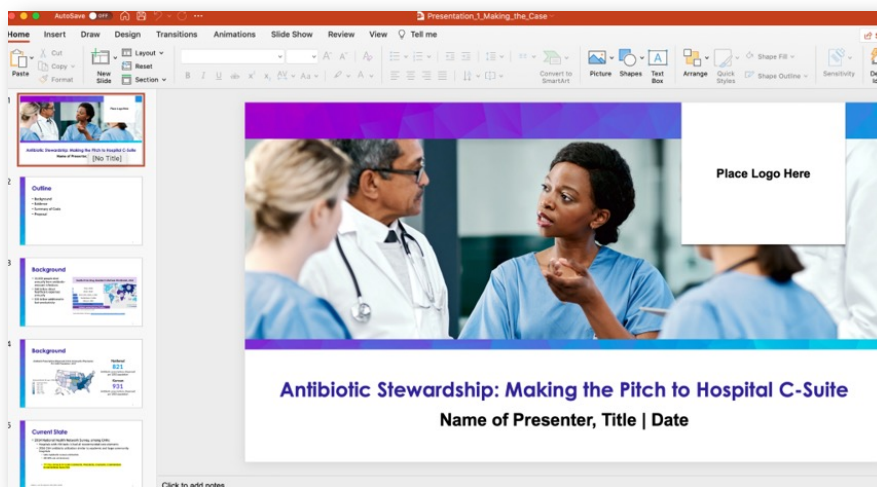


Meeker D et al JAMA. 2014;174(3):425-31.
Kufel W, Open Forum Infect Dis 2018;5(suppl1):S527.

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Tools: Presentation for Leadership



- State/local background, CMS regulations etc.
- Editable to your facility
- Costing estimators for ASP proposals
- Cost saving projections
- Goals / benefits to facility, individual, society

Download

<https://www.kdhe.ks.gov/DocumentCenter/View/14472/Presentation-1---Making-the-Case-PPTX>

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Tools: Policies

[Facility] Antibiotic Stewardship Program Proposal

[Facility Logo]

SUBJECT: Antimicrobial Stewardship Program Proposal

DATE: [Effective date]

RELEVANT REGULATION: CFR § 482.420(i)(1-4), § 482.426(i)(1), and § 482.426(i)(3) for Acute Care Hospitals OR CFR § 485.640(b)(1-4), § 485.640(c)(1), and § 482.422(b)(c)(3) for Critical Access Hospitals

APPROVED BY: [Approving individual or committee]

Background

Currently, the antimicrobial expenses at [Facility Name], is approximately \$[***] dollars per year, in the acute care setting. Another \$[***] is spent annually in the outpatient setting. However, there are significant costs associated with antibiotics that are not reflected in the purchasing expenses for antimicrobial use. Inappropriate selection leads to therapeutic failures which prolong length of stay, necessitate use of additional drugs, lab tests and other resources. Preventing antimicrobial use of antibiotics contributes to IV related complications, impacting quality of care and increasing resources. Developing antibiotic resistance also reduces the effectiveness of current antibiotics. Programs which improve the use of antibiotics and subsequently reduce antibiotic resistance has the potential to make a large favorable impact on patient outcome at [Facility Name].

The direct costs of antibiotic resistance may have the most significant impact on costs. Nationally and regionally, the use of antibiotics is the key driving force for the emergence of antimicrobial resistance. Antibiotic resistance is of increasing prevalence amongst gram-positive and gram-negative bacteria as well as fungal pathogens in local community and hospital settings. In recent years [Facility Name] has experienced [x] [add percentage if you have it] increase in the prevalence of antibiotic resistant pathogens.

Over just the past 10-15 years, infections with common bacteria (Pneumomonas, Acinetobacter spp) which previously had been mostly susceptible to broad spectrum antibiotics such as carbapenems. This is occurring, not just more frequently, but also seems to be infecting healthier patients compared to prior resistant infections which generally were limited to critically ill or immunocompromised (Leibig et al 2013, Kaya et al 2016; Jones 2015). Now these infections are occurring commonly in our community and our state. From 2015 to 2018 Kansas acute care hospitals and long-term care facilities have been experiencing increasing outbreaks of carbapenem-resistant Enterobacteriaceae (CRE). In 2019 alone 213 cases of CRE and over 40 cases of carbapenem-resistant Acinetobacter were investigated by the Kansas Department of Health and Environment's (KDHE) Healthcare Associated Infections and Antimicrobial Resistance (HAIR) Program. These infections are not limited to urban areas and represent an urgent threat to our local community and citizens.

Antibiotic resistant infections place a significant economic burden on our healthcare system. Infections with extended spectrum beta-lactamase Enterobacteriaceae (ESBL) add an average of \$16,500 and 9.7 days to each hospitalization (Smith et al 2013). Multidrug-resistant Acinetobacter infection costs an estimated extra \$129,000 per hospitalization (Nelson et al, 2016). These resistant infections also come at a high individual cost; patients having CRE infections are experiencing 3-4 fold higher health care cost than they may be inched by a susceptible strain (Cacioli et al 2009), and patients with methicillin-resistant staphylococcus

[Facility] Antibiotic Stewardship Program Commitment

SAMPLE
[Facility Logo]

STATEMENT OF LEADERSHIP COMMITMENT FOR ANTIMICROBIAL STEWARDSHIP AT [FACILITY NAME]

[Facility Name] commits to improving antibiotic use in our facility. Facility leadership, [INSERT NAME OF FACILITY ADMINISTRATOR, DIRECTOR OF MEDICINE, PHARMACY AND/OR NURSING], is committed to embracing and executing the Centers for Disease Control and Prevention's (CDC) Core Elements of Antibiotic Stewardship for Hospitals. The seven core elements for antimicrobial stewardship include leadership commitment, accountability, drug expertise, action, tracking, reporting, and education.

Our administration has identified an Antimicrobial Stewardship (AS) Leadership Team at our facility. Our AS leadership team includes a physician/physician assistant/nurse practitioner champion, a nurse champion, an infection prevention champion, and a pharmacist champion. [change this list and the one below as needed for the AS Leadership Team at your facility] working in collaboration. This team will meet at least quarterly, and include:

- Our AS leader and physician champion is: [INSERT PHYSICIAN'S FULL NAME AND TITLE AND TITLE HERE]
- Our AS pharmacy assistant or nurse practitioner champion: [INSERT PNP/PT FULL NAME AND TITLE HERE]
- Our AS pharmacist champion: [INSERT PHARMACIST'S FULL NAME AND TITLE]
- Our AS microbiology champion: [INSERT MICROBIOLOGY DIRECTOR, LAB TECHNICIANS FULL NAME AND TITLE]
- Our AS nursing champion: [INSERT NURSE'S FULL NAME AND TITLE]
- Our AS infection prevention champion: [INSERT I/P'S FULL NAME AND TITLE]

STATEMENT OF COMMITMENT

1. We, the administration, are committed to supporting efforts that improve antibiotic use in our facility. (Leadership Commitment Core Element)
2. We understand that antimicrobial stewardship is an interdisciplinary activity that improves the selection of an antibiotic therapy (correct drug, dose, duration and ordered only when necessary).
3. We will include antimicrobial stewardship-related duties in position descriptions for the stewardship medical director, pharmacists, microbiologic staff, clinical nurse leads, and infection preventionists. (Accountability Core Element)
4. We will provide dedicated and protected time for the facility's infection preventionist to serve as a member of the facility's AS Leadership Team. He/she will work with the physician champion and pharmacist champion to implement the antimicrobial stewardship program. He/she will coordinate educational initiatives for staff on the risks and benefits of antibiotic use as well as improved nurse-practitioner communication for symptoms and diagnostic testing. (Accountability Core Element)

[Facility] Antibiotic Stewardship Program Policy

[Facility Logo]

SUBJECT: Antimicrobial Stewardship Program Policy

POLICY NO.: [policy number]

EFFECTIVE DATE: [date]

REVISION DATE: [date]

RELEVANT REGULATION: CFR § 482.420(i)(1-4), § 482.426(i)(1), and § 482.426(i)(3) for Acute Care Hospitals OR CFR § 485.640(b)(1-4), § 485.640(c)(1), and § 482.422(b)(c)(3) for Critical Access Hospitals

APPROVED BY: [Approving individual or committee]

Background

Over just the past 10-15 years, infections with common bacteria (e.g., pseudomonas, acinetobacter spp) which previously had been mostly susceptible to broad spectrum antibiotics such as carbapenems. This is occurring, not just more frequently, but also seems to be infecting healthier patients (1). Now these infections are occurring commonly in our community and our state. Antibiotic resistant pathogens represent an urgent threat to our local community and citizens. Antibiotic stewardship is defined as a coordinated program which promotes the appropriate use of antibiotics, improves patient outcomes, reduces microbial resistance, and decreases the spread of infections caused by multidrug-resistant organisms (MDROs) (2). This policy is in alignment with the CDC Core Element of Antibiotic Stewardship for Hospitals (2019) (2).

Policy Statement:

The goal of the Antimicrobial Stewardship Program (ASP) is to promote the appropriate use of antibiotics in order to maximize treatment outcome and minimize unintended consequences of antibiotic therapy. The ASP aims to improve antibiotic prescribing practices through the development and implementation of antibiotic use protocols and a system to monitor antibiotic use. Hospital ASP activities should, at a minimum, include seven basic elements: leadership, accountability, drug expertise, action to implement recommended policies or practices, tracking measures, reporting data, education for clinicians, nursing, patients and patient families about antibiotic resistance and opportunities for improvement (2).

Structure:

The Antimicrobial Stewardship Committee has been established to provide support and oversee activities of the ASP. This committee and the ASP will be part of the Infection Prevention and Control (IPaC) Program. The IPaC team will directly report all ASP-related activities and outcomes to the Quality Assurance and Performance Improvement Committee. The committee will in turn report all ASP activities and outcomes to nursing staff, prescribing clinicians, and other relevant staff.

Procedure

1. Leadership of the Antimicrobial Stewardship Committee
 - a. Physician and pharmacist co-leads [Member Names]
 - i. The ASP physician and/or pharmacy leader will communicate the facility's expectations for antibiotic use (AU) to prescribing clinicians, set educational

Policy Proposal: <https://www.kdhe.ks.gov/DocumentCenter/View/14463/Template-1---ASP-Proposal-DOCX>
 Leadership commitment: <https://www.kdhe.ks.gov/DocumentCenter/View/14464/Template-2---ASP-Leadership-Commitment-DOCX>
 Institutional ASP Policy: <https://www.kdhe.ks.gov/DocumentCenter/View/14465/Template-3---ASP-Institutional-Policy-DOCX>

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Question 5

What ways are you using to monitor antibiotic prescribing, antibiotic use, antibiotic resistance (select all that apply).

- A. We monitor adherence to existing antibiotic policies
- B. We track specific data related to clinical conditions
- C. We monitor antibiotic use, either by unit or facility wide
- D. We monitor outcome data
- E. We are not regularly tracking any antibiotic utilization or resistance data.

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Core Elements 2: Accountability

Appoint the leader & co-leaders

- Physician, APRN, PA, PharmDs
- Practice managers, nurse managers

Respected, esteemed

- ID or abx knowledge
- If/when co-led, ensure clearly delineated roles
- Responsible for program management & outcomes

Informal leaders

- Influence peers' attitudes & behaviors
- Can make or break your program



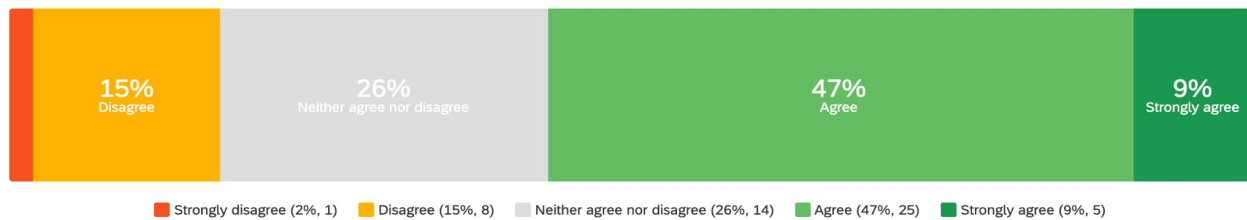
Barlam T et al CID 2016; 15(62):e51-77.
 Flodgren G, Cochrane Database Syst Rev 2019;24:6.
 Grol R et al Lancet 2003;362(9391):1225-30

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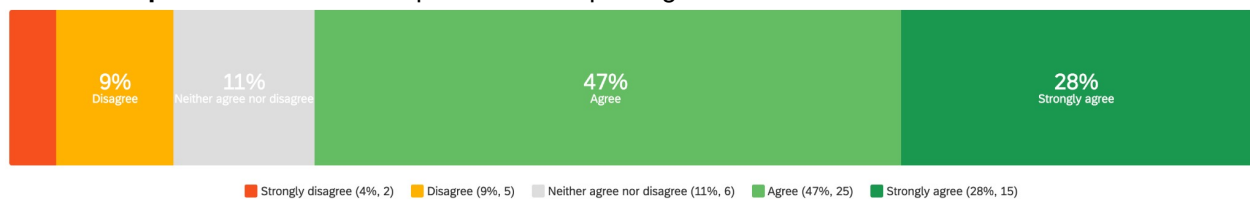
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Challenges

There is a **physician** leader responsible for AS outcomes



There is a **pharmacist** leader responsible for improving abx use



KDHE CAH ASP survey, 2019. Unpublished
 KDHE CAH ASP survey, 2019. Unpublished

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Examples of ASP Accountability

- Oversight by governing body
- **Leadership training**
- Med director sets **standards for prescribing**
- Nursing director ensures nursing staff engaged, aware of ASP activities & goals
- Pharmacist reviews & audits
- Micro provides surveillance data (i.e., antibiogram)
- Hospital or clinical quality measures as AS goals

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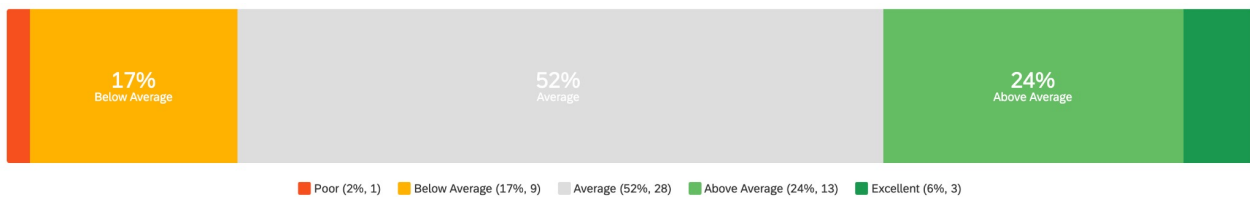
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Challenges

KS CAH ASP's perceptions of how easy **establishing** an ASP was



CAH's rating of their **current ASP implementation**



KDHE CAH ASP survey, 2019. Unpublished

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Tools: Templates Identify Resources, Stakeholders, Members, Duties, Oversight

Stakeholder identification	Who? (name or role)	How? (which core element(s) or other means of assistance)	When? (planning, implementation, scale-up, evaluation stage)
ex) DDM	1. ex) responsible for nursing staff 2. 3. 4. 5.	1. ex) education (awareness of importance of infection in collaboration, facility issues), engagement (ASP training), what do staff perceive as significant drivers of nursing barriers (i.e. provider prescribing norms, communication) 2. 3. 4. 5.	1. ex) all stages, especially development, implementation, evaluation 2. 3. 4. 5.

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 director & goals (i.e. provision of education, meetings regarding ASP expectations, guidelines, education)	ex) allocated educational time, auditing and feedback
2.		
3.		
4.		
5.		
6.		

Resource	Needed	Frequency of need	Description of need	Actions	Cost estimates
Education for ASP members	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Once <input type="checkbox"/> Ongoing (frequency, annually, other)	Ex) 1) courses or presentations for ASP members (i.e. antibiotic stewardship, survey methods, infection prevention, etc.) 2) ASP practices (i.e. antibiotic stewardship, etc.) 3) ASP resources (i.e. antibiotic stewardship, etc.) 4) ASP resources (i.e. antibiotic stewardship, etc.) 5) ASP resources (i.e. antibiotic stewardship, etc.)	Ex) 1) surveys / assessments / presentations / ASP members (i.e. antibiotic stewardship, survey methods, infection prevention, etc.) 2) ASP practices (i.e. antibiotic stewardship, etc.) 3) ASP resources (i.e. antibiotic stewardship, etc.) 4) ASP resources (i.e. antibiotic stewardship, etc.) 5) ASP resources (i.e. antibiotic stewardship, etc.)	Ex) antibiotic or process cost of ASP members (i.e. antibiotic stewardship, survey methods, infection prevention, etc.) 2) ASP practices (i.e. antibiotic stewardship, etc.) 3) ASP resources (i.e. antibiotic stewardship, etc.) 4) ASP resources (i.e. antibiotic stewardship, etc.) 5) ASP resources (i.e. antibiotic stewardship, etc.)
Education for ASP members	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Once (priority, annually, other)			
Education for staff	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Once (frequency, annually, other)			
Supplies	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Once (frequency, annually, other)			



Stakeholder ID: https://www.kdheks.gov/epi/hai/CAH_Toolkit/Table_1_Key_Stakeholder_Identification.docx
 Stakeholder Engagement: <https://www.kdhe.ks.gov/DocumentCenter/View/14450/Table-2--Stakeholder-Engagement-DOCX>
 Members & Duties: <https://www.kdhe.ks.gov/DocumentCenter/View/14451/Table-3--Members-and-Duties-DOCX>
 Resource ID: <https://www.kdhe.ks.gov/DocumentCenter/View/14452/Table-4--Resource-Identification-DOCX>

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Homework

Review the **metrics** currently used in your facility to track antibiotic use

DOT, DDD, or costs

OR

Tracking Infections

Survey:

https://kdheks.co1.qualtrics.com/jfe/form/SV_1zfKZD6h9mtdEsS

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Fill out facility profile in anticipation of tracking session (CAH or ambulatory oriented)

Hospital Antibiotic Use		Infection	# cases	Antibiotic regimen most often prescribed					
Last calendar year or last 12 months (alternatively, start with one month)				Antibiotic 1	Antibiotic 2	Antibiotic 3			
What are the 3 most common infections, or conditions, (i.e., asymptomatic bacteriuria, acute COPD exacerbation) for which patients are treated with antibiotics?	1. _____ 2. _____ 3. _____	Exj UTI (catheter)	Exj 15/100 (avg)	Drug: ceftriaxone Dose: 1 gram Route: IV Duration: 4 days	Drug: piperacillin/tazobactam* Dose: 4.5 g (1/4 Rx were 3.375 g)	Drug: levofloxacin Dose: 500 mg (2/3 Rx were 750 mg) Route: IV (1/3 Rx PO) Duration: 7 days (average, including IV to PO conversion)			
What proportion of asymptomatic bacteriuria cases are treated with an antibiotic?	%			Drug: _____ Dose: _____ Route: _____ Duration: _____	Drug: _____ Dose: _____ Route: _____ Duration: _____	Drug: _____ Dose: _____ Route: _____ Duration: _____			
What are the 3 most common antibiotics prescribed for UTIs (including asymptomatic bacteriuria)?	1. _____ 2. _____ 3. _____								
What proportion of acute bronchitis (without COPD) are treated with an antibiotic?	%								
What proportion of acute bronchitis cases (with COPD) are treated with an antibiotic?	%								
What are the 3 most common antibiotics prescribed for acute bronchitis (regardless of whether the patient has COPD or not)?	1. _____ 2. _____ 3. _____	Patient name/ date	Antibiotic (drug, dose, duration)	Indication for antibiotic	Clinical notes	Micro/ imaging results	Infection surveillance log	CDC Infection surveillance criteria met	Facility policy alignment (there is a policy)
What are the 3 most common antibiotics prescribed for community acquired pneumonia?	1. _____ 2. _____ 3. _____	exj A, 1/1/20	exj Cipro 250 mg p.o. BID x 14 days	exj UTI	exj Urine catheter in place, cloudy urine	exj UA packed WBC, UC<10x, contaminants	exj UTI	exj No	exj No
What are the 3 most common antibiotics prescribed for hospital acquired pneumonia?	1. _____ 2. _____ 3. _____								
What are the 3 most common antibiotics prescribed for cellulitis or infected wounds (and/or other skin and soft tissue infections (SSTIs))?	1. _____ 2. _____ 3. _____	exj B, 1/2/20	exj cefazolin	exj cellulitis	exj erythema, fevers	exj n/a	exj SSTI	exj Yes	exj Yes
Other infections a concern in your facility: What are the 3 most common antibiotics prescribed for _____?	1. _____ 2. _____ 3. _____								
Other infections a concern in your facility: What are the 3 most common antibiotics prescribed for _____?	1. _____ 2. _____ 3. _____								
Facility Guidelines									

Summary of facility antibiotics		Number	
Total number antibiotics reviewed			
Total number of data sources reviewed (in addition to antibiotic orders)			
Summary of facility antibiotic appropriateness		Number	%
Antibiotic appropriate based on clinical documentation			
Antibiotic appropriate for microbiologic data (and/or POC studies such as urinalysis, serologic, molecular studies, or other lab data)			
Antibiotic appropriate for imaging			
Antibiotic indication aligned with expectations outlined in facility policies/protocols (if applicable)			
Antibiotic indication aligned with CDC surveillance case definition			

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Hospital Abx Use: <https://www.kdhe.ks.gov/DocumentCenter/View/14454/Table-6--Hospital-Antibiotic-Use-Historic-DOCX>
 Most Commonly Used Abx: <https://www.kdhe.ks.gov/DocumentCenter/View/14455/Table-7--Most-Commonly-Used-Antibiotics-DOCX>
 Summary of Facility Abx: <https://www.kdhe.ks.gov/DocumentCenter/View/14459/Table-11--Summary-of-Facility-Antibiotics-DOCX>
 Abx by patient: <https://www.kdhe.ks.gov/DocumentCenter/View/14458/Table-10--Antibiotic-Tracking-by-Patient-DOCX>

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Tools: Facility Profile, Infection Profile (LTACH, SNF, NH oriented)

Last 12 months or last calendar year	Number
Licensed beds	
Admissions	
Patient days	
Average daily census	
Number of prescribers	
Clinical pharmacists (hours per month)	
Patient characteristics	Average daily census
Residents with indwelling urinary catheters	
Residents with pressure injury	
o Stage 1-2	
o Stage 3-4	
o Unstageable / unable to determine	
Patients admitted with acute or chronic foot or leg ulcers	

Last 12 months or last calendar year	Number
<i>Clostridioides difficile</i>	
Facility onset infections	
Community onset infections	
Numbers of non-duplicate isolates of following isolates:	
MDR Gram-Negative Bacteria	
Carbapenem-resistant <i>Enterobacteriales</i> (<i>E. coli</i> , <i>Klebsiella</i> spp., <i>Morganella morganii</i> , <i>Proteus</i> spp., <i>Providencia</i> spp.)	
Carbapenem-resistant <i>Pseudomonas aeruginosa</i>	
Carbapenem-resistant <i>Acinetobacter baumannii</i>	
ESBL <i>Enterobacteriales</i>	
MDR Gram-Positive Bacteria	
Methicillin-Resistant <i>Staphylococcus aureus</i> (MRSA)	
MRSA	
Vancomycin-Resistant Enterococci (VRE)	
VRE	
Other drug-resistant gram-positives	
Penicillin-Resistant <i>Streptococcus pneumoniae</i> (non-meningeal MIC)	
Erythromycin-resistant group A <i>Streptococcus</i>	
Clindamycin-resistant group B <i>Streptococcus</i>	
Other MDROs of concern:	

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Facility profile: https://www.kdheks.gov/epi/hai/CAH_Toolkit/Table_12_Facility_Profile.docx
 Infection Profile: https://www.kdheks.gov/epi/hai/CAH_Toolkit/Table_13_Facility_Infection_Profile.docx

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Tools: Interactive HAI Spreadsheets

Community-Onset *Clostridioides difficile* Infection (CO CDI) Control Chart

Instructions

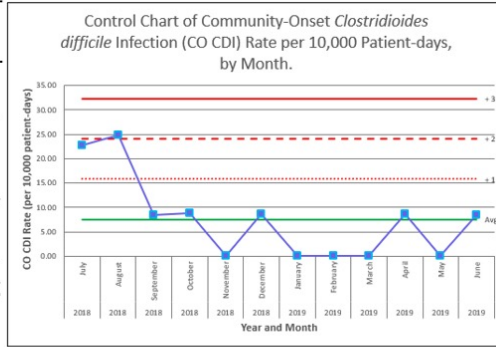
- For current standardized surveillance definitions for this measure, see the CDC's NHSN protocol: [MCDRO and CCI Module Protocol](#)
- Option 1 (preferred):** For facility-wide surveillance, collect the count of infections (numerators) and the count of patient days (denominators) for the whole facility's inpatient population, by month, for a one year period.
- Option 2:** For inpatient unit surveillance, collect the count of infections (numerators) and the count of patient days (denominators) for the unit, by month, for a one year period. In the chart title, add the name of the unit (e.g. "...Patient-days in **Add Unit Name**, by Month.")
- Option 3:** For outpatient unit surveillance, specifically emergency departments or 24-hour observation units, collect the count of infections (numerators) and the count of admissions (denominators) for the unit, by month, for a one year period. In the chart title, change the name of the denominator "Patient-days" to "Admissions", and add the name of the unit (e.g. "...per 10,000 Admissions in **Add Unit Name**, by Month."). Change the y-axis label to reflect the denominator is "...per 10,000 admissions", rather than "per 10,000 patient-days."

Select the month you want to begin with:

Enter year of the month you want to begin with:

Enter the count of infections and patient days, or admissions, to the corresponding month. Only edit the purple cells.

Year	Month	Infections	Admission	Rate
2018	July	3	1218	22.76
2018	August	2	1212	24.75
2018	September	4	1200	33.33



- Average
- One sigma limit
- Two sigma limit
- Three sigma limit
- A single point outside the three sigma limit
- Two of three points outside the two sigma limit
- Four of five points outside the one sigma limit
- Eight points in a row on the same side of the average

- Intro step-by-step
- CAUTI
- UTIs
- Urinary utilization
- CLABSIs
- CVC utilization
- C.diff



Interactive HAI tracking tool: <https://www.kdhe.ks.gov/DocumentCenter/View/14446/Spreadsheet-2---Interactive-HAI-Tracking-Tools-XLSX>

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Resources & More Information

KDHE wants to help with AS/AR, contact:

Healthcare-Associated Infections & Antimicrobial Resistance Program

Kellie Wark

Kellie.Wark@ks.gov

Kwark@kumc.edu

Nikki Wilson

Nicole.Wilson@ks.gov

NWilson5@kumc.edu

Bryna Stacey

Bryna.Stacey@ks.gov

HAI/AR Program General Contact

KDHE.HAIAR@ks.gov

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

[Post-webinar Survey - April 7](#)

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