

# Antimicrobial Stewardship: Making Moves with Action and Metrics

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OKLAHOMA  
State Department  
of Health

# Objectives

Discuss potential Actions for stewardship programs.

Highlight key Tracking and Reporting components.

Analyze opportunities to implement antimicrobial stewardship Education.

# Antimicrobial Stewardship

CDC's Core Elements of Stewardship

O K L A H O M A   S T A T E   D E P A R T M E N T   O F   H E A L T H

# Core Elements



**Leadership  
Commitment**



**Accountability**



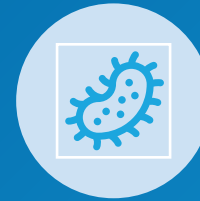
**Stewardship/  
Pharmacy Expertise**



**Action**



**Tracking**



**Reporting**



**Education**

# Seven Core Elements of Antimicrobial Stewardship

**Core Elements and even further with Priorities of Core Elements are an expectation of regulatory bodies.**

**The utilization and barriers to implementation of the Core Elements vary across the variety of patient care facilities, but regardless of setting or facility size they are a useful road map to pave the way toward the goal of stewarding the antibiotics we have.**


# Action

- Bug – Drug Mismatch Considerations
- Adverse Reaction Monitoring
- Facility Specific Treatment Pathways
- Antibiotic Allergy Interviews


# Action: Penicillin Allergy De-labelling

- Penicillin allergy de-labeling can be a great initiative that makes a positive impact on patient care.
- Avoidance of beta-lactam allergies due to penicillin allergies often results in overly broad and non-first-line therapy selections.
- There are multiple tools to aid implementation.
  - Educational tools
  - Cross reactivity charts
  - PEN-FAST scoring

## CORE ELEMENTS



# Penicillin Allergies




Cross sensitivity, how to avoid it without avoiding all beta lactams.


**10%** of the US population reports a penicillin allergy.


**99%** of these allergies do not correspond with a true IgE allergy.

Resulting in decreased use of beta lactam antibiotics



Increased incidence of antimicrobial resistance, treatment failures, and higher healthcare costs



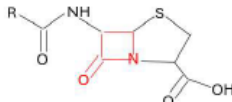


Most beta lactams do not share R side chains and can be used as alternative agents in the face of true allergy. For example: cephalosporins can often be used in a penicillin allergic patient.

Desensitization can be done for patients with true allergies and no alternative agents.

True penicillin allergies are considered IgE mediated Type I hypersensitivity reactions: anaphylaxis, angioedema, etc.

While the beta lactam ring, highlighted in red, is shared by many antibiotics, the cross reactivity is thought to be related to antibodies formed against the R<sub>1</sub> side chains.



Penicillin Structure

**References:**  
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 Romano A, Gsete F, Valluzzi RL, Ceruso C, Rumi G, Bouquet PL. IgE-mediated hypersensitivity to cephalosporins: cross-reactivity and tolerability of penicillins, monobactams, and carbapenems. *J Allergy Clin Immunol*. 2010 Nov;126(5):994-9. doi: 10.1016/j.jaci.2010.06.052. PMID: 20888085.  
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 Healthcare Associated Infections/  
 Antimicrobial Resistance Program

# Tracking: Outcomes

CORE ELEMENTS

## Adverse Effects

Track rates of antimicrobial related adverse reactions

Evaluate C. diff cases – assess for associated inappropriate antibacterial use

## Treatment Failure Rates

Monitor number of patients needing antimicrobial escalation or restart of antimicrobial therapy

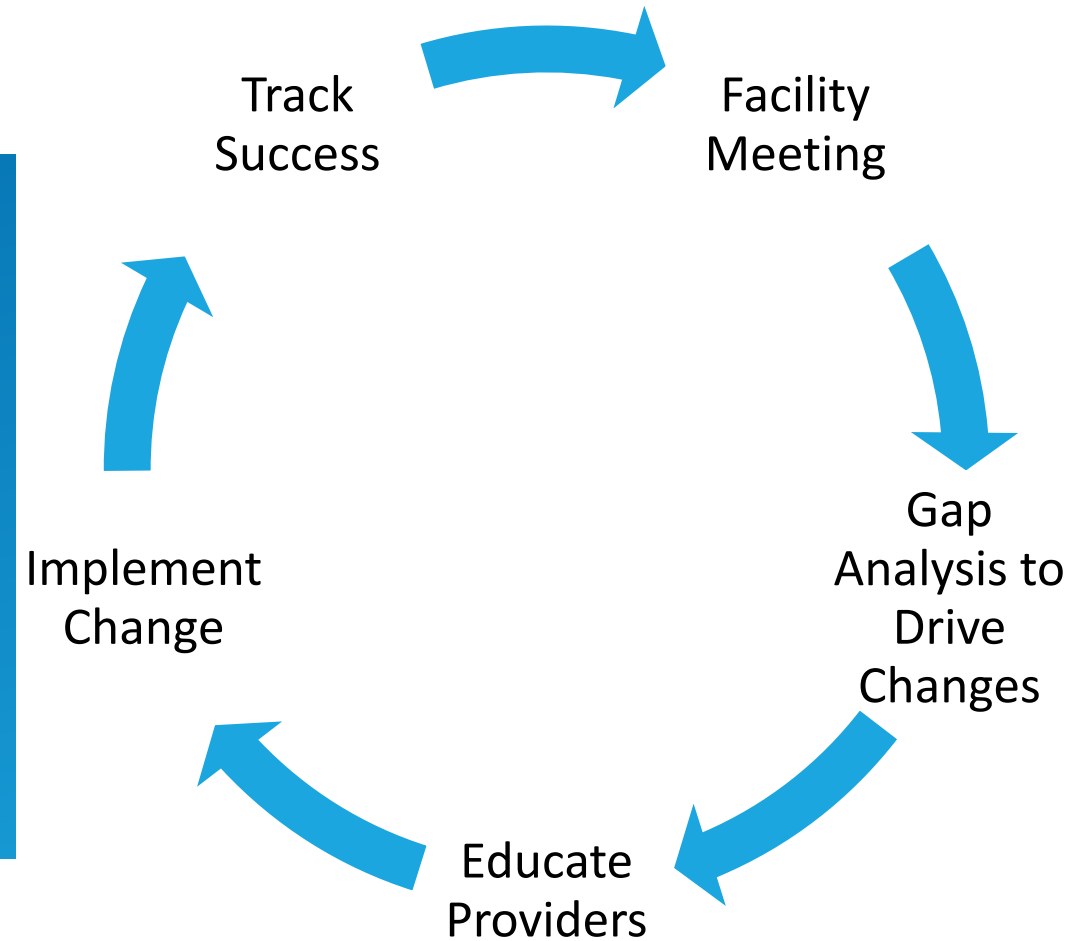
## Cost

Look at the cost of various antimicrobials and identify cost savings related to stewardship interventions such as de-escalation or shortened duration of therapy



# Reporting

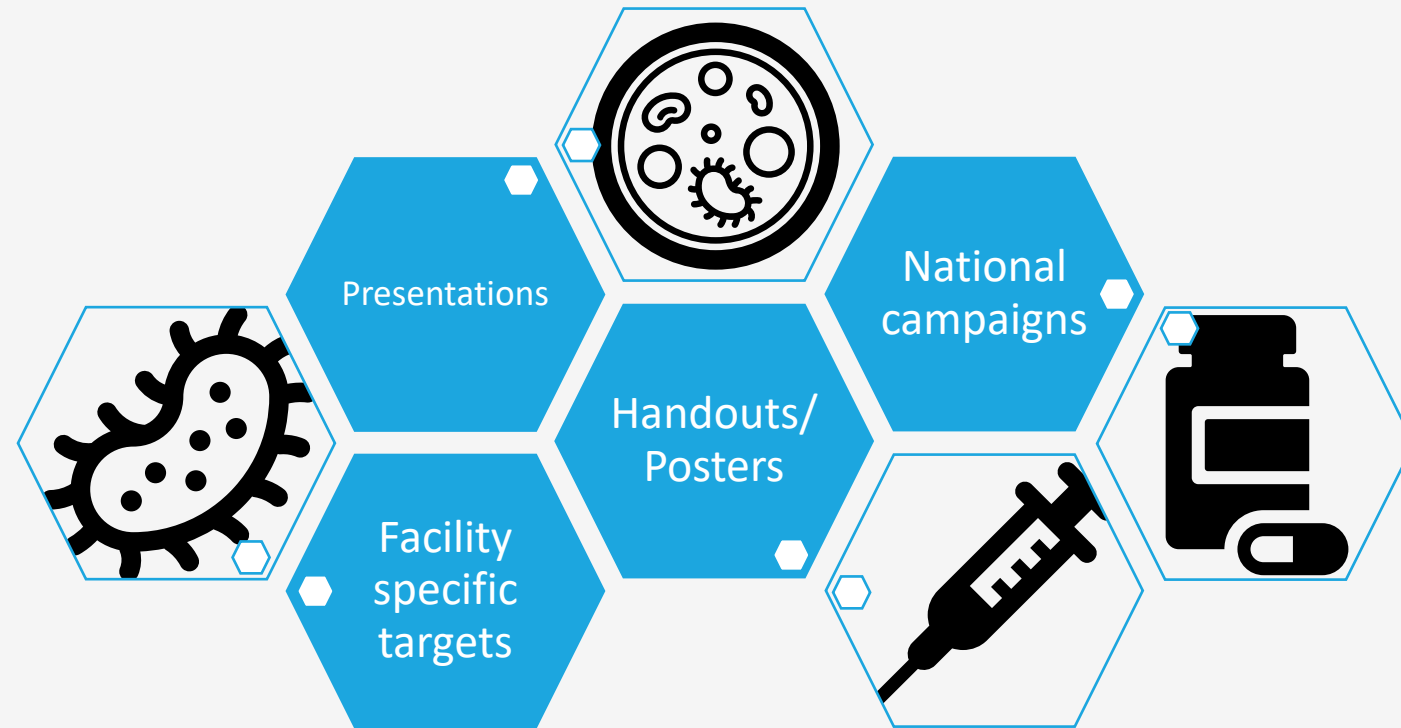
- Include prescribers, pharmacists, nurses, and leadership to address specific trends in antimicrobial utilization
- Use this opportunity to share national and regional trends with the conversation of local trends
- Sharing successes and challenges of prospective audit program can be a good way to initiate and maintain buy in



C O R E   E L E M E N T S

# Education

- Education is key to changing the way antimicrobials are prescribed.
- Utilization of multiple forms and resources is recommended.



# **OSDH Resources for Antimicrobial Stewardship**

OKLAHOMA STATE DEPARTMENT OF HEALTH

# Webpage Resources

OSDH RESOURCES

## Antibiotic Resistance: 5 Things To Know

Antibiotic resistance (AR) is one of the most urgent threats to public health. AR is a "one health" problem and connects to the health of people, animals, and the environment.

**Each year in the United States, at least 2.8 million people are infected with antibiotic-resistant germs—at least 35,000 die.**

- 1 Antibiotic resistance occurs when germs defeat the drugs designed to kill them.**  
It does **NOT** mean the body is resistant to antibiotics.
- 2 Antibiotic resistance can affect people at any stage of life.**  
Infections caused by resistant germs are difficult—sometimes impossible—to treat. In many cases, these infections require extended hospital stays, additional follow-up doctor visits, and the use of treatments that may be costly and potentially toxic to the patient.
- 3 Healthy habits can protect you from infections and help stop germs from spreading.**  
Get recommended vaccines, keep hands and wounds clean, and take good care of chronic conditions, like diabetes.
- 4 Antibiotics save human and animal lives. Any time antibiotics are used, they can lead to side effects and resistance.**  
Antibiotics do not work on viruses, such as colds and the flu. Talk to your healthcare provider or veterinarian about whether antibiotics are needed.
- 5 Antibiotic resistance has been found in all regions of the world.**  
Modern trade and travel mean AR can move easily across borders. It can spread in places like hospitals, farms, the community, and the environment. Tell your healthcare provider if you recently traveled to or received care in another country.

**Your actions can help combat antibiotic resistance.**

Learn more at [www.cdc.gov/DrugResistance](http://www.cdc.gov/DrugResistance)

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COMMIT TO ACTION  
DELIVER RESULTS

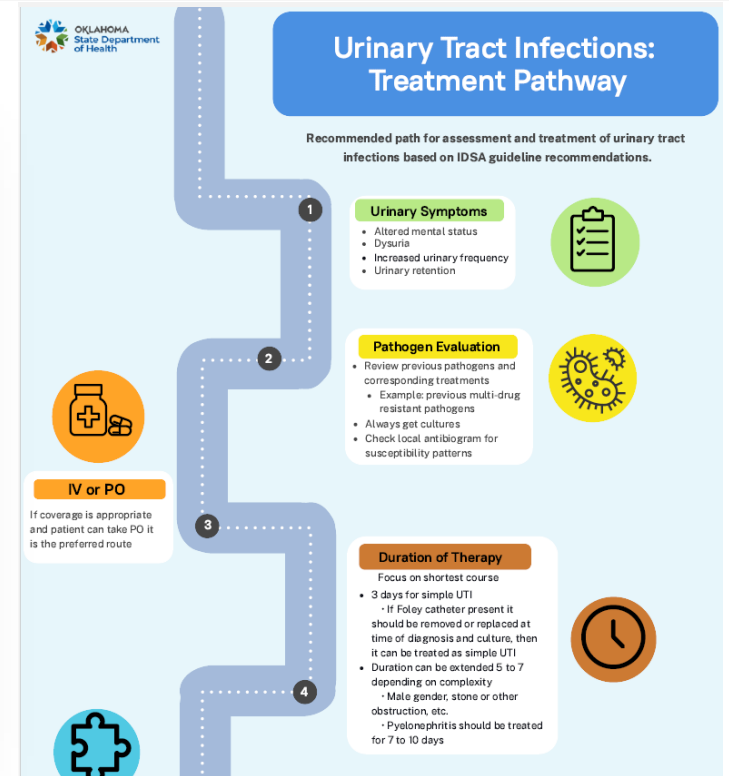
Patient Handouts and  
Flyers

## IDSA Antimicrobial Resistance Guidelines

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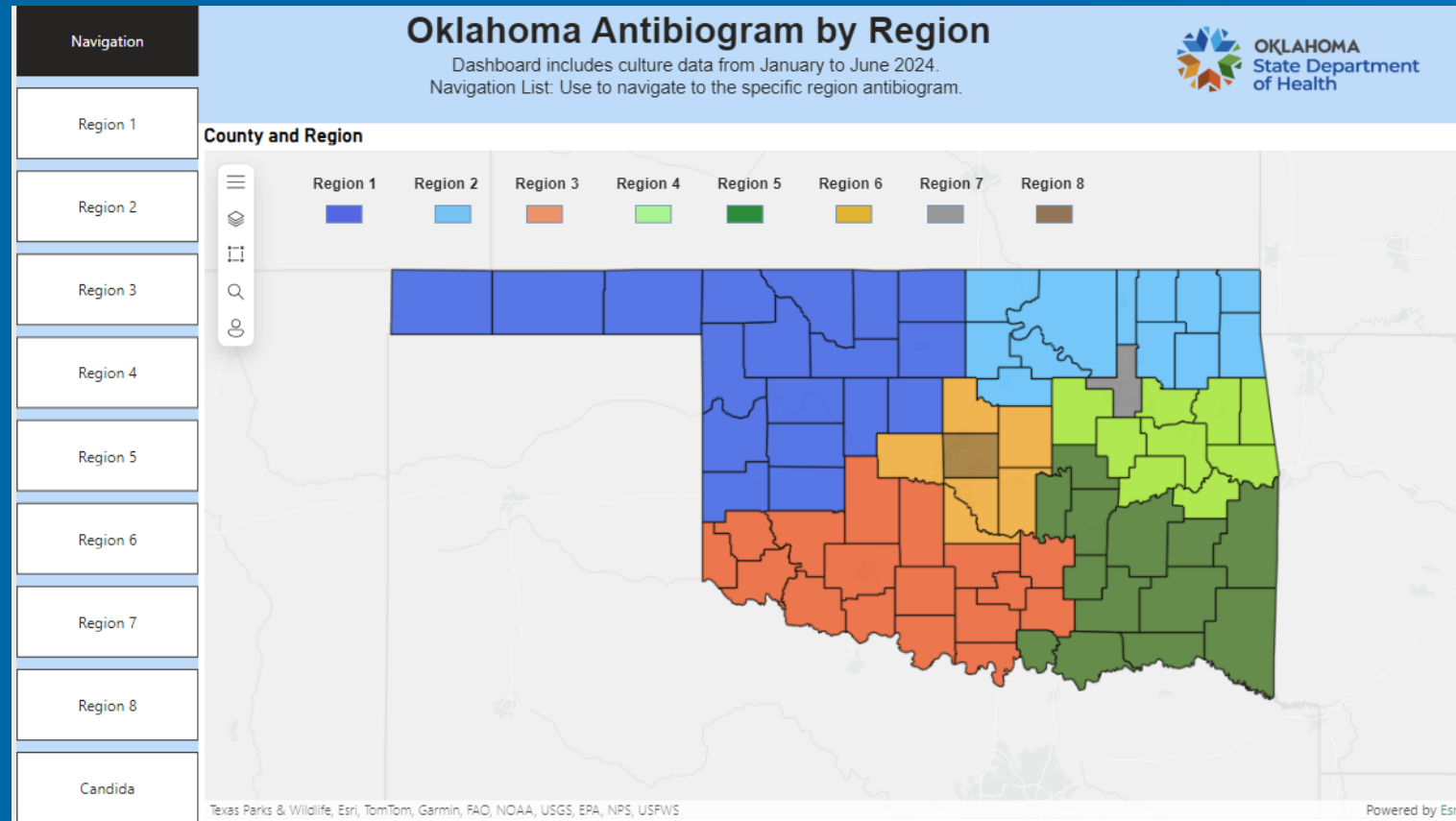
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Educational Slide Sets



Infographics

# Interactive Regional Antibioqram



[Regional Antibioqram Access Request](#)



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## Healthcare Associated Infections and Antimicrobial Resistance (HAI/AR) Prevention Program

[HAI@health.ok.gov](mailto:HAI@health.ok.gov)  
405-426-8710



Coordinate State HAI/AR activities directly with CDC and collaborate with internal and external stakeholders.



Education

Internal and External  
Partners  
Training (hands on and  
virtual)



Prevention,  
Containment, and  
Response

Rapid detection and  
preventing transmission of  
novel/targeted Multidrug-  
Resistant Organisms



Antimicrobial  
Stewardship

Optimizing Antimicrobial  
Prescribing and Use  
Practices for improved  
outcomes



Technical Support

NHSN Data for Action (HAI  
Event reporting and AUR  
Module)

# Additional Resources

[OSDH Antimicrobial Stewardship Resources for Clinicians](#)

[Regional Antibigram Access Request](#)

[Core Elements of Antibiotic Stewardship | Antibiotic Prescribing and Use | CDC](#)

# References

Centers for Disease Control and Prevention. *The Core Elements of Hospital Antibiotic Stewardship Programs*. CDC, 25 Oct. 2021, <https://www.cdc.gov/antibiotic-use/hcp/core-elements/index.html>. Accessed 9 Jan. 2025.

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# Questions?

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