

Ambulatory Antibiotic Stewardship: Targets, Tools, & Metrics



**University of Nebraska
Medical CenterSM**

Nebraska Medicine

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Disclosures

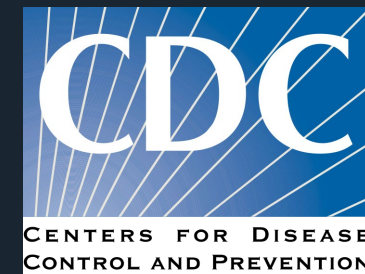
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1. Nothing to disclose
2. No off-label use of medications to discuss

Learning objectives

3

1. Define the ambulatory antibiotic prescribing problem
2. Identify high yield targets for ambulatory antibiotic stewardship interventions
3. Identify key intervention strategies for improving appropriate antibiotic prescribing
4. Select metrics for common infectious conditions



Antibiotic Resistance Threats in the United States 2019



↑50%

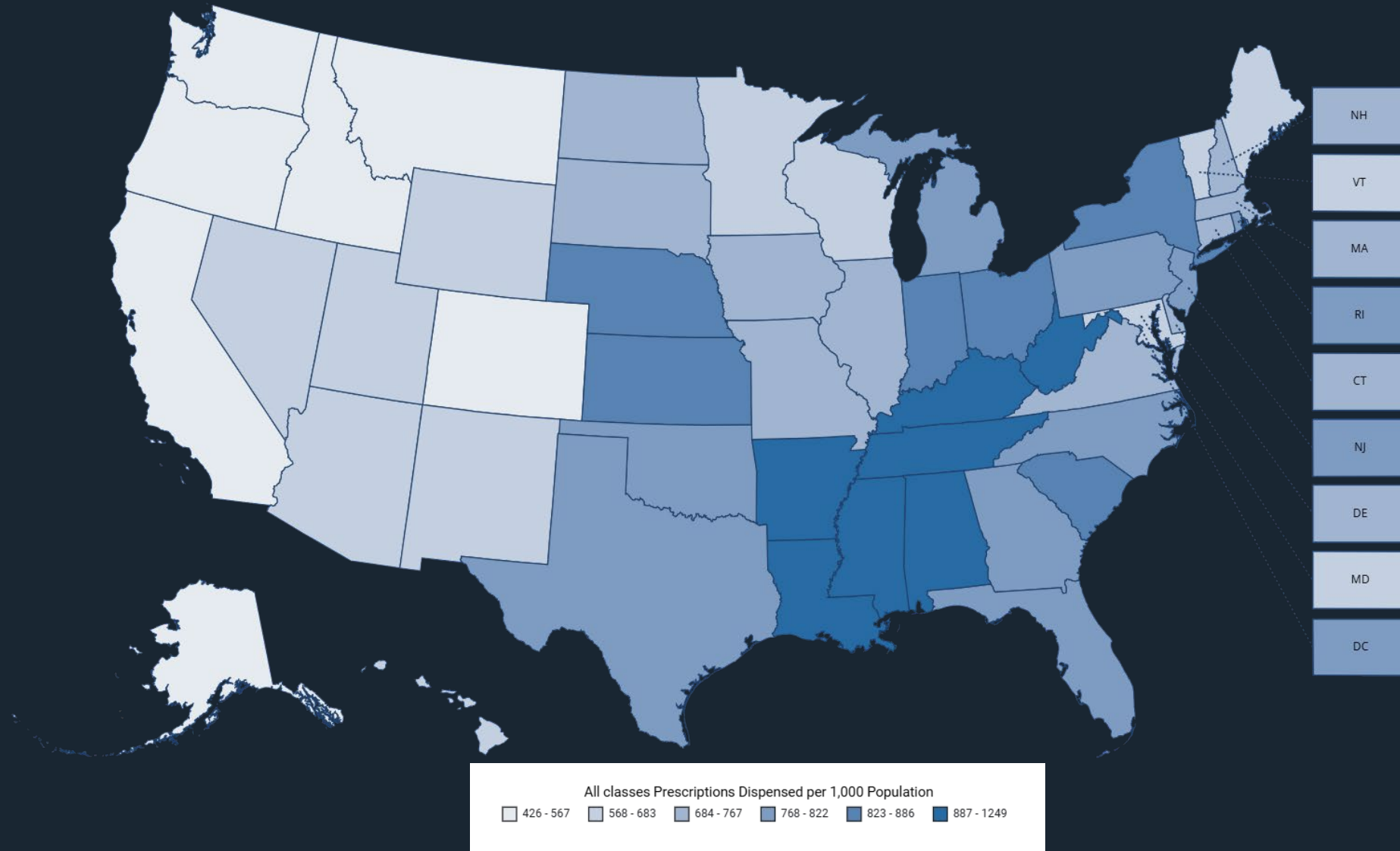
**ESBL-producing
Enterobacteriaceae**



2.8 million antibiotic
resistant infections
each year



35,000 deaths from antibiotic
resistance per year



752 prescriptions /1000 persons in 2024

Core Elements of Ambulatory Stewardship



Leadership Commitment

Dedicate necessary human, financial, and information technology resources.



Accountability

Designate a leader or co-leaders responsible for outpatient stewardship program development, management, and outcomes.



Stewardship Expertise

Pair antibiotic stewardship expertise with outpatient setting-specific clinical expertise.



Action

Implement interventions, such as clinical decision support or audit and feedback, to improve antibiotic use.



Tracking

Monitor antibiotic prescribing, the impact of stewardship interventions, and other important outcomes.



Reporting

Regularly report data on antibiotic prescribing and outcomes to healthcare professionals and leadership.



Education

Educate healthcare professionals, patients, and caregivers on optimal antibiotic prescribing, adverse events, and antimicrobial resistance.

Stewardship is a Team Effort

Clinical Champions

Provide clinical leadership, build credibility and drive engagement



Stewardship Expertise

Provides antibiotic expertise, identify priorities, and coordinate interventions



Leadership & Administration

Provide resources and support for sustained success



Information Technology

Build and optimize EMR tools and reports to support stewardship goals



Informatics

Supports data extraction, reporting, and clinical decision support

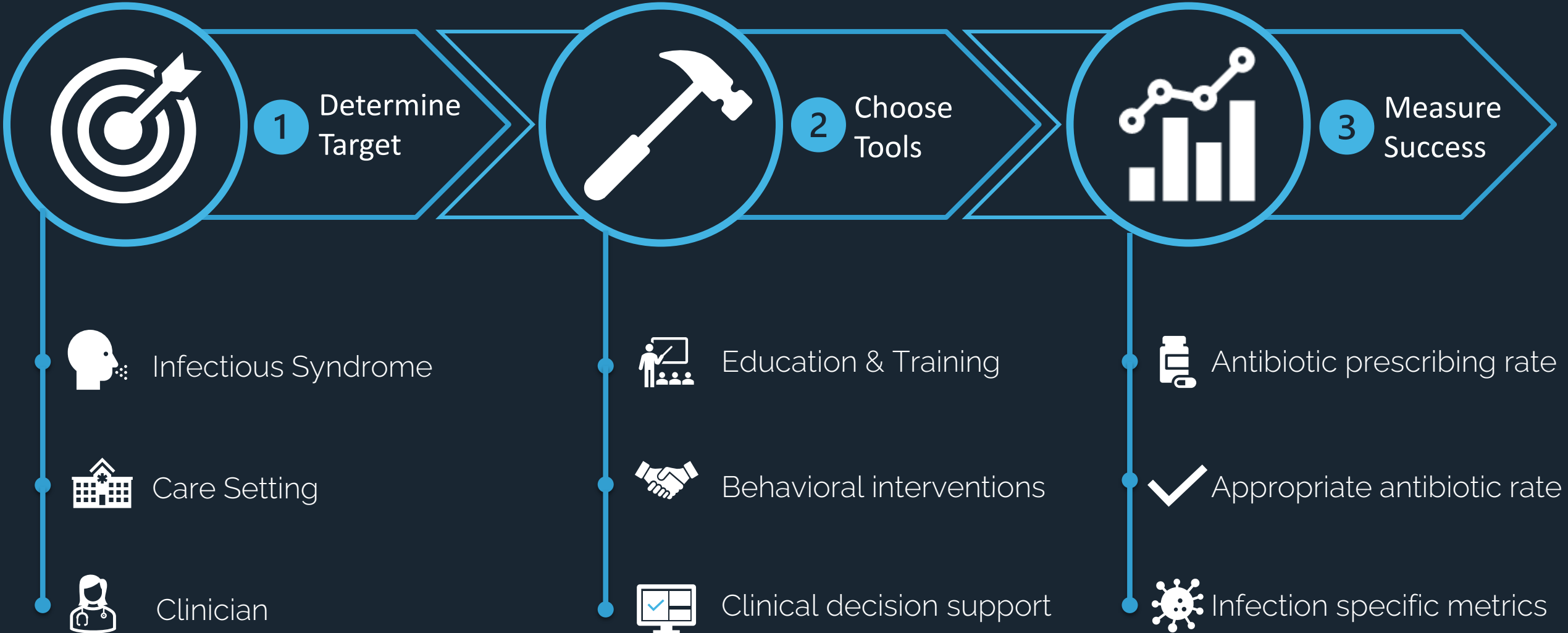


Clinic partners

Connects stewardship goals with day-to-day clinic operations



Building an Ambulatory Antibiotic Stewardship Program



Step 1: Determine Your Target



1

Infectious Syndrome

Identify priority conditions with high volume or high variability



2

Care Setting

Choose the setting where intervention will have the greatest impact



3

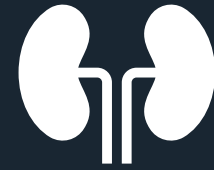
Clinician

Engage the right providers to champion and drive sustainable change

Rates of Suboptimal Antibiotic Use



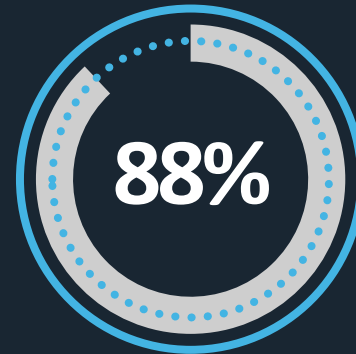
Overall antibiotic
prescriptions



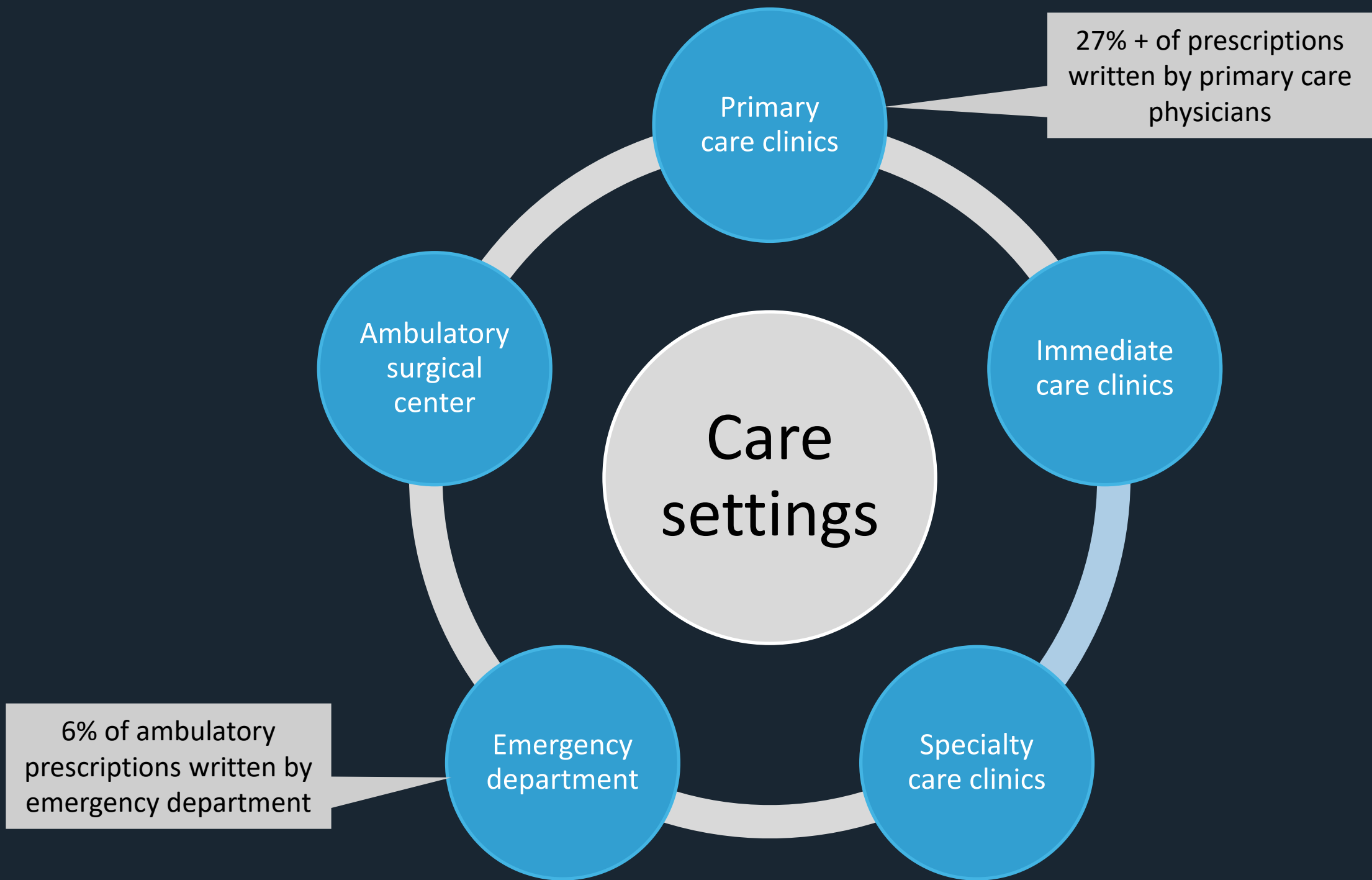
Urinary tract
infections



Upper respiratory
infections

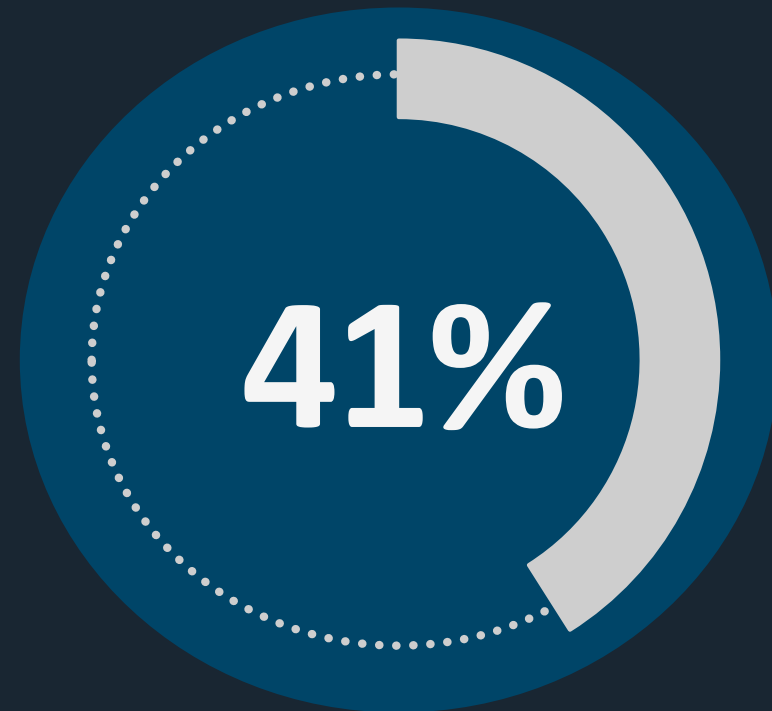


Skin and soft tissue
infections





High volume prescribers
account for 41% of all
outpatient antibiotic
prescriptions



Use Local Data



Look at
your data



Find the
opportunity



Choose a
target

National data tells us where problems commonly occur
Local data tells us where your opportunity is

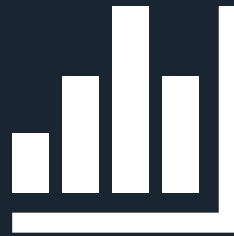
Need outpatient prescribing data?

Nebraska ASAP + CHARM can help



Your Health System
or Clinic

Wants to understand and
improve outpatient
antibiotic prescribing



CHARM

Uses existing EMR data to
create dashboards to review
outpatient prescribing



Nebraska ASAP

Helps interpret your data,
prioritize stewardship
opportunities, and support
intervention planning

Interested in participating?

Contact CHARM to learn more
about data submission and
reporting.



Minji Sohn, PhD
Director



Michael Klepser, PharmD
Senior Director

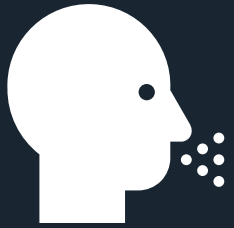


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Start Small



One syndrome

Acute respiratory syndrome

Urinary tract infection

Skin and soft tissue infection



Primary care clinics

Immediate care clinics

Emergency department



One setting



One prescribing problem

Unnecessary antibiotic use

Wrong antibiotic agent

Excessive duration

Step 2: Choose Tools



1

Education & Training



2

Behavioral
Interventions



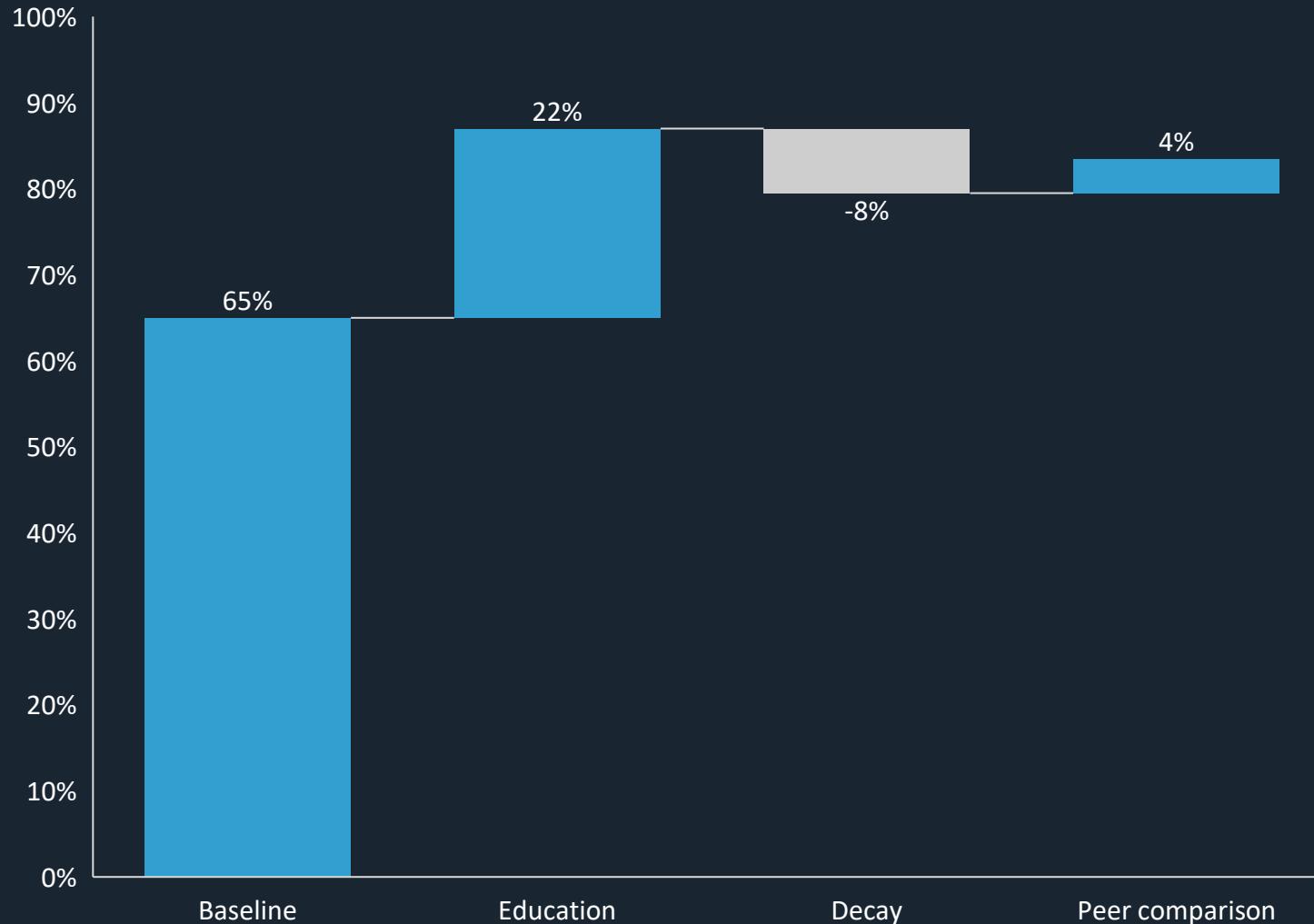
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Clinical Decision
Support

Why Do Clinicians Prescribe Antibiotics Inappropriately?

- 1 Perceived low risk of antibiotics
- 2 Diagnostic uncertainty
- 3 Patient Expectations
- 4 Patient Satisfaction
- 5 Time Constraints

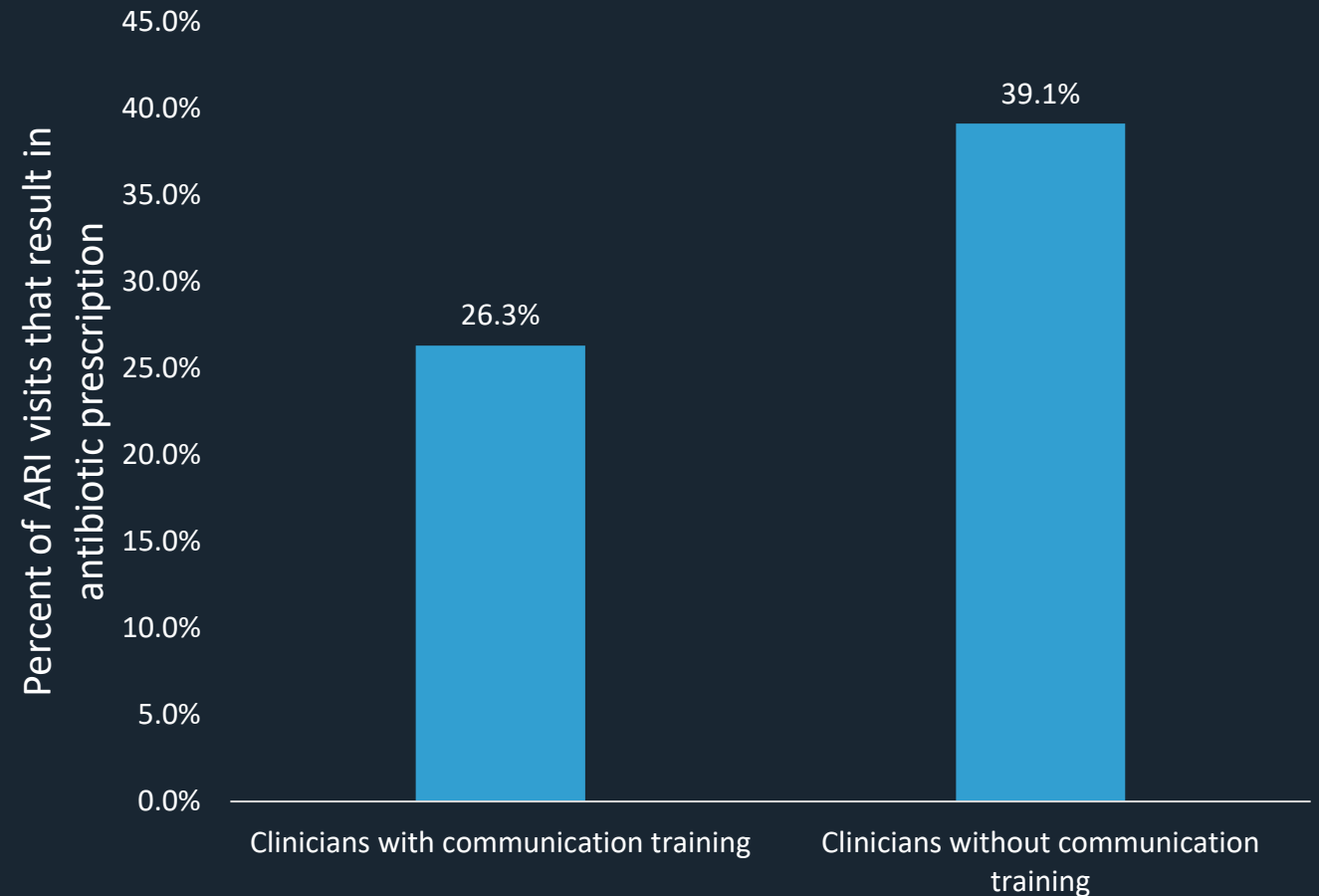
Education



Education can have a significant effect, however that effect can diminish over time

Communication Training

Communication training is an effective, durable strategy to reduce inappropriate antibiotic prescribing





Provide a clear diagnosis



Negative treatment recommendations



Positive treatment recommendations



Set expectations



Provide a contingency plan



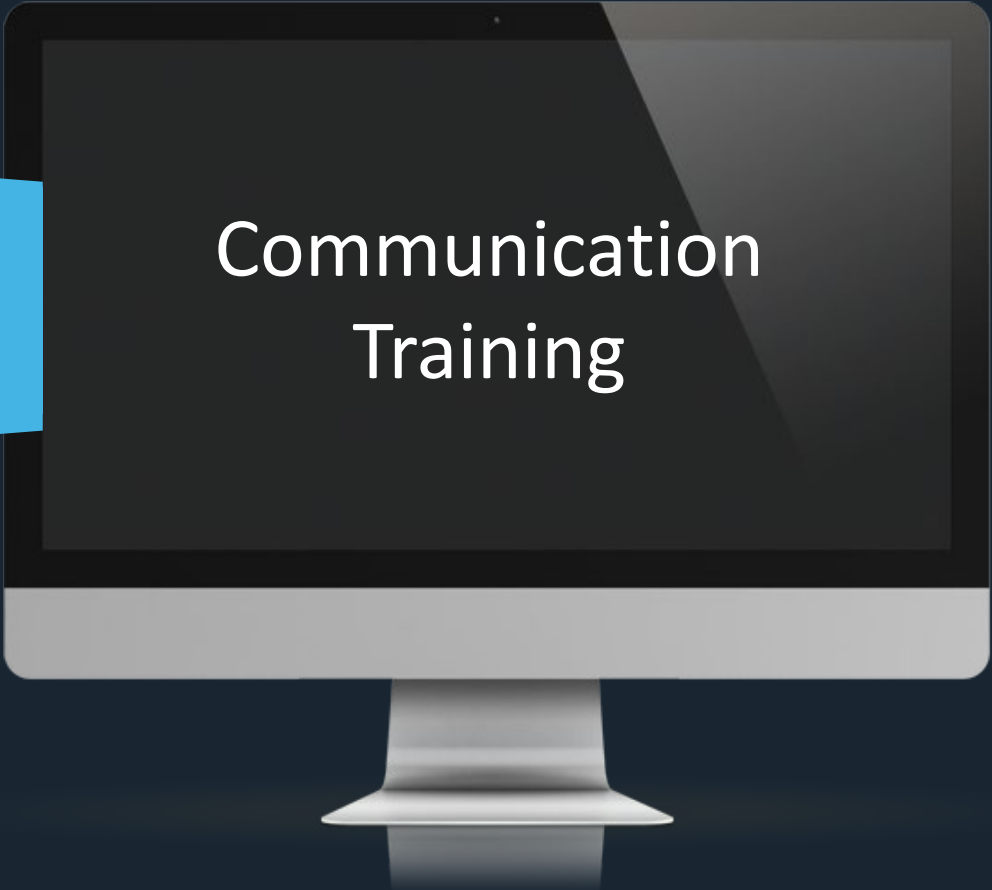
16% higher satisfaction
with both positive and
negative treatment
recommendation

Expect Antibiotics	Get Antibiotics	Get Contingency plan	Mean satisfaction score
✓		✓	76%
✓			59%
✓	✓		65%

Higher satisfaction with a contingency plan even if patient expects antibiotics

UNMC Ambulatory Communication Training E-module

https://webmedia.unmc.edu/ID/Ambulatory%20Antimicrobial%20Stewardship_Communication%20Training/

A stylized illustration of a computer monitor with a dark screen and a light-colored base. The screen displays the text 'Communication Training'.

Communication Training

Commitment Posters

19.7% reduction in
antibiotics for acute
respiratory infection
in commitment
poster arm

We commit to only prescribing antibiotics when they will help you.

Antibiotics only fight infections caused by bacteria. Taking antibiotics when you do not need them will **NOT** make you better. You will still feel sick; the antibiotics may cause a skin rash, diarrhea or yeast infection.

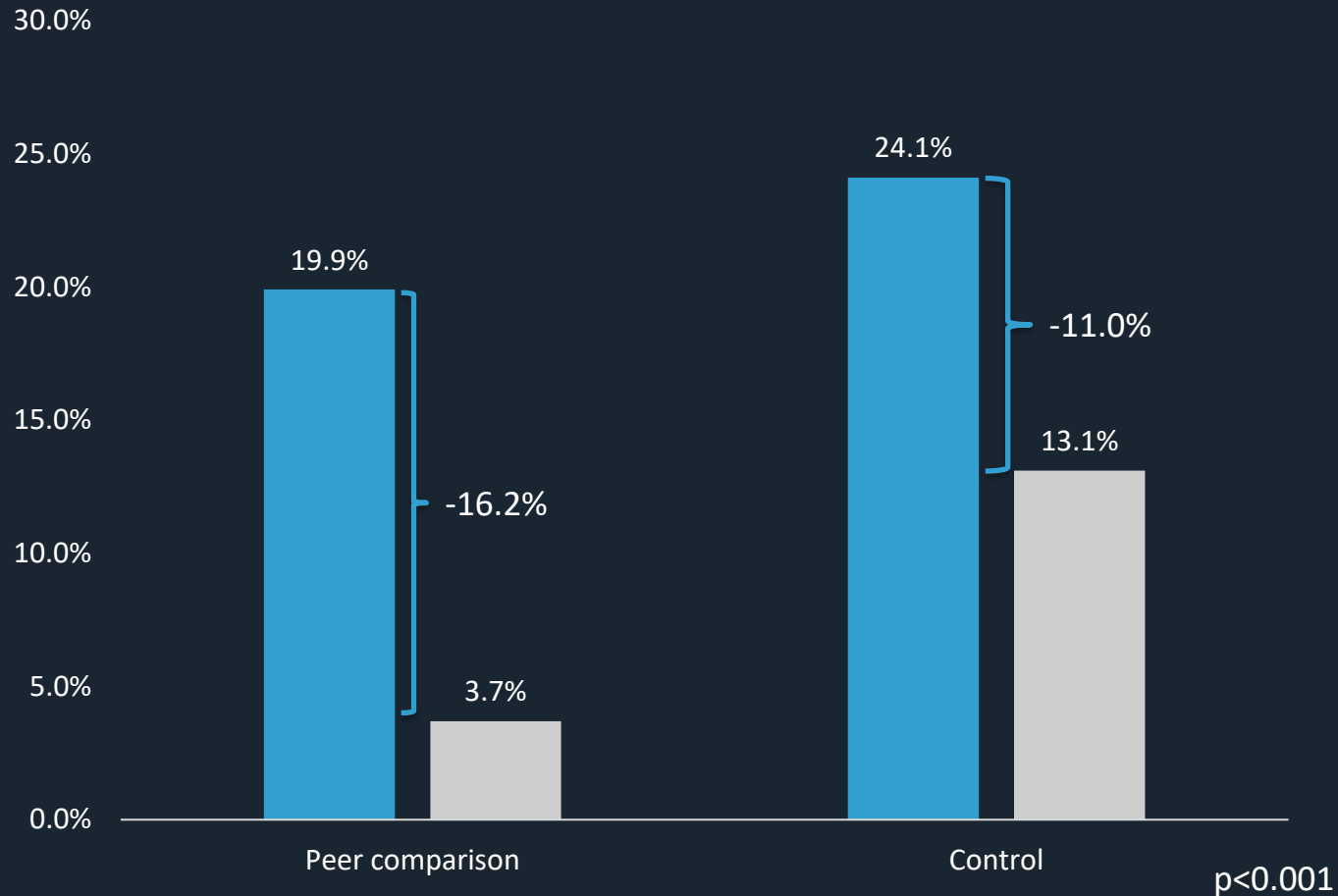
How can you help?

Your health is important to us. As your health care providers, we promise to provide the best possible treatment for your condition. If an antibiotic is not needed, we will explain this to you and will offer a treatment plan that will help.

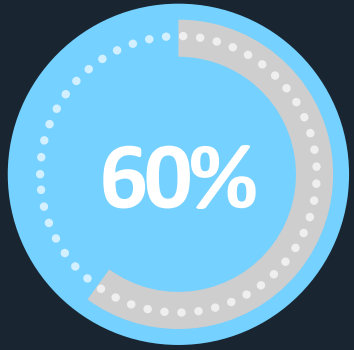
When you have a cough, sore throat or other illness, tell your doctor you only want an antibiotic if it is really necessary. If you are not prescribed an antibiotic, ask what you can do to feel better and get relief from your symptoms.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Peer Comparison



16.2% reduction in antibiotics for acute respiratory infection after introduction of peer comparison



Overall appropriate
antibiotics for UTI



You are in the 85th
percentile of prescribers

90% First line antibiotic choice

75% appropriate dose

60% appropriate duration

- You are one of the most appropriate prescribers, great job!
- Your appropriate dose and agent are excellent!
- Consider shortening the duration of antibiotics you prescribe for some patients. While longer durations may be appropriate in some patients, your durations are slightly longer than average.

Delayed Prescribing

WAIT. DO NOT FILL YOUR PRESCRIPTION JUST YET.

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

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

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

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

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

26% of patients not prescribed an antibiotic eventually received one

Strategies of delayed prescribing resulting in antibiotic prescriptions

- Recontact for prescription: **37%**
- Post-dated prescription: **37%**
- Collection: **33%**
- Patient led: **39%**

University of Nebraska Medical Center Ambulatory Guidelines

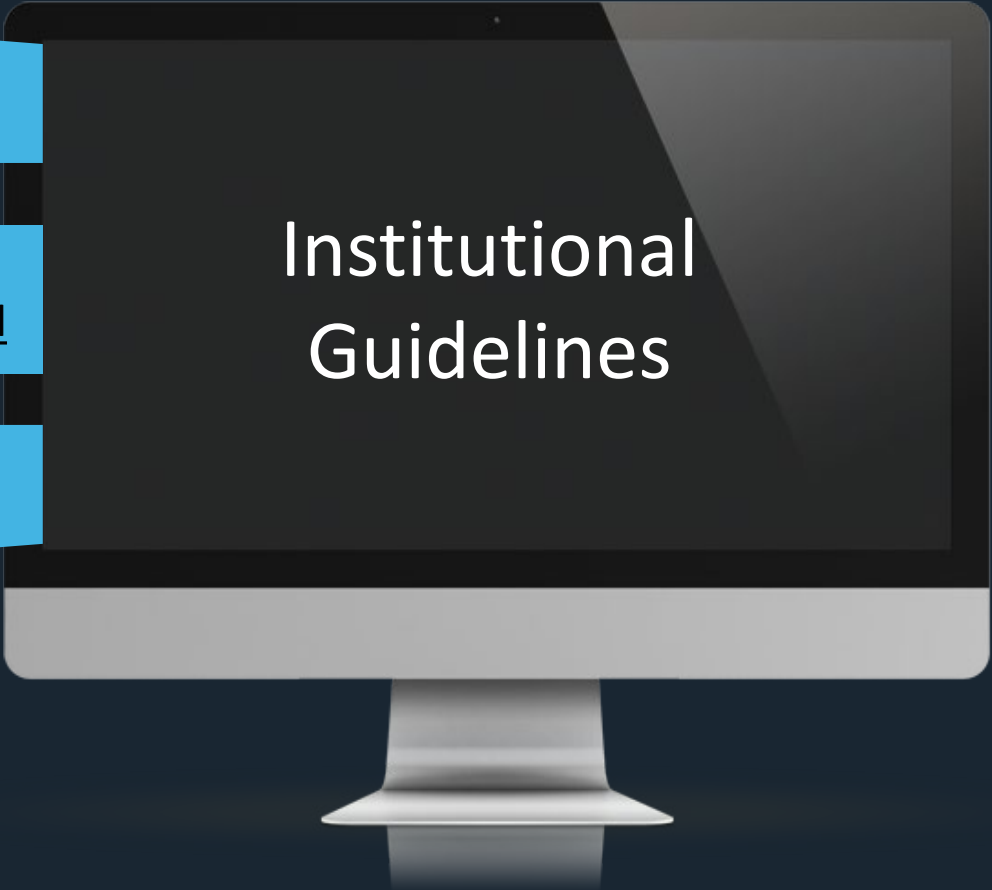
<https://www.unmc.edu/intmed/divisions/id/asp/ambulatory.html>

CDC Ambulatory Guidelines

<https://www.cdc.gov/antibiotic-use/clinicians/adult-treatment-rec.html>

AHRQ Ambulatory Antibiotic Toolkit

<https://www.ahrq.gov/antibiotic-use/ambulatory-care/index.html>

A stylized illustration of a computer monitor with a dark screen and a light-colored base.

Institutional Guidelines

Clinical Decision Support

Make the right thing easy, the wrong thing hard



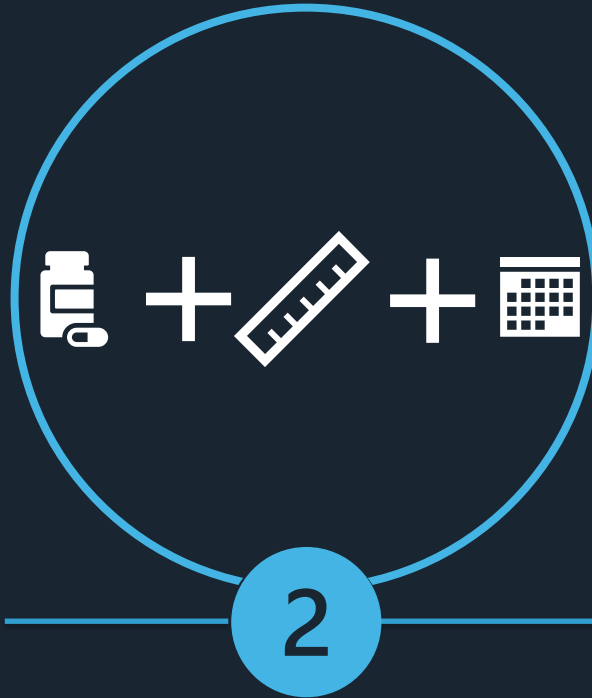
Step 3: Measure Success



1

Antibiotic Prescribing Rate

Total antibiotic prescriptions
per 1,000 encounters



2

Appropriate Antibiotic Rate

Percent of prescriptions that are
appropriate for the indication and
follow guideline-recommended
therapy and duration



3

Infection Specific Metrics

Measures tailored to the
syndrome or stewardship
target

Antibiotic Prescribing Rate



Numerator

Number of antibiotics
prescribed over a
given time



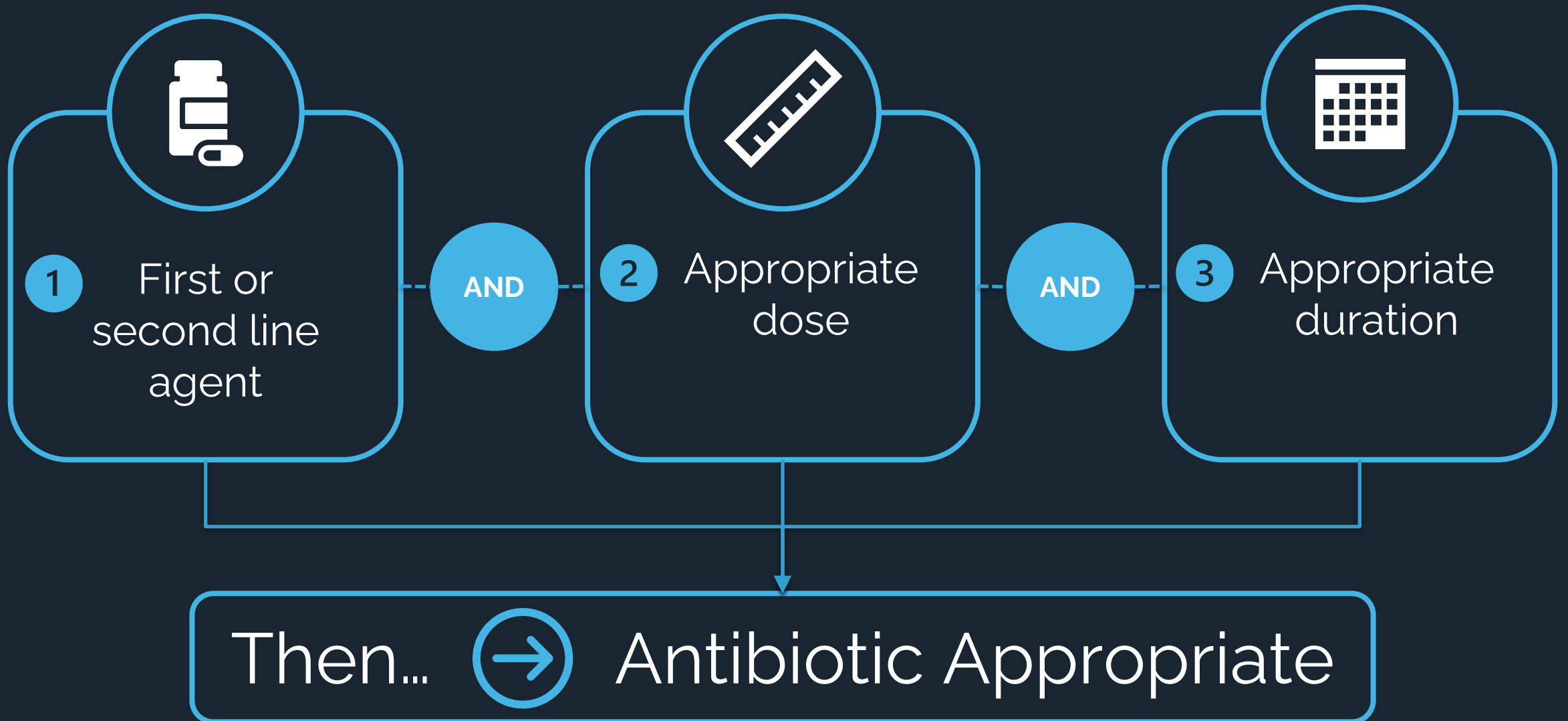
Denominator

- Patient population
or patient years

----- OR -----

- Patient visits

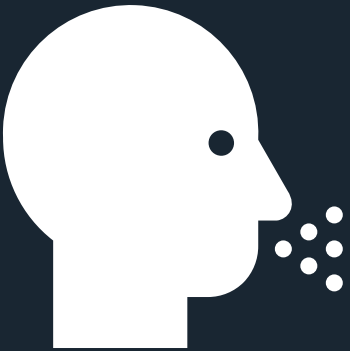
If.....



ARI HEDIS Measure



Includes
patients three
months or older



Diagnosed with
an upper
respiratory
infection



Percentage of visits that
did not result in an
antibiotic dispensing event



1 First or second line agent

- Nitrofurantoin
 - TMP/SMX
-
- Beta-lactams
 - Fosfomycin

AND



2 Appropriate dose

- 100mg BID
 - 160/800mg BID
-
- Variable
 - 3g

AND



3 Appropriate duration

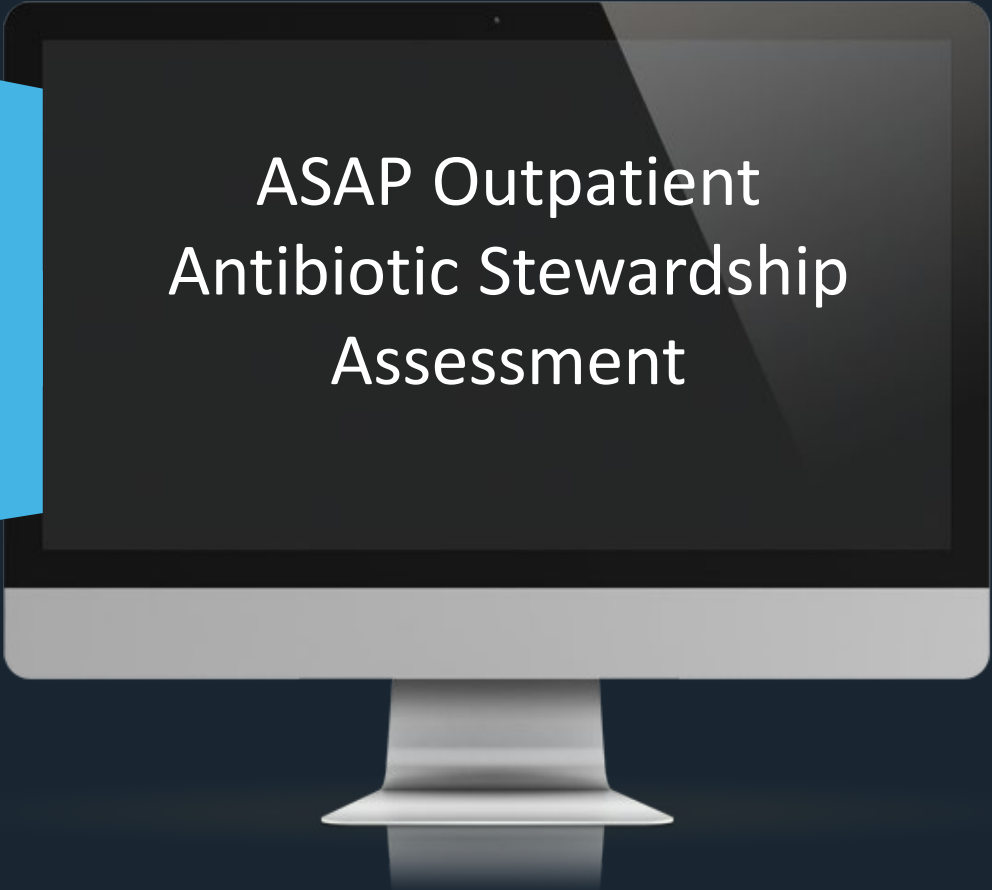
- 5-7 days
 - 3 days
-
- 5-7 days
 - Single dose

Then...



Antibiotic Appropriate

Baseline ASP Assessment for Outpatient
Facilities (nebraskamed.com)
<https://redcap.nebraskamed.com/surveys/?s=ECFXLWJ7Y8AWTWJY>

A stylized illustration of a computer monitor with a dark screen and a light gray base. The screen displays the title of the assessment.

ASAP Outpatient
Antibiotic Stewardship
Assessment

What to Do Monday

A simple starting plan for ambulatory stewardship



Look at your data

Review prescribing patterns or identify how you will access outpatient data



Pick one target

Choose one syndrome, one setting, and one prescribing problem



Choose one tool

Start with one feasible intervention: education, peer comparison, communication training, or CDS



Measure success

Track antibiotic prescribing rate, appropriate antibiotic rate, or syndrome-specific metric



Get help and expand

Use Nebraska ASAP resources, partner with CHARM if needed and build from there

