Ambulatory Antibiotic Stewardship: Targets, Tools, & Metrics

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Disclosures

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

Learning objectives

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

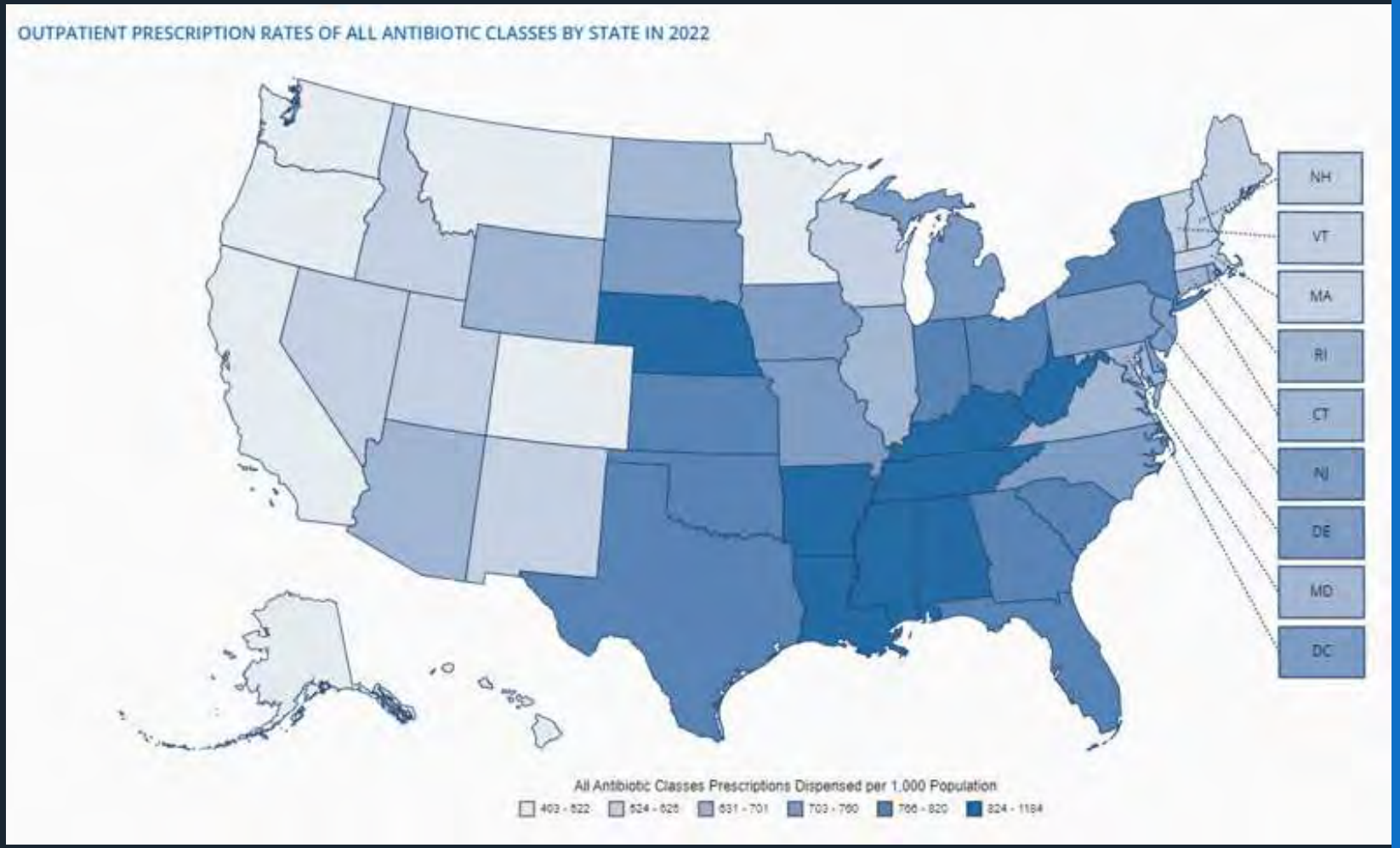
2.8 million antibiotic resistant infections each year

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Antibiotic Resistance Threats in the United States 2019

35,000 deaths from antibiotic resistance per year

↑50%
ESBL-producing Enterobacteriaceae



National: 709 antibiotic prescriptions per 1000 person in 2022

Nebraska: 824 antibiotic prescriptions per 1000 persons in 2022

CDC. 2022

Core elements of outpatient stewardship

Commitment
Demonstrate dedication to and accountability for optimizing antibiotic prescribing and patient safety.

Action for policy and practice
Implement at least one policy or practice to improve antibiotic prescribing, assess whether it is working, and modify as needed.

Tracking and reporting
Monitor antibiotic prescribing practices and offer regular feedback to clinicians, or have clinicians assess their own antibiotic prescribing practices themselves.

Education and expertise
Provide educational resources to clinicians and patients on antibiotic prescribing, and ensure access to needed expertise on optimizing antibiotic prescribing.

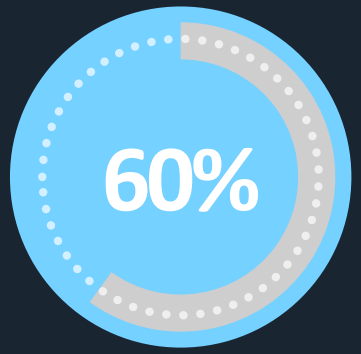
Infectious Syndrome

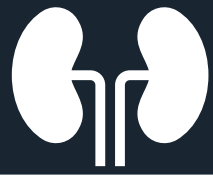
Care Setting

Clinician

Rates of suboptimal antibiotics

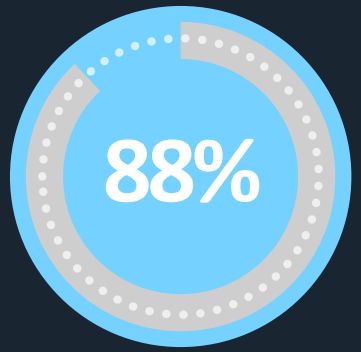
Overall antibiotic prescriptions





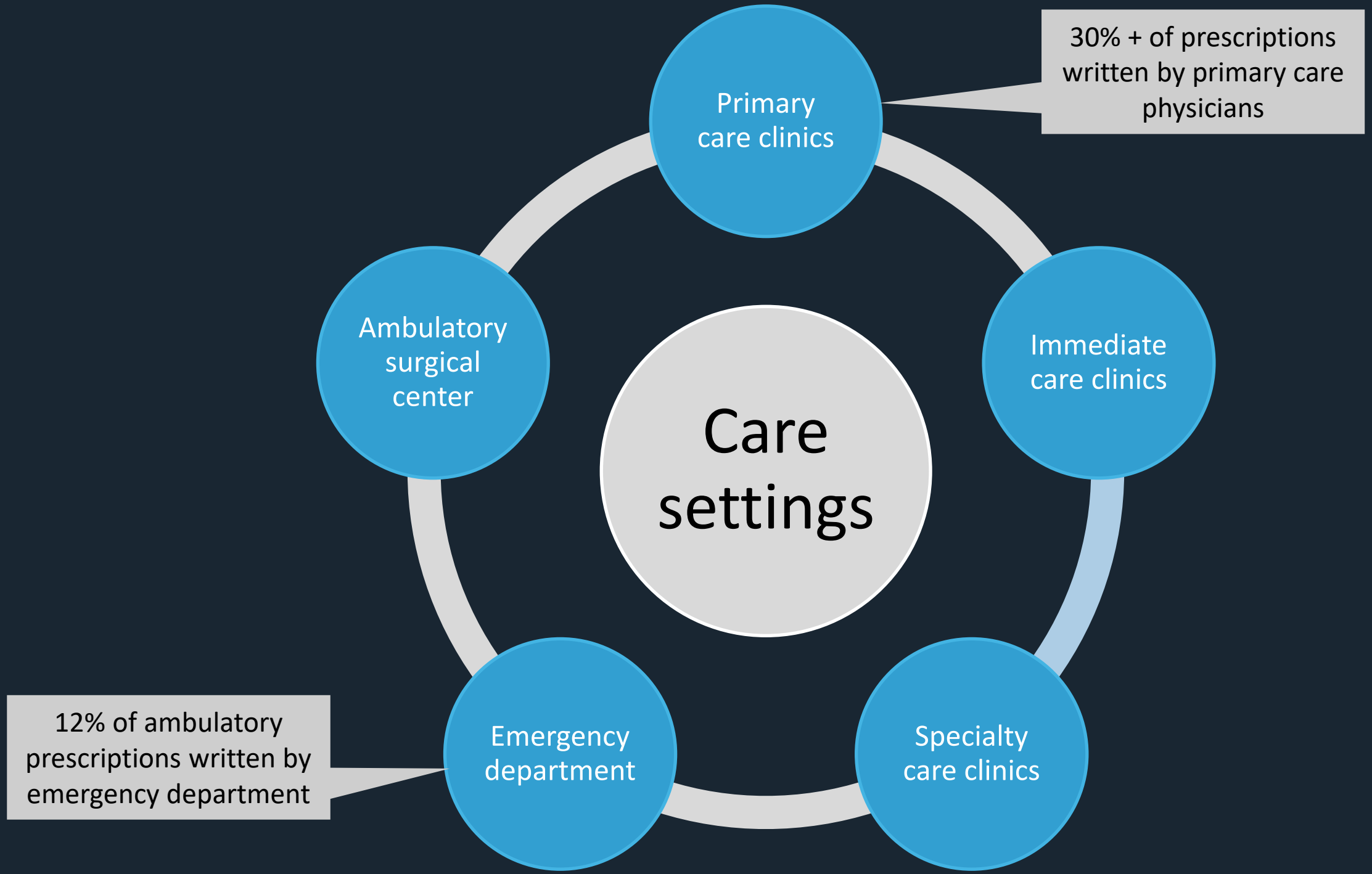
Urinary tract infections

Upper respiratory infections



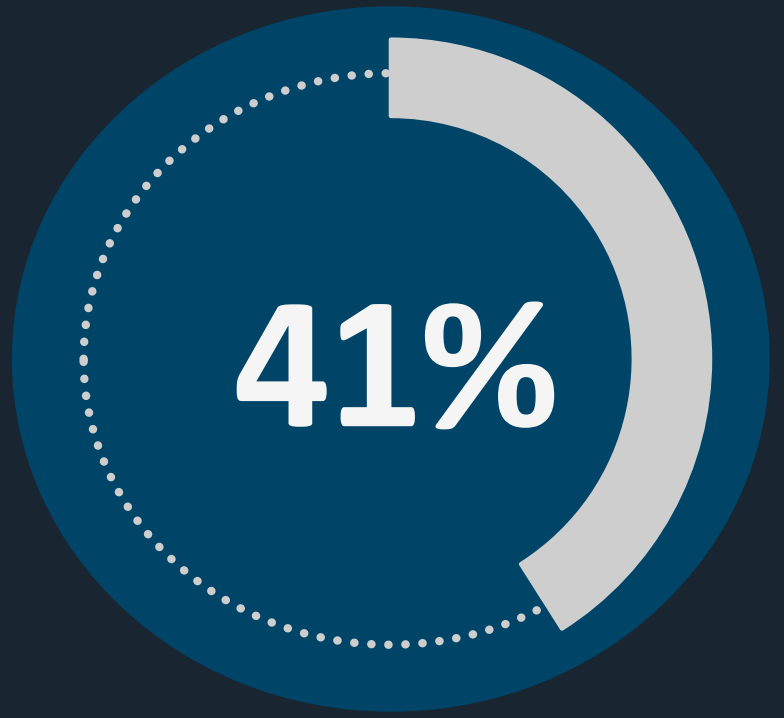
Skin and soft tissue infections

Nathan R. Shively et al. Antimicrob. Agents Chemother. 2018; doi:10.1128/AAC.00337-18


Primary care clinics
30% + of prescriptions written by primary care physicians
Immediate care clinics
Specialty care clinics
Emergency department
12% of ambulatory prescriptions written by emergency department
Ambulatory surgical center
Care settings

CDC. 2022

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

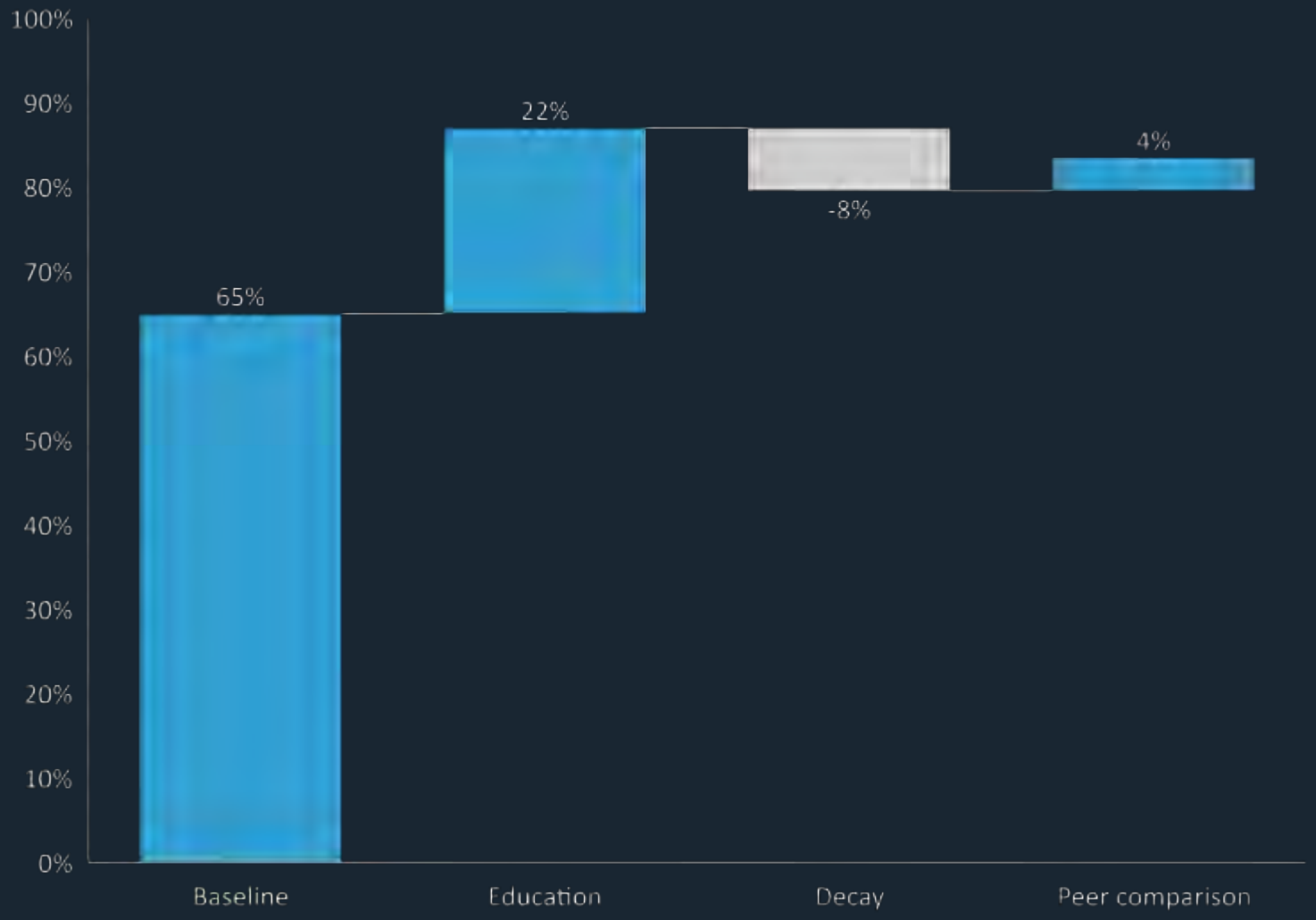


Gouin, K. et al. MMWR Morb Mortal Wkly Rep. 2022 10.15585/mmwr.mm7106a3

Education & training

Behavioral interventions

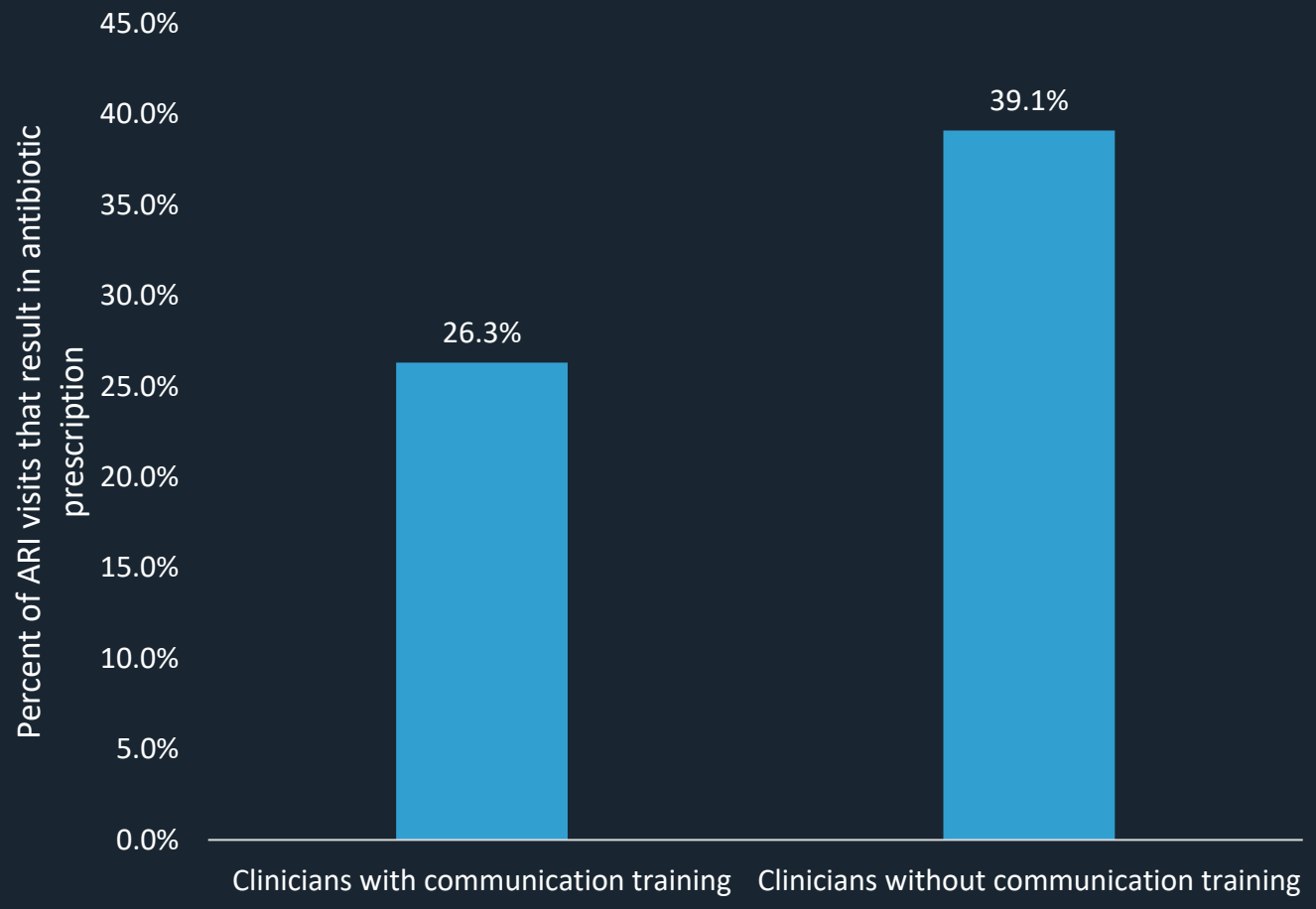
Clinical decision support



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

Funaro, J. R., et al. Open Forum Infect Dis. 2022. 10.1093/ofid/ofab214

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



Cals, J. W. et al. Ann Fam Med. 2013. 10.1370/afm.1477
Cals, J. W. et al. Patient Educ Couns. 2007. 10.1016/j.pec.2007.06.014

Provide a clear diagnosis

Negative treatment recommendations

Positive treatment recommendations

Set expectations

Provide a contingency plan

Mangione-Smith R, et al. Patient Educ Couns. 2022. 10.1016/j.pec.2022.03.011
Mangione-Smith R, et al. Arch Pediatr Adolesc Med. 2001. 10.1001/archpedi.155.7.800

16% higher satisfaction with both positive and negative treatment recommendation

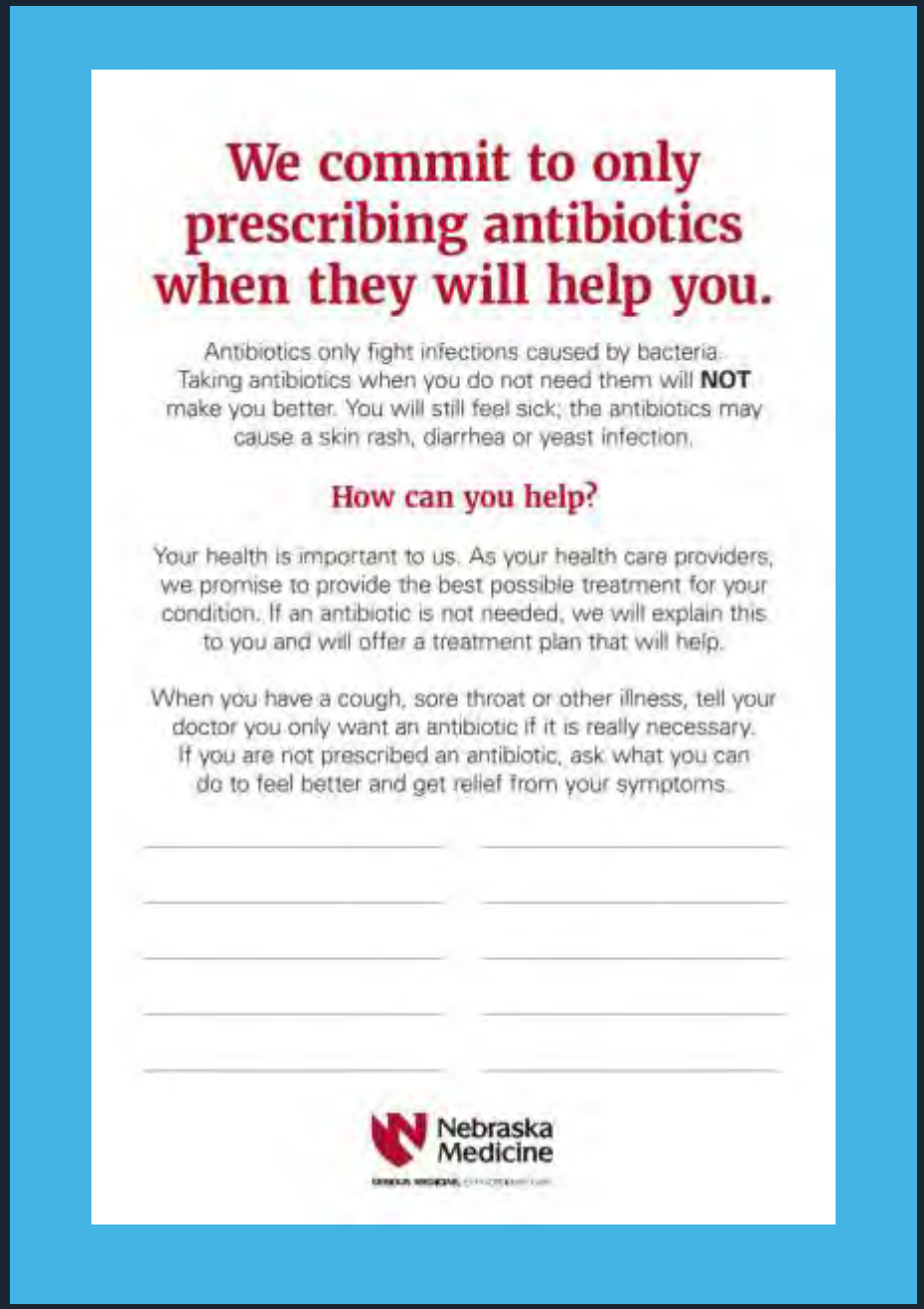
Mangione-Smith R et al. Ann Fam Med. 2015. 10.1370/afm.1785

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

Higher satisfaction with a contingency plan even if patient expects antibiotics

Mangione-Smith R, et al. Arch Pediatr Adolesc Med. 2001. 10.1001/archpedi.155.7.800

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.

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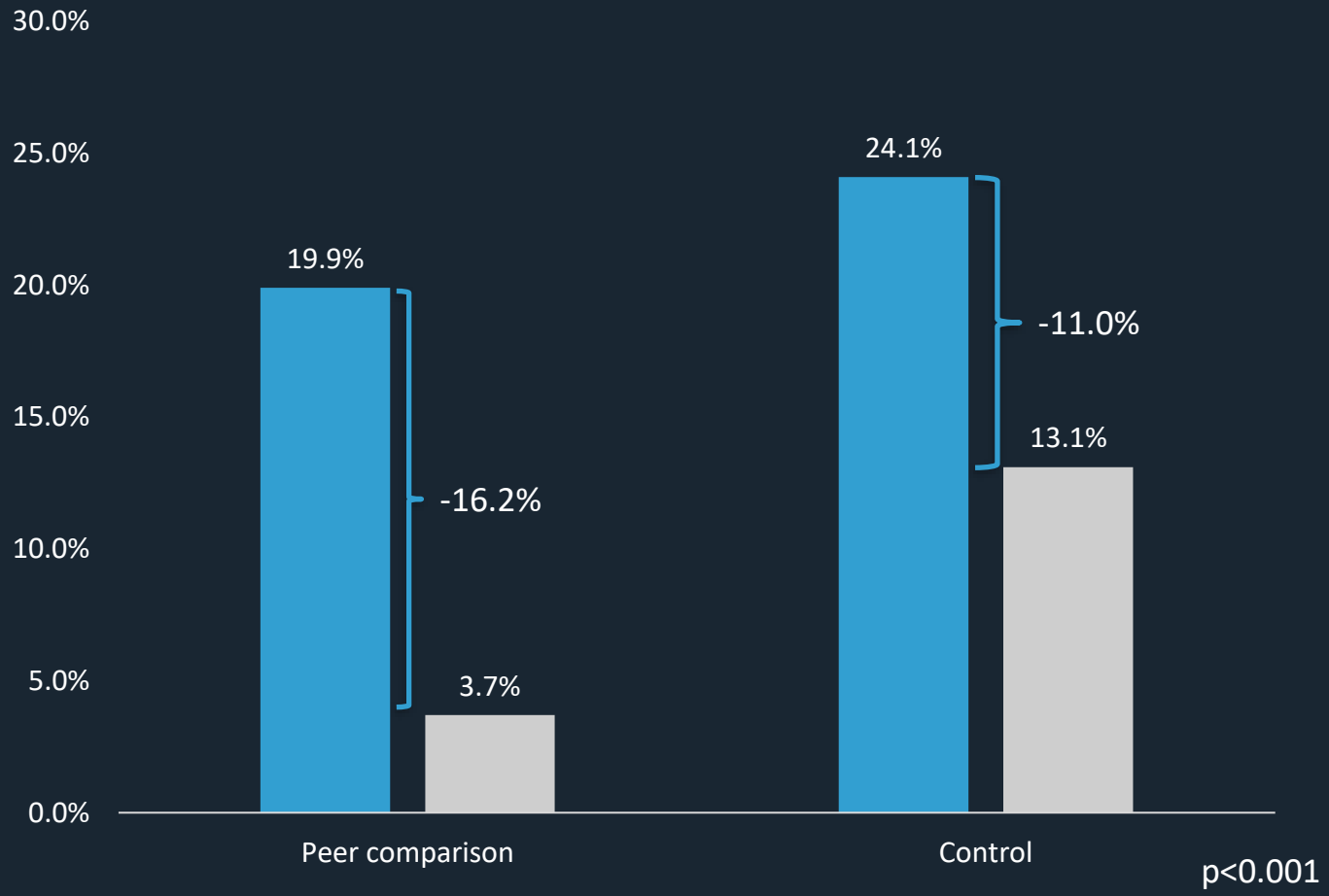
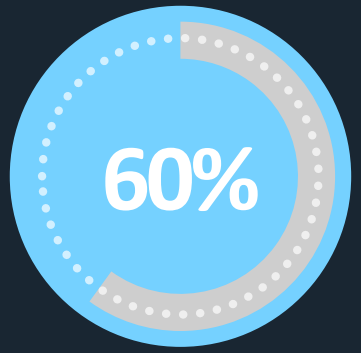
Meeker, D. et al. JAMA Intern Med. 2014. 10.1001/jamainternmed.2013.14191

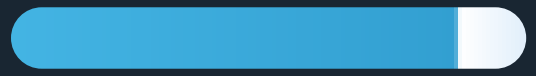


16.2% reduction in antibiotics for acute respiratory infection after introduction of peer comparison

Meeker, D. et al. JAMA. 2016. 10.1001/jama.2016.0275



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.

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

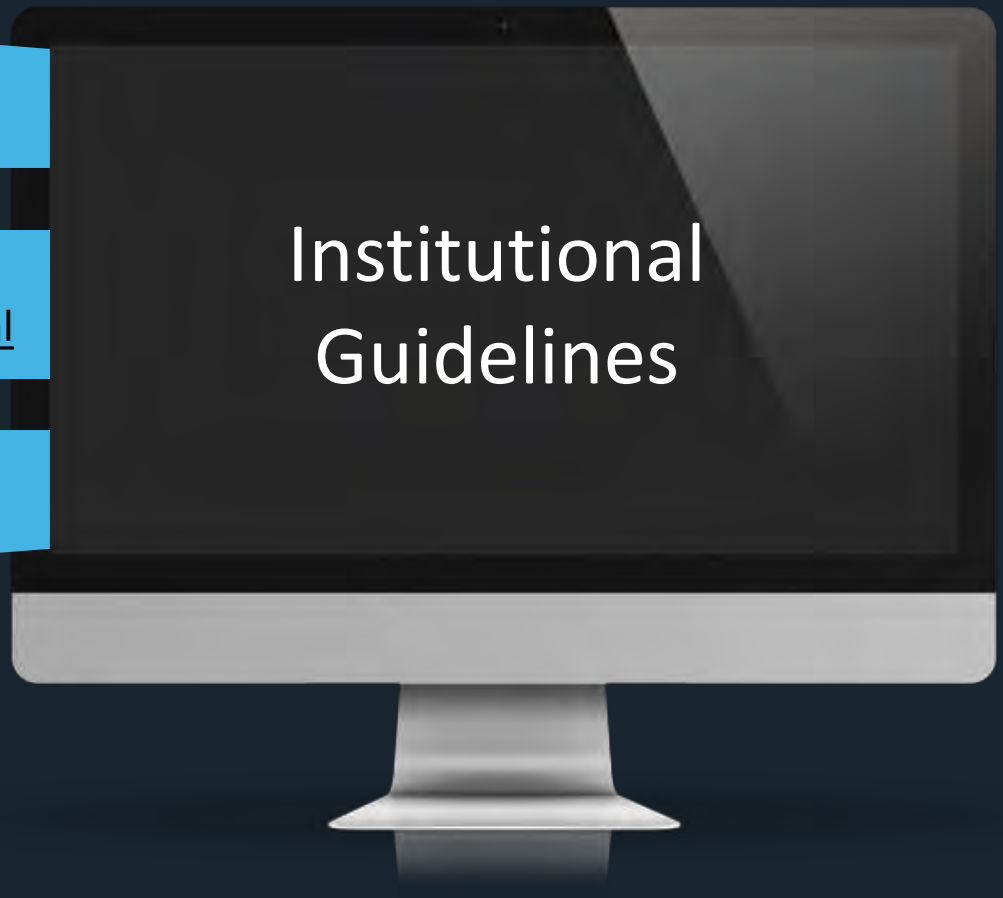
- Recontact for prescription: 37%
- Post-dated prescription: 37%
- Collection: 33%
- Patient led: 39%

Little, P. et al. BMJ. 2014. 10.1136/bmj.g1606

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

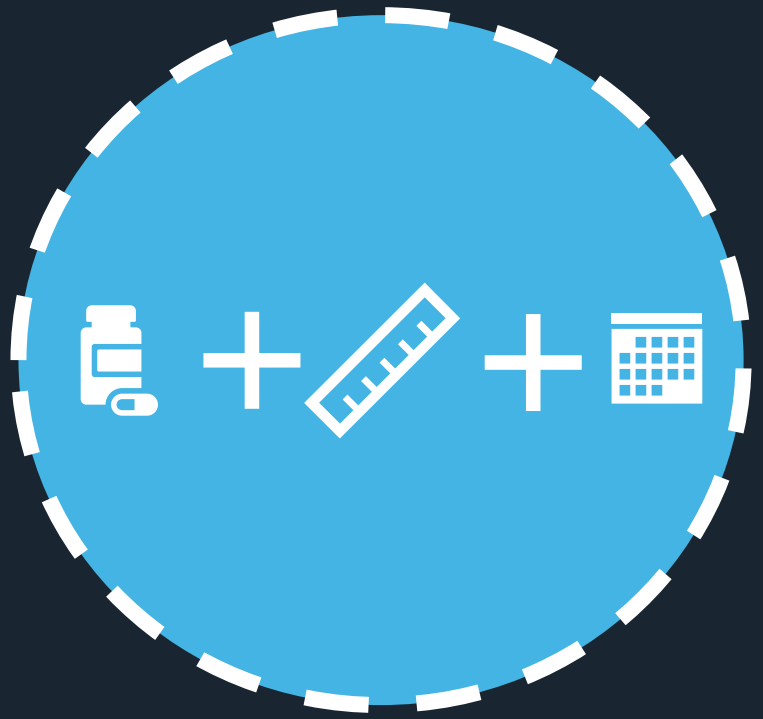
AHRQ Ambulatory Antibiotic Toolkit
https://www.ahrq.gov/antibiotic-use/ambulatory-care/index.html



"Make the right thing easy and the wrong thing hard"

- Require indication for antibiotics
- Order sets
- Justification alerts
- Default EMR settings

Antibiotic Prescribing Rate



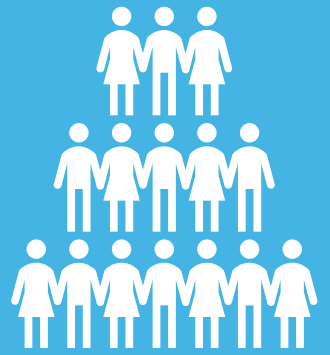
Appropriate Antibiotic Rate

Infection specific metrics

Antibiotic Prescribing Rate

Numerator

Number of antibiotics prescribed over a given time



Denominator

- Patient population or patient years
- Patient visits

If…..

First or Second Line Antibiotic*

AND

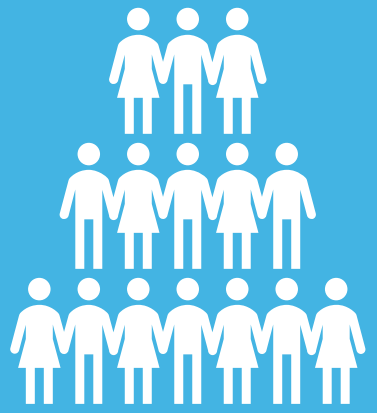
Appropriate dose

AND

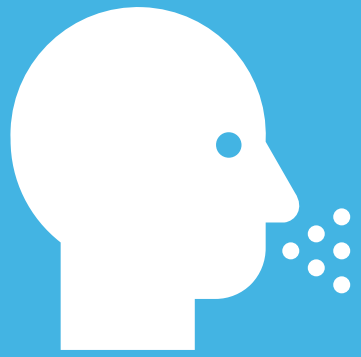
Appropriate duration

Then… Antibiotic Appropriate

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

If.....

First or Second Line Antibiotic*

- Nitrofurantoin
- Trimethoprim/ sulfamethoxazole

- Beta-lactams
- Fosfomycin

AND

Appropriate dose

- 100mg BID
- 160/800mg BID

- Variable
- 3g x single dose

AND

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)