Quality INNOVATION SERIES

What's New in the World of Antibiotic Stewardship? Part 2: Impacts of COVID and Use of Telehealth

Sharon Tsay, MD

August 25, 2022

Support for this project was provided by
The Pew Charitable Trusts

The views expressed are those of the author(s) and do not necessarily reflect the views of The Pew Charitable Trusts.

Quality INNOVATION SERIES

Planning Committee Disclosures

Sharon Tsay, MD, has no financial relationships to disclose relating to the subject matter of this presentation.

Sepheen Byron, DrPH, MHS, received a grant from the Centers for Disease Control and Prevention for reevaluation of the HEDIS antibiotic measures.

Nancy McGee, MS, MBA, has no financial relationships to disclose relating to the subject matter of this presentation.

Kara Martin, MPH, has no financial relationships to disclose relating to the subject matter of this presentation.

Tracelyn Thigpen, MSN, RN, PCMH CCE, has no financial relationships to disclose relating to the subject matter of this presentation.

Tammy Cox, PharmD, BCACP, CPP, has no financial relationships to disclose relating to the subject matter of this presentation.

Crissy Crittenden, MSA, PCMH CCE, has no financial relationships to disclose relating to the subject matter of this presentation.

Quality INNOVATION SERIES

#QISeries

Faculty

Sharon Tsay, MD
Medical Officer
Office of Antibiotic Stewardship
Centers for Disease Control and Prevention

Quality INNOVATION SERIES

#QISeries

Objectives

- Assess current trends in outpatient antibiotic use in the United States before and during the COVID-19 pandemic
- Discuss changes in healthcare delivery related to the COVID-19 pandemic and its affect on antibiotic prescribing
- Identify resources available to get started with antibiotic stewardship

The Threat of Antibiotic Resistance in the United States

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

New National Estimate*

Antibiotic-resistant bacteria and fungi cause at least an estimated:

2,868,700 infections

35,900 deaths

+

***Clostridiodes difficile* is related to antibiotic use and antibiotic resistance: ***

223,900 cases

12,800 deaths

New Threats List

Updated urgent, serious, and concerning threats—totaling 18

5 urgent threats

2 new threats

NEW:
Watch List with **3** threats

Antibiotic resistance remains a significant One Health problem, affecting humans, animals, and the environment.

* *C. diff* cases from hospitalized patients in 2017

www.cdc.gov/DrugResistance/Biggest-Threats

Five core strategies to combat the threat of antibiotic resistant infections

Infection prevention and control: Prevent infections and reduce the spread of germs

Tracking and data: Share data and improve data collection

Antibiotic use and access: Improve appropriate use of antibiotics, reduce unnecessary use (called antibiotic stewardship), and ensure improved access to antibiotics

Vaccines, therapeutics, and diagnostics: Invest in development and improved access to vaccines, therapeutics, and diagnostics for better prevention, treatment, and detection

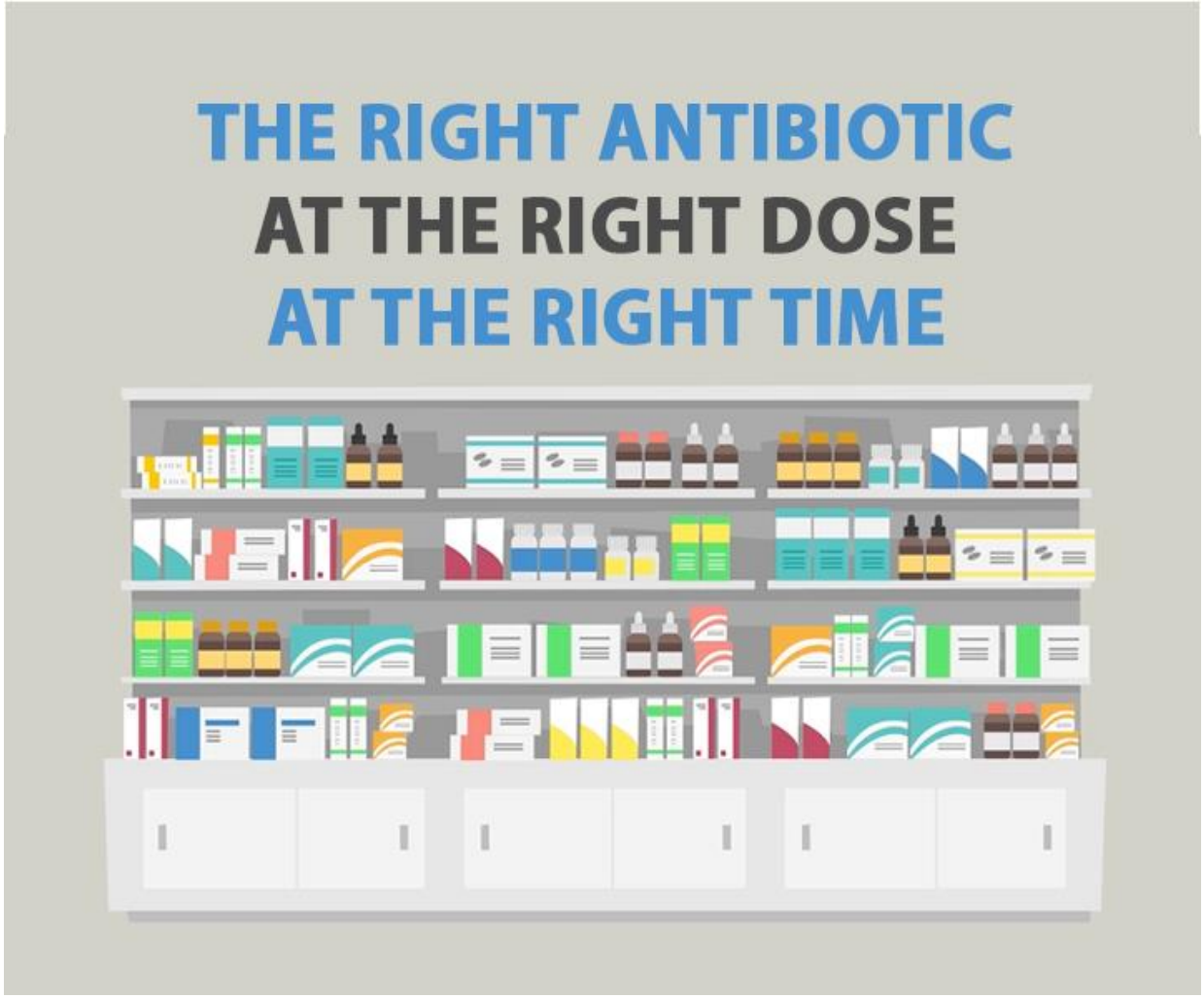
Environment and sanitation: Keep antibiotics and antibiotic-resistant threats from entering the environment through actions like improving sanitation and improving access to safe water

Antibiotic use and access:

- Improve **appropriate** use
- Reduce **unnecessary** use
- Ensure **improved access**

https://www.cdc.gov/drugresistance/pdf/threats-report/2019-ar-threats-report-508.pdf

Antibiotic stewardship is about patient safety and delivering high-quality healthcare



Antibiotics can lead to adverse events and other complications

FOR HEALTHCARE PROFESSIONALS

Antibiotics and Adverse Events

BE ANTIBIOTICS AWARE

SMART USE, BEST CARE

Antibiotics are responsible for almost **1 out of 5** emergency department visits for adverse drug events.[1]

Antibiotics are **the most common cause** of emergency department visits for adverse drug events in children under 18 years of age.[1]

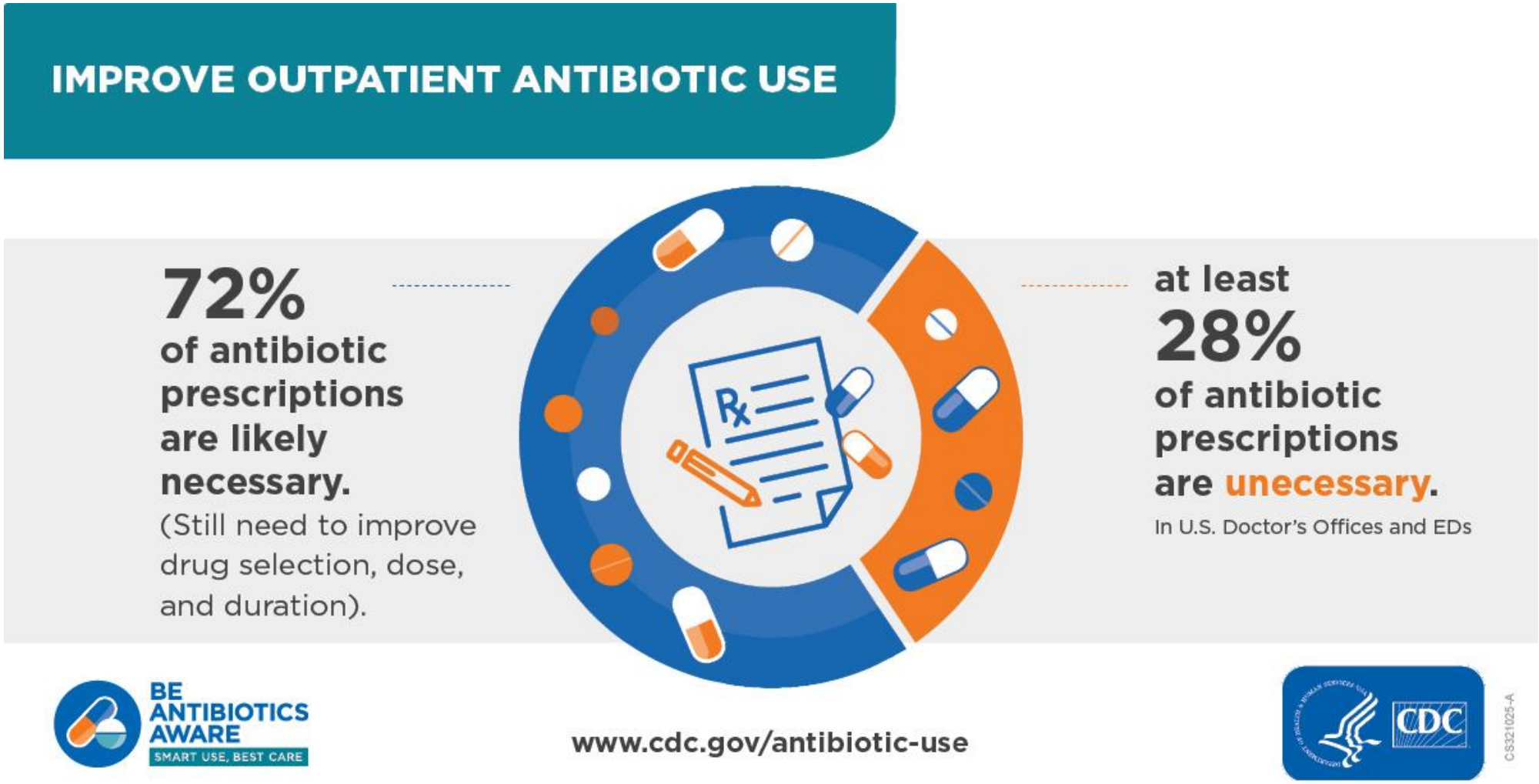
Anytime antibiotics are prescribed, they can cause adverse events. Only prescribe antibiotics when clinically indicated.

To learn more about antibiotic prescribing and use, visit **www.cdc.gov/antibiotic-use.**

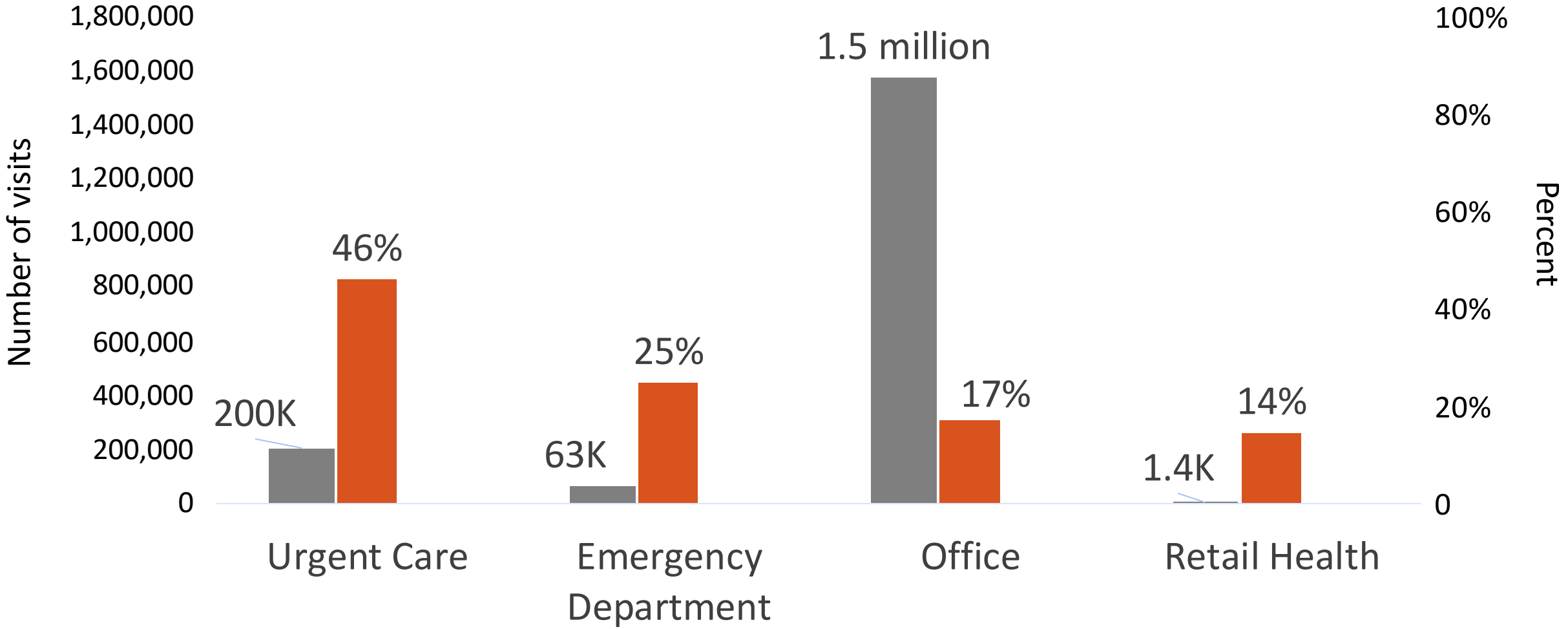
[1]Shehab N, et al. JAMA. 2016 Nov;316(20):2115-25

CS324608-A

There is room for improvement in outpatient antibiotic use



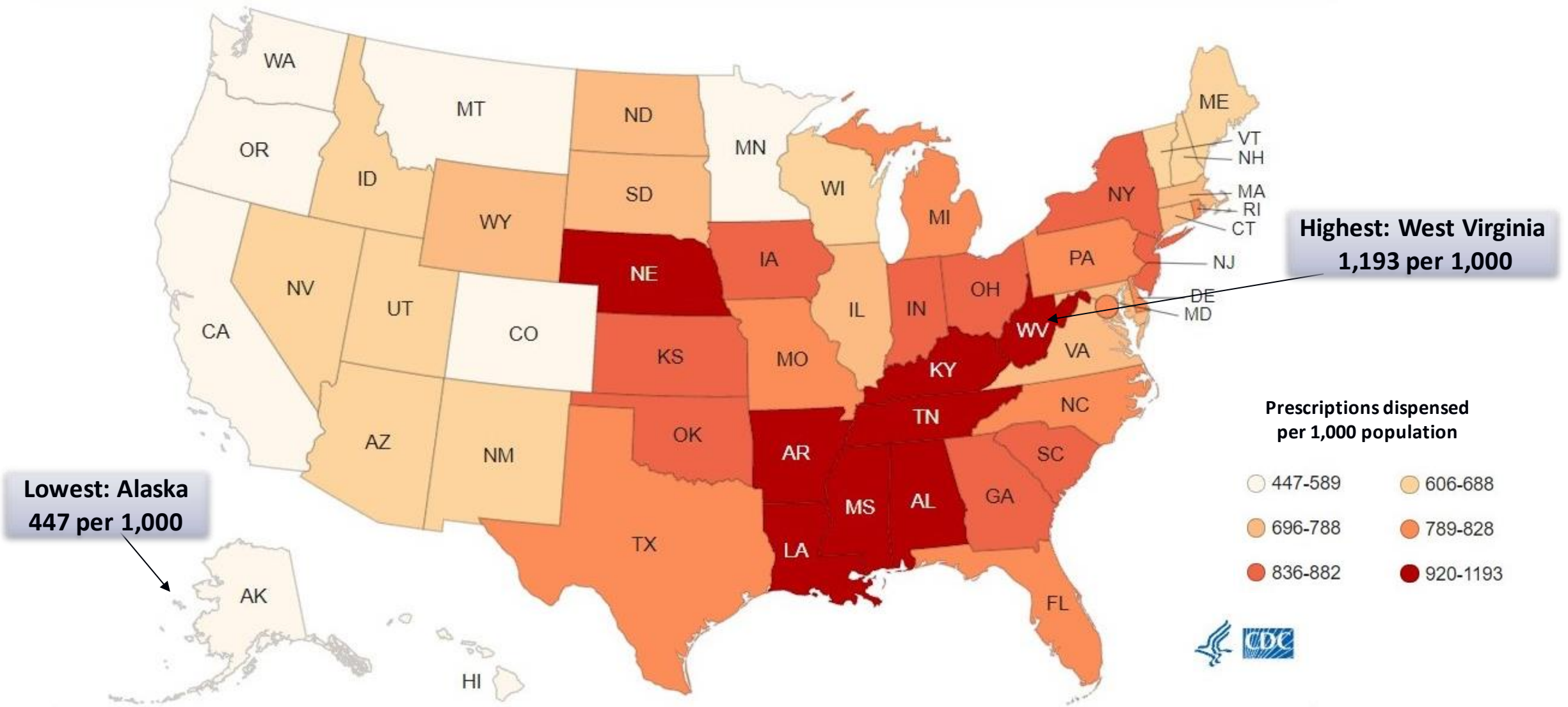
Antibiotic prescribing for viral respiratory infections is common across outpatient settings



Palms DL, Hicks LA, Bartoces M et al. 2018. *JAMA Intern Med* 178(9):1267-1269.

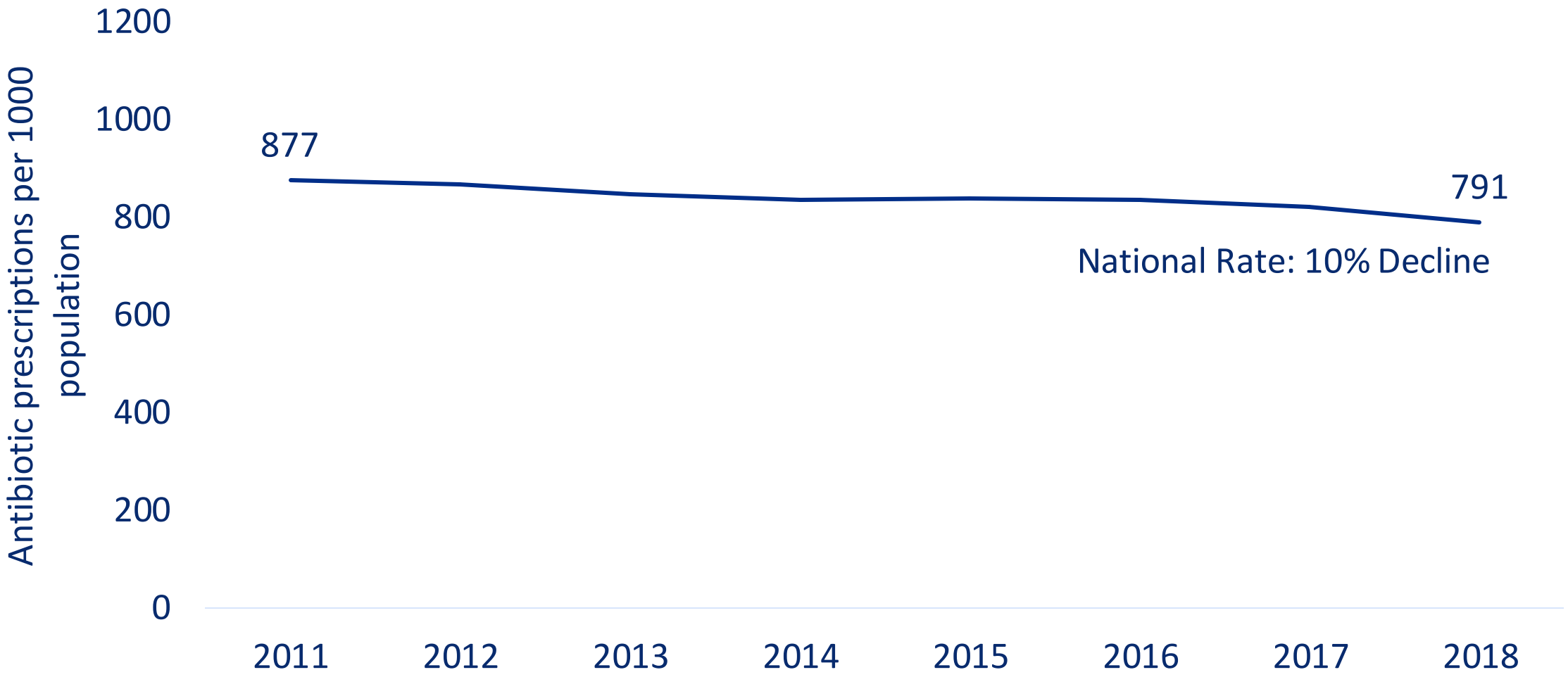
Current trends in outpatient antibiotic use in the United States

Antibiotic prescribing differs geographically across the United States



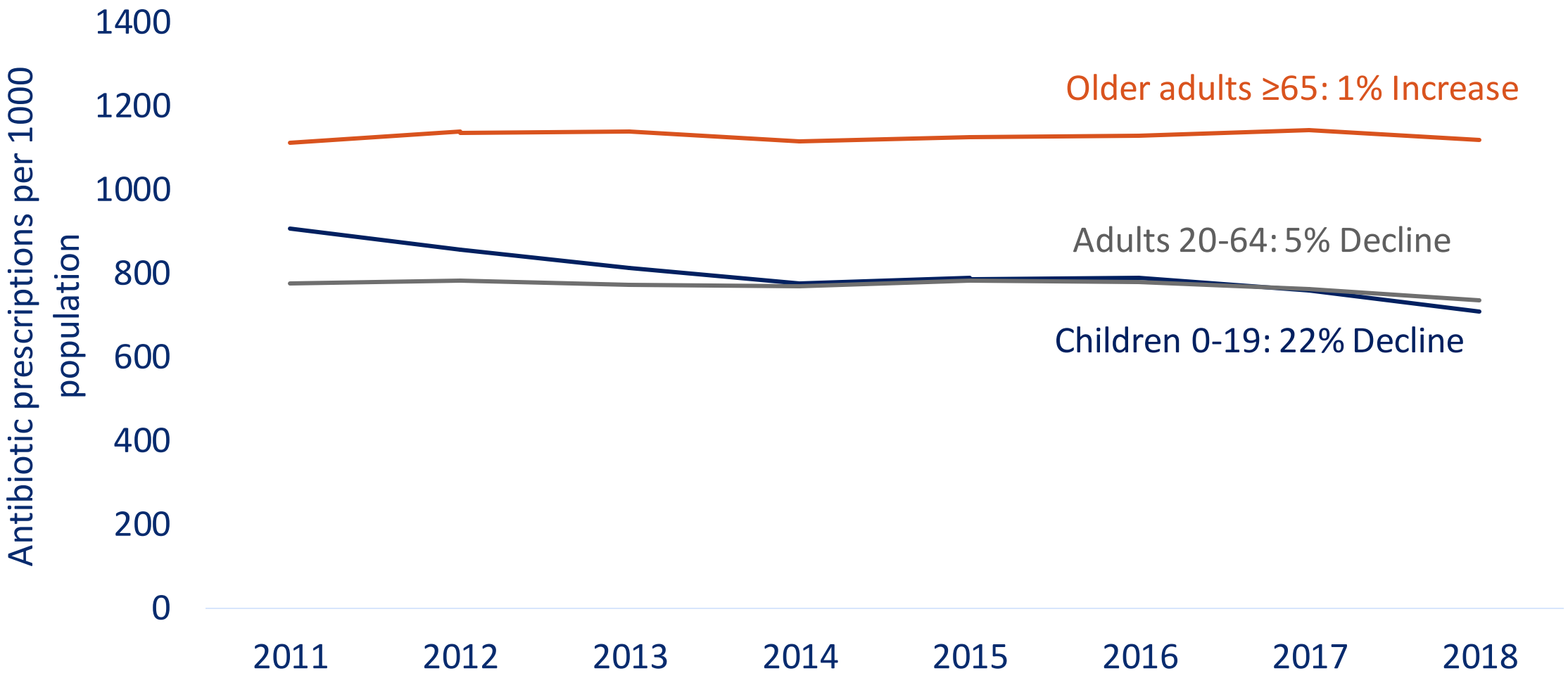
Data: IQVIA Xponent (2019)

National outpatient antibiotic prescribing rates have declined by 10% since 2011



Data: IQVIA Xponent

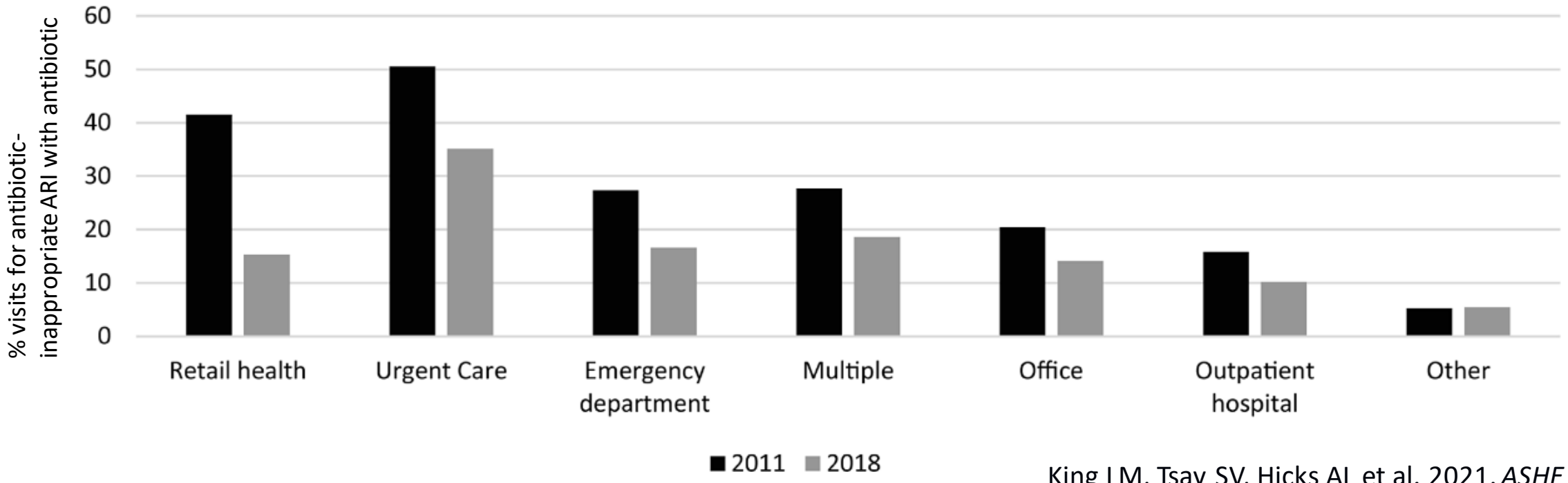
The improvement has been mostly driven by reductions in children



Data: IQVIA Xponent

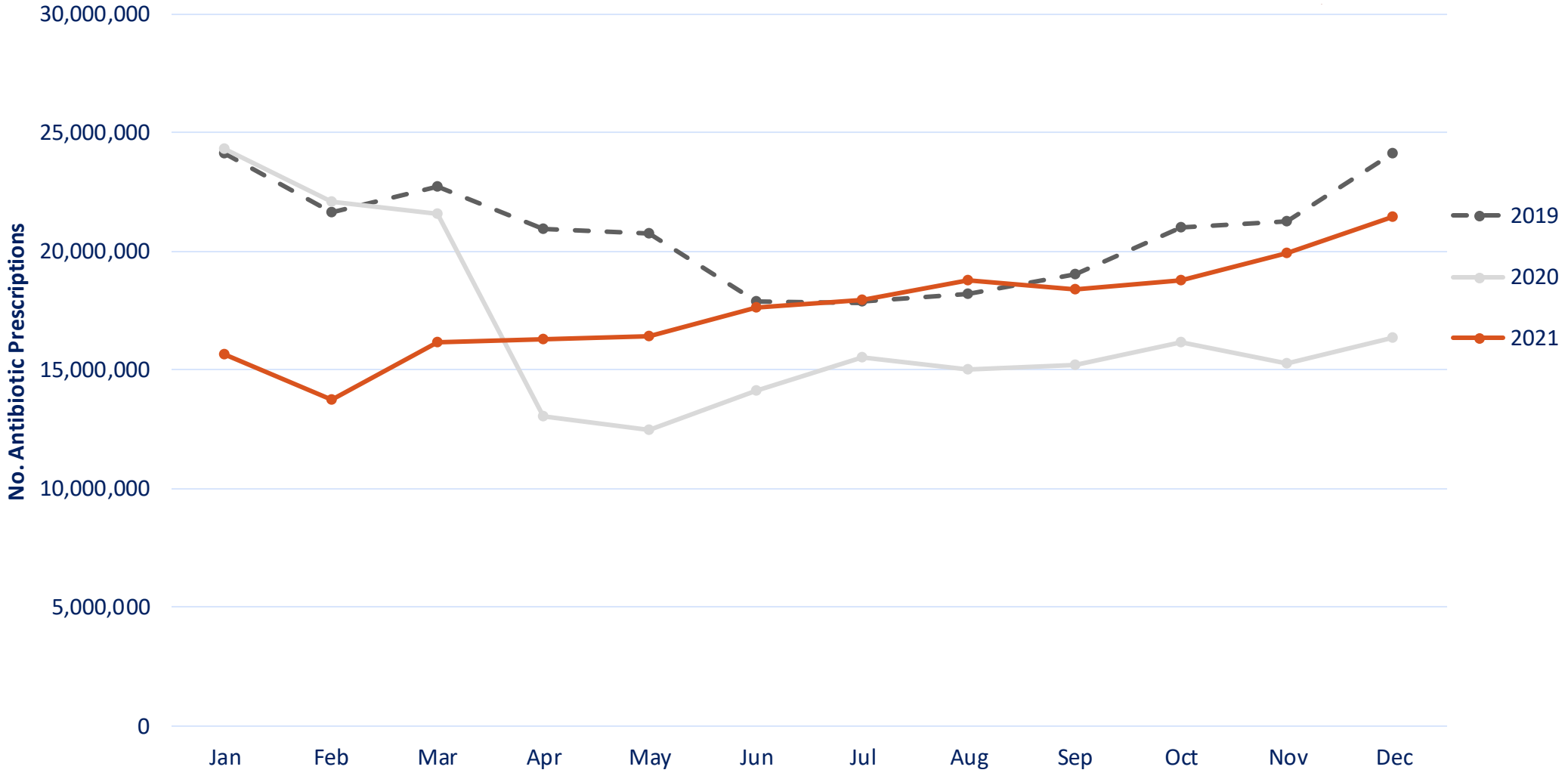
Antibiotic prescribing for acute respiratory infections has decreased

- From 2011 to 2018, among commercially-insured individuals ≤65 years,
  - Visits for **any ARI** decreased by 8%; those resulting in an antibiotic prescription decreased 16%
  - Visits for **viral ARIs** decreased by 9%, those resulting in an antibiotic prescription decreased 32%
  - Decreases were seen **across outpatient settings**



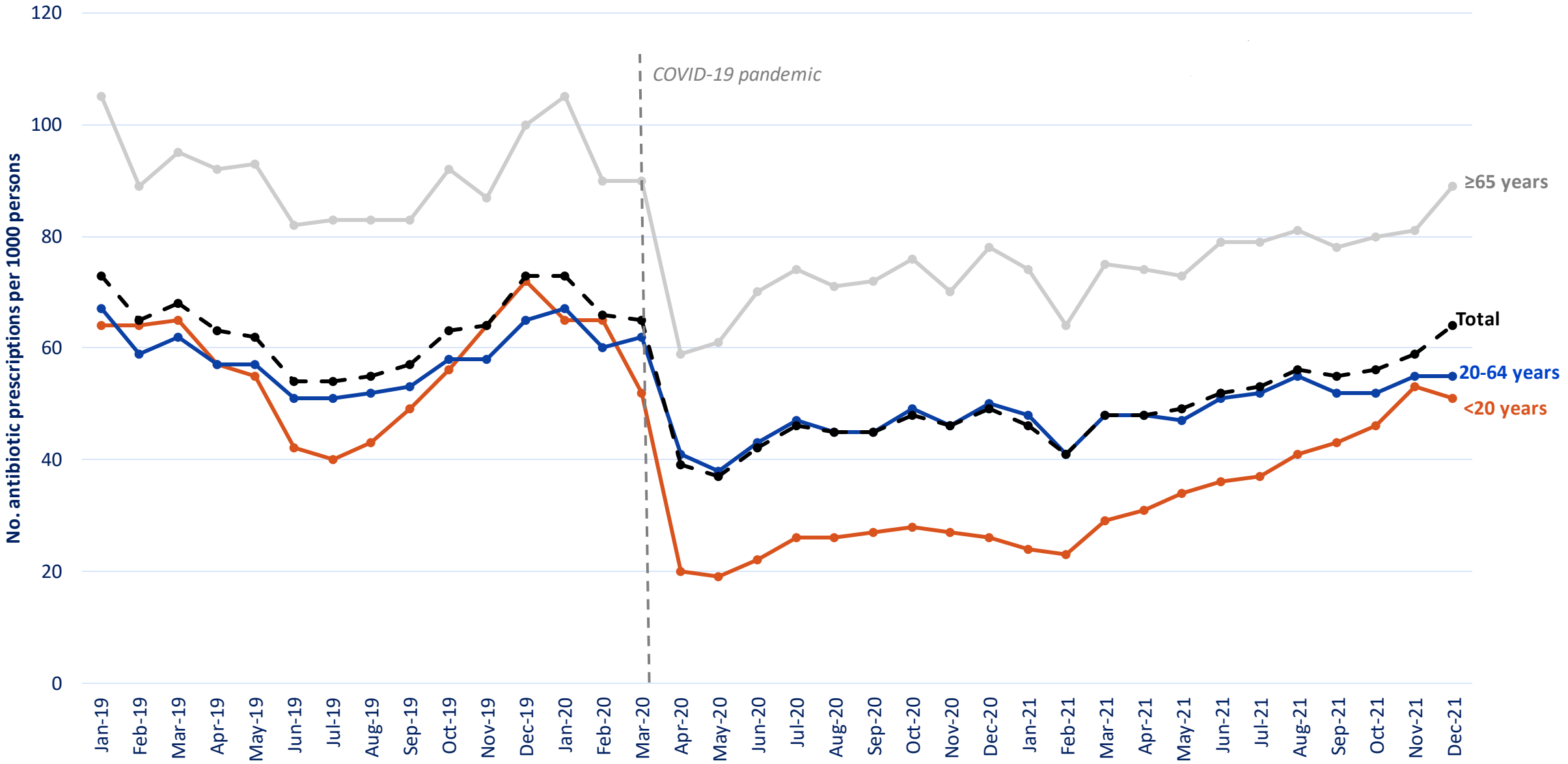
King LM, Tsay SV, Hicks AL et al. 2021. *ASHE 1*(1). E66.

National monthly outpatient antibiotic prescriptions: 2019-2021



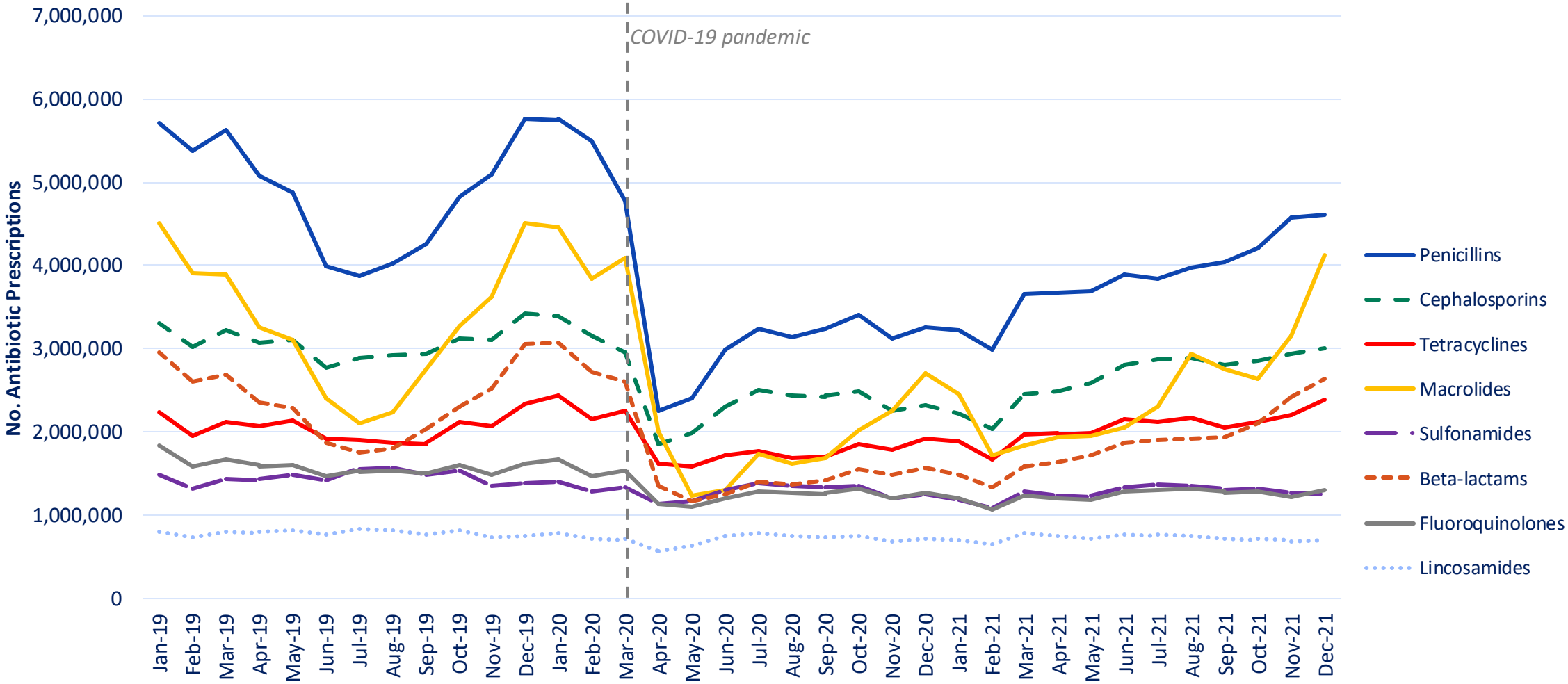
Data: IQVIA National Prescription Audit

National monthly antibiotic prescriptions by age group



Data: IQVIA National Prescription Audit

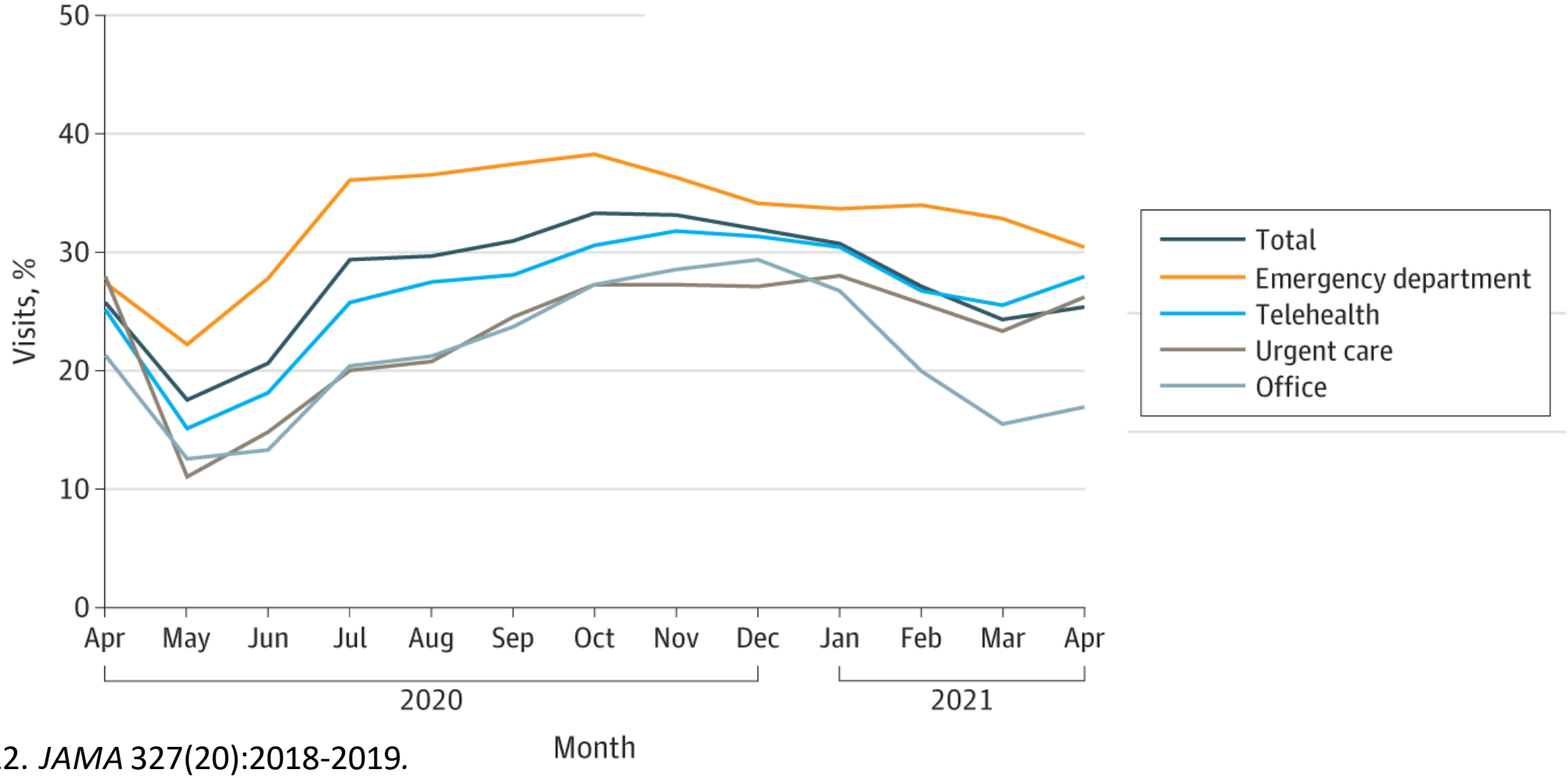
National monthly antibiotic prescription by antibiotic class



"Other" class not displayed

Data: IQVIA National Prescription Audit

Antibiotic prescribing to older adults with COVID-19 was common across outpatient settings

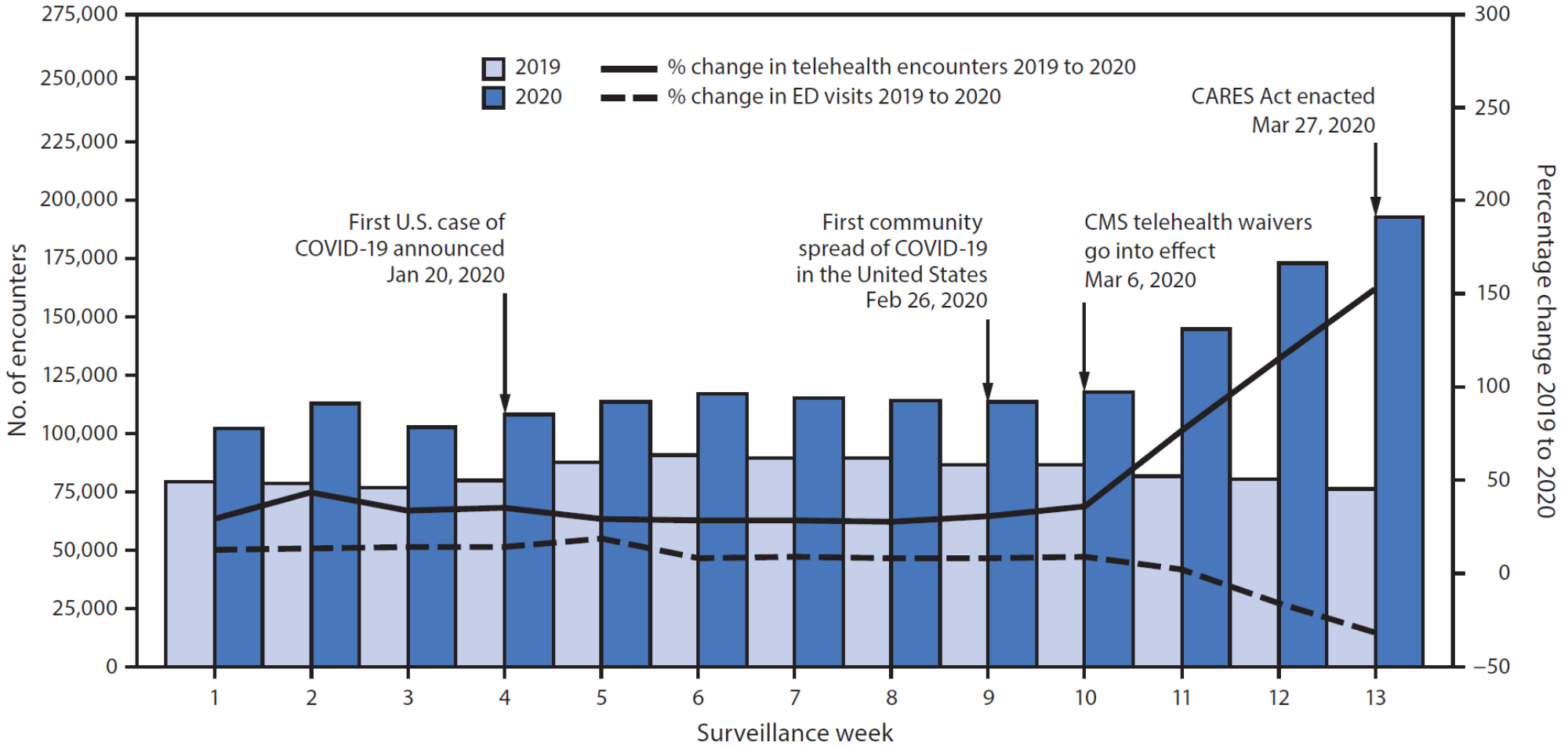


Tsay et al. 2022. *JAMA* 327(20):2018-2019.

The Changing Landscape of Outpatient Healthcare: Expansion of Telemedicine in 2020

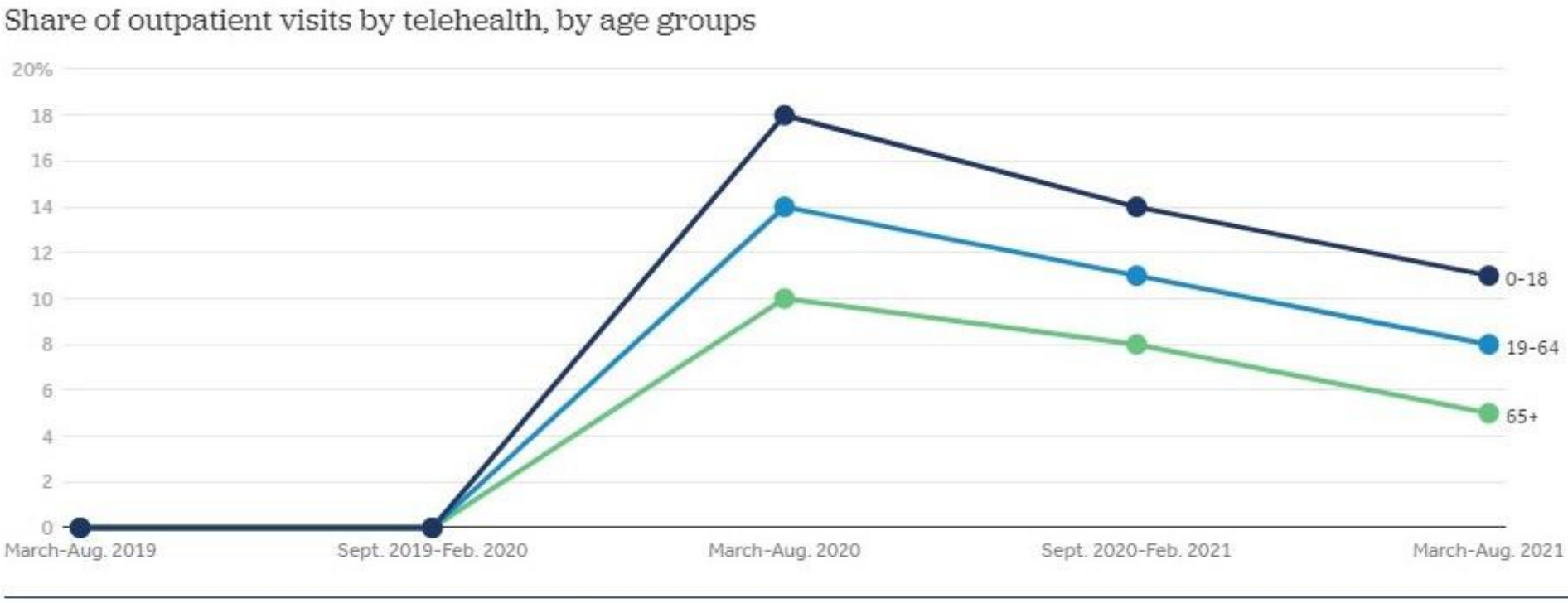
Rapid increase in telehealth visits during March 2020

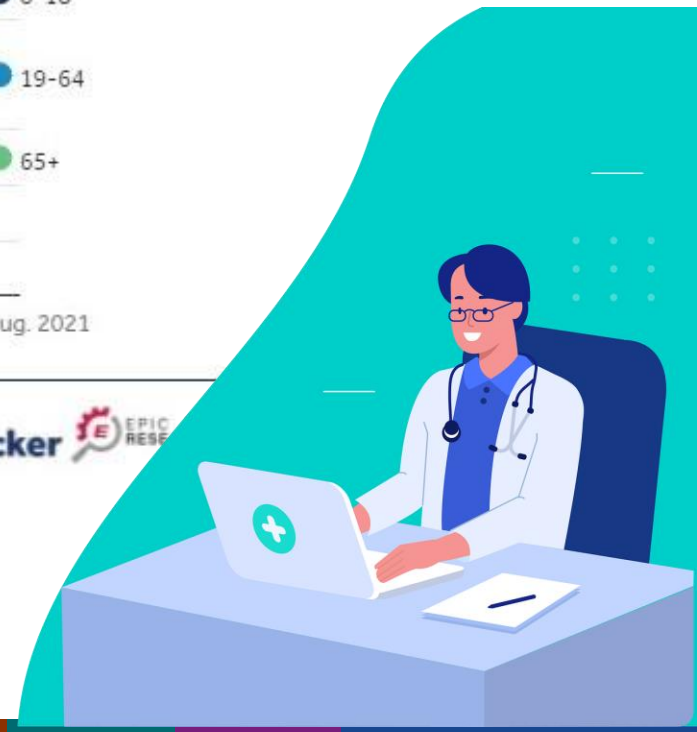
FIGURE 1. Number of telehealth patient encounters reported by four telehealth providers that offer services in all states and percentage change in telehealth encounters and emergency department (ED) visits — United States, January 1–March 30, 2019 (comparison period) and January 1–March 28, 2020 (early pandemic period)*



Koonin et al. October 2020 *MMWR* 69(43):1595-1599.

Telehealth now accounts for 8% of outpatient visits





Telemedicine offers unique opportunities and challenges related to treating common infections

- **Increased access** to care
- **Flexibility** in delivery modality (video, phone, asynchronous messaging)
- Opportunity for time-of-prescribing **clinical decision support** in electronic format
- **Equity** considerations related to technology
- Less opportunities for **physical exam or laboratory testing**
- **Patient expectations**, particularly related to telemedicine platforms where antibiotics have been advertised

Antibiotic prescribing to children for acute respiratory infections differed by outpatient setting

Antibiotic prescribing in visits for ARI:

-52% of Telemedicine visits

-42% of Urgent care visits

-31% of Primary care visits

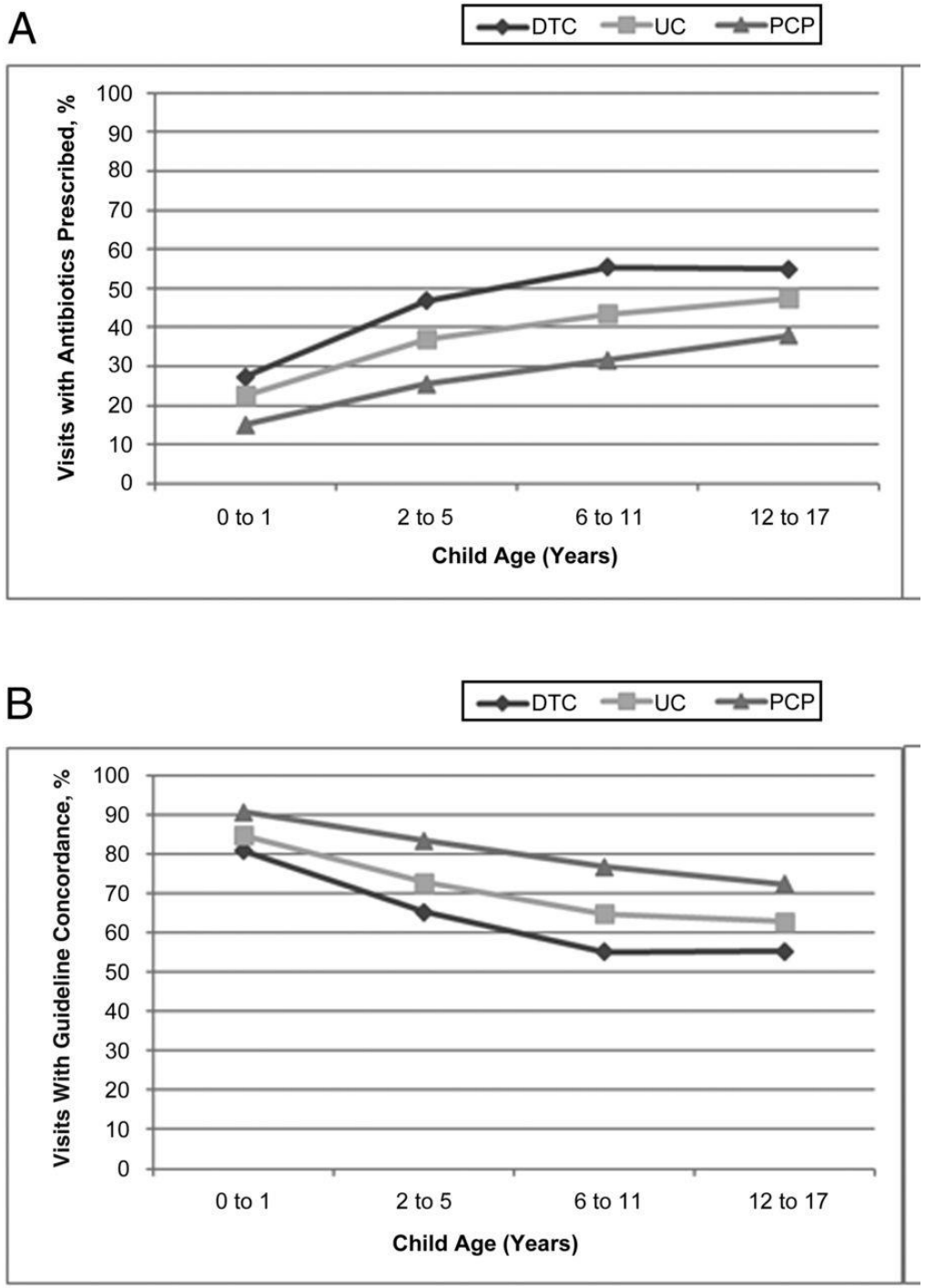
Guideline-concordant antibiotics for ARI:

-59% of Telemedicine visits

-67% of Urgent care visits

-78% Primary care visits

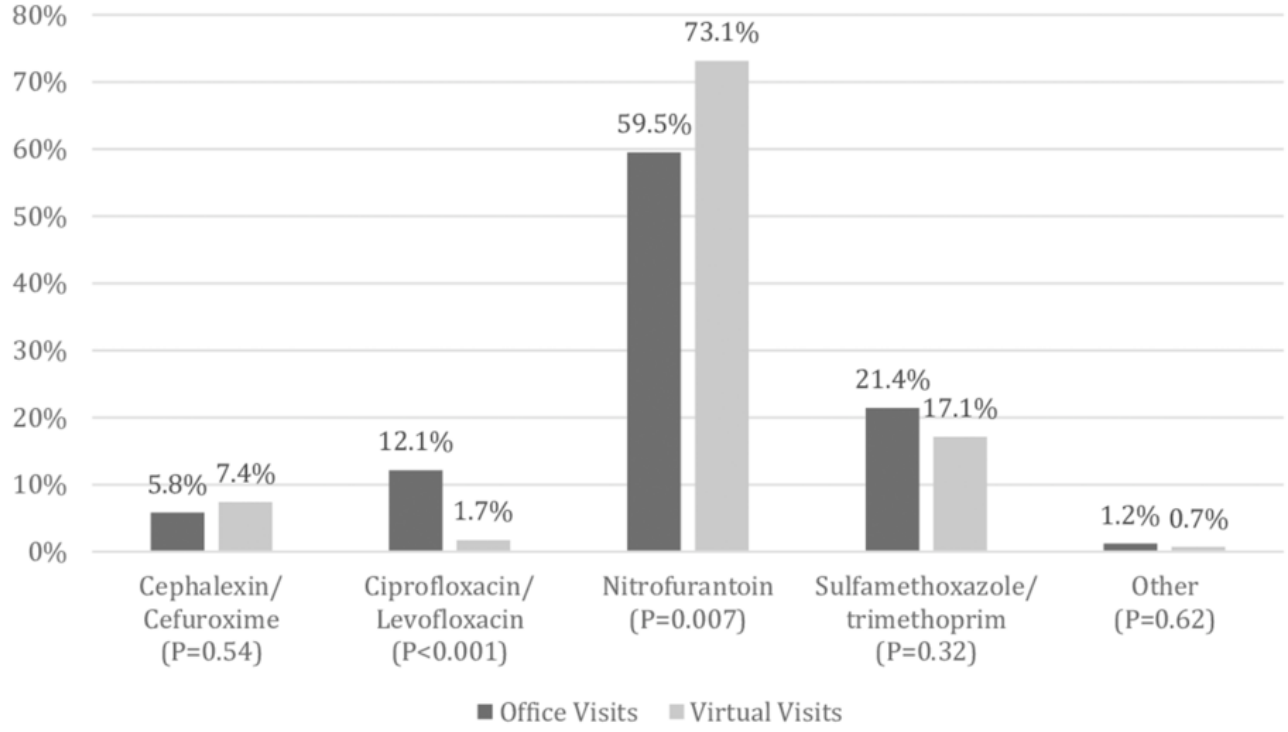
Ray et al. 2019. *Pediatrics* 143(5):e20182491.



Antibiotic prescribing to women with uncomplicated urinary tract infections differed by setting

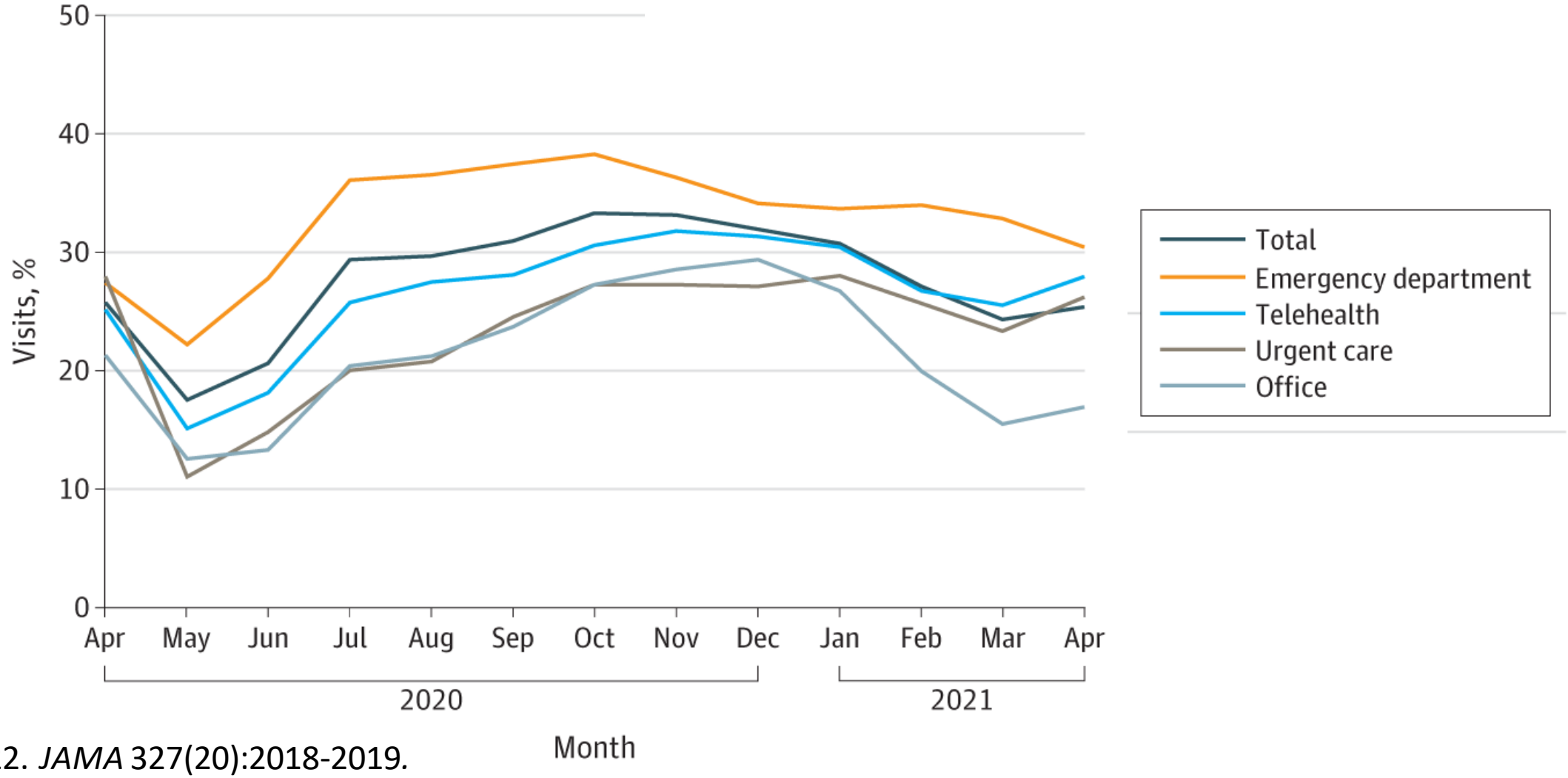
Virtual visits were more likely to receive:
-First line antibiotic agent (75 vs 60%)
-Guideline-concordant duration (100 vs 53%)

Virtual visits were less likely to have:
-a urinalysis (0 vs 97%)
-a urine culture (0 vs 73%)
-revisit within 7 days (5 vs 19%)



Johnson et al. 2021. *ICHE 42*(5), 586-591.

Antibiotic prescribing to older adults with COVID-19 was common across outpatient settings



Tsay et al. 2022. *JAMA* 327(20):2018-2019.

Resources for getting started with outpatient stewardship

Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report
Recommendations and Reports / Vol. 65 / No. 6
November 11, 2016

Core Elements of Outpatient Antibiotic Stewardship

Continuing Education Examination available at http://www.cdc.gov/mmwr/cme/conted.html.

U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

Sanchez et al. 2016 *MMWR Recomm Rep* 65(No. RR-6):1-12.
http://dx.doi.org/10.15585/mmwr.rr6506a1

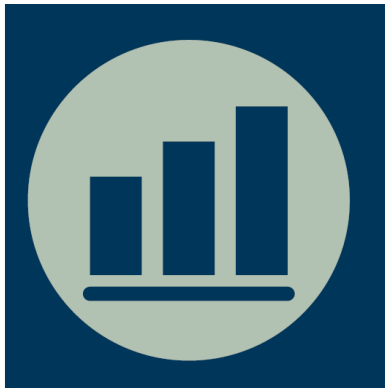
The Core Elements of Outpatient Antibiotic Stewardship

Commitment

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

Action for policy & practice

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



Tracking & Reporting

Monitor antibiotic prescribing practices and offer regular feedback to clinicians or have clinicians assess their own antibiotic use

Education & Expertise

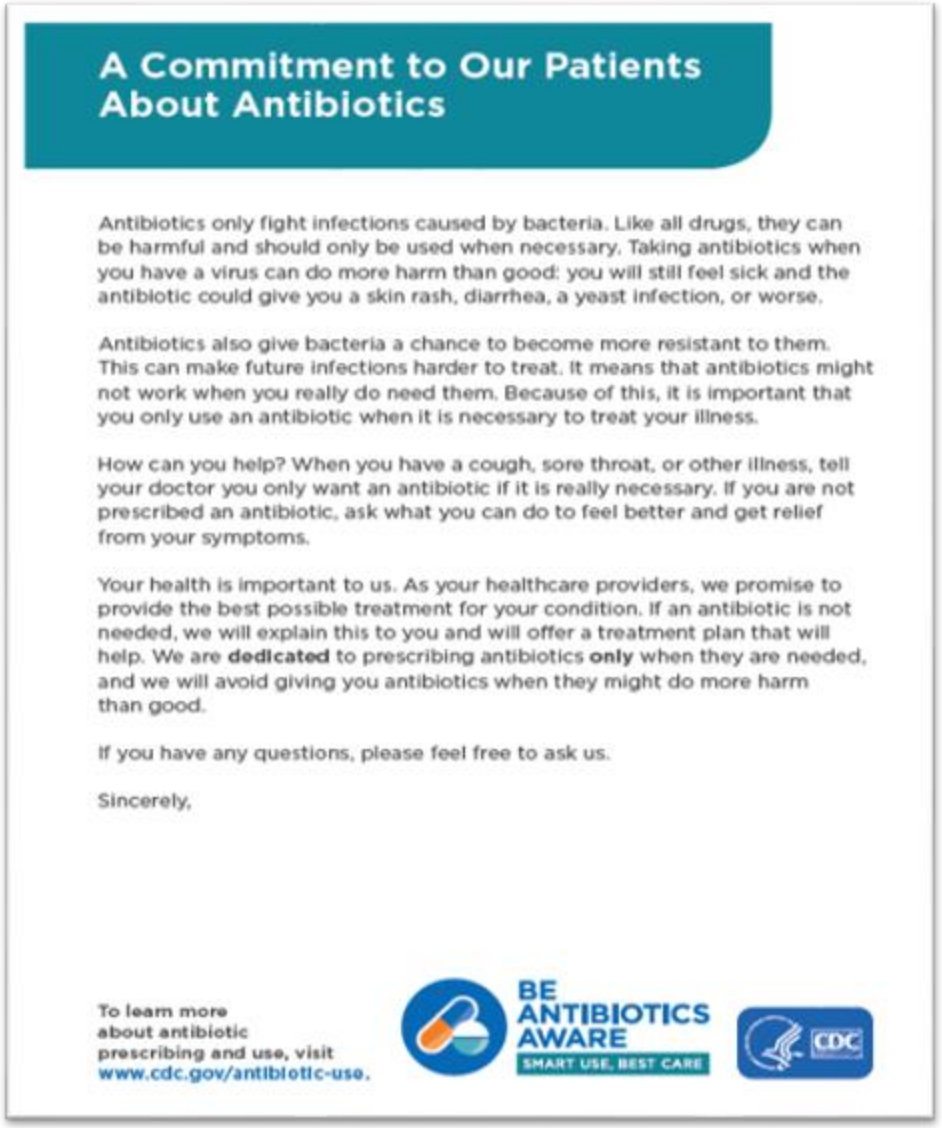
Provide educational resources to clinicians and patients on antibiotic prescribing and ensure access to needed expertise on antibiotic prescribing

Core Element: Commitment

Demonstrate dedication to and accountability for optimizing antibiotic prescribing and patient safety **by doing one of the following:**

Clinicians	Organizational Leadership
• Write and display public commitments in support of antibiotic stewardship	• Identify a single leader to direct antibiotic stewardship activities within a facility • Include stewardship-related duties in position descriptions or job evaluation criteria • Communicate with all clinic staff to set patient expectations

Commitments posters display public commitment to antibiotic stewardship

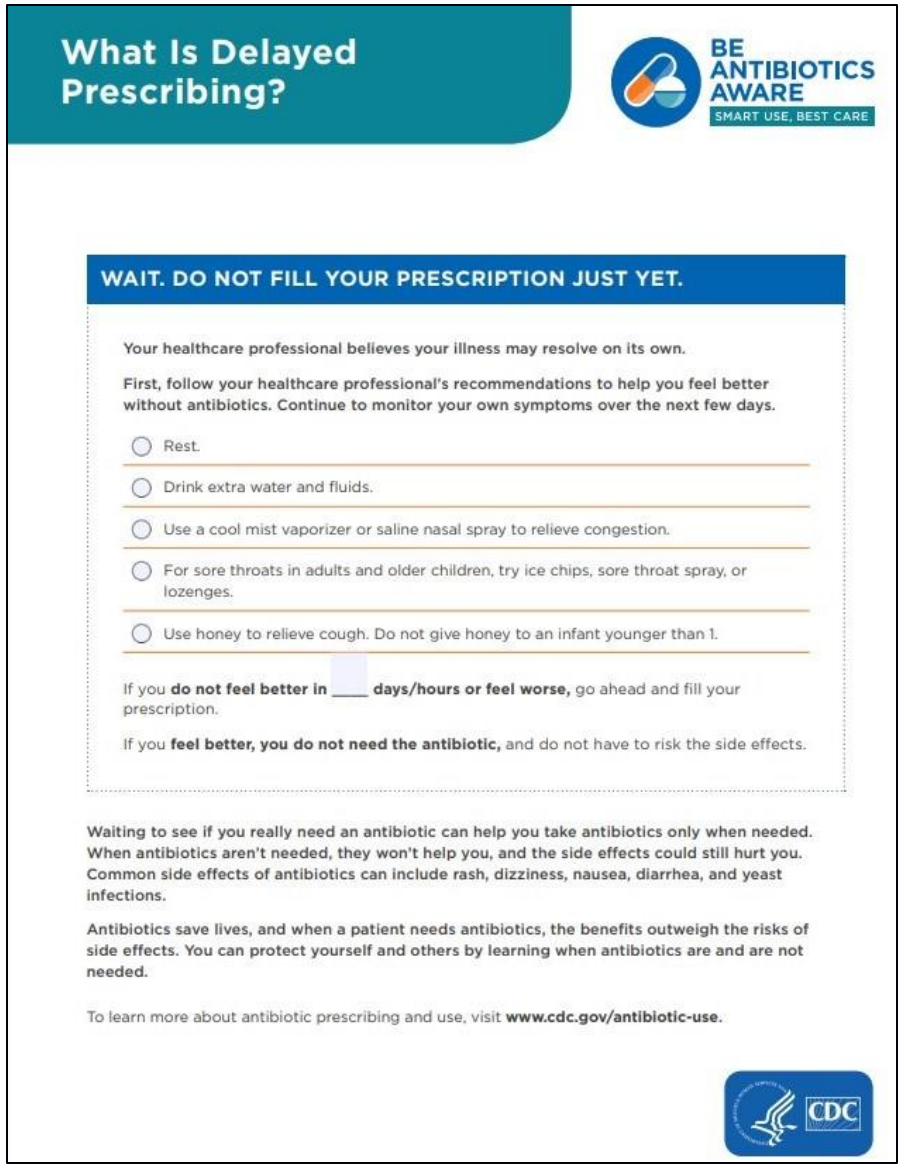


Core Element: Action

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

Clinicians	Organizational Leadership
• Use evidence-based diagnostic criteria and treatment recommendations • Use delayed prescribing practices or watchful waiting, when appropriate	• Provide communications skills training for clinicians • Require explicit written justification in the medical record for nonrecommended antibiotic prescribing • Provide support for clinical decisions • Use call centers, nurse hotlines, or pharmacist consultations as triage systems to prevent unnecessary visits

Clinicians can increase their use of delayed prescribing when indicated



What Is Delayed Prescribing?

BE ANTIBIOTICS AWARE
SMART USE, BEST CARE

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.

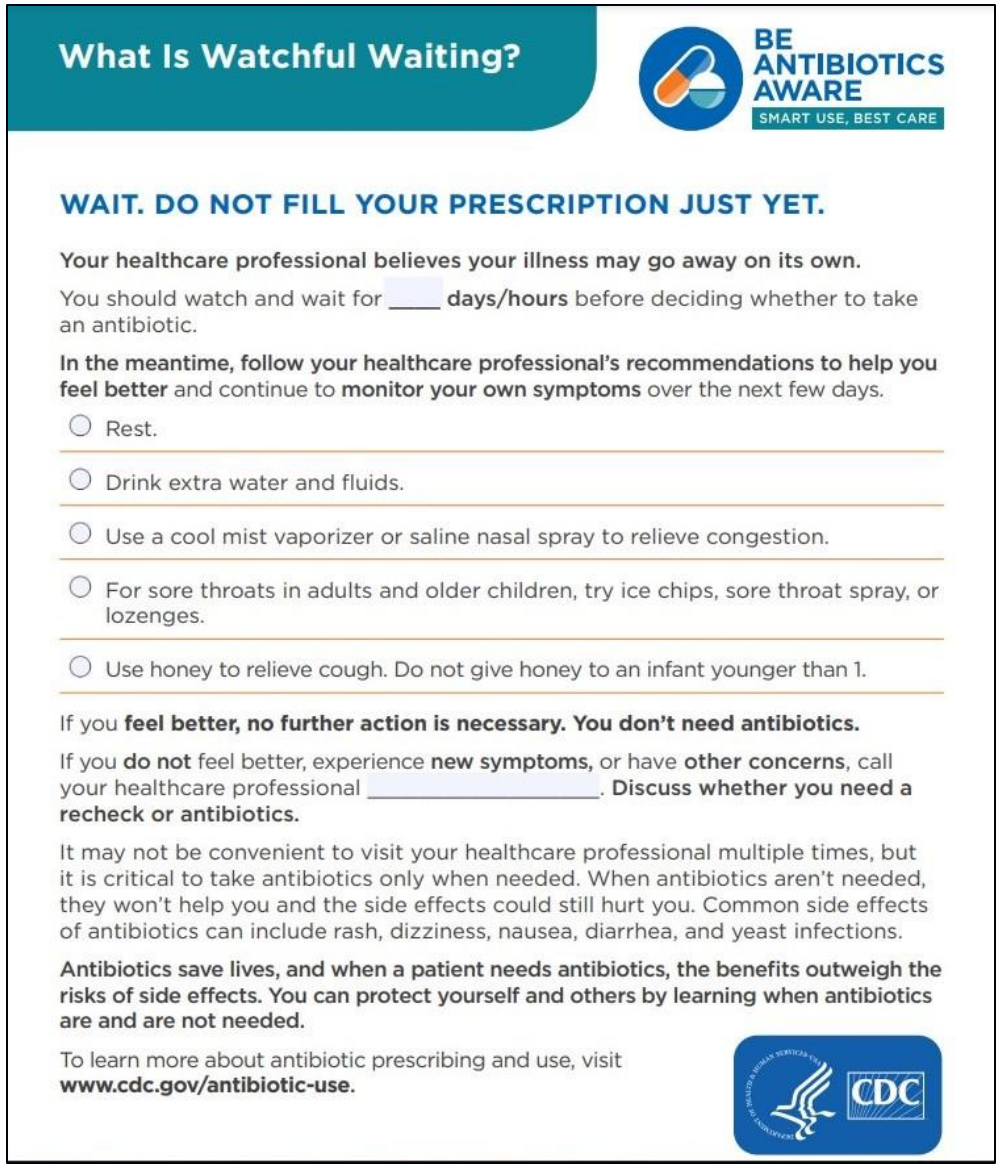
If you **feel better, you do not need the antibiotic,** and do not have to risk the side effects.

Waiting to see if you really need an antibiotic can help you take antibiotics only when needed. When antibiotics aren't needed, they won't help you, and the side effects could still hurt you. Common side effects of antibiotics can include rash, dizziness, nausea, diarrhea, and yeast infections.

Antibiotics save lives, and when a patient needs antibiotics, the benefits outweigh the risks of side effects. You can protect yourself and others by learning when antibiotics are and are not needed.

To learn more about antibiotic prescribing and use, visit **www.cdc.gov/antibiotic-use.**

CDC



What Is Watchful Waiting?

BE ANTIBIOTICS AWARE
SMART USE, BEST CARE

WAIT. DO NOT FILL YOUR PRESCRIPTION JUST YET.

Your healthcare professional believes your illness may go away on its own.

You should watch and wait for **____ days/hours** before deciding whether to take an antibiotic.

In the meantime, follow your healthcare professional's recommendations to help you feel better and 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 **feel better, no further action is necessary. You don't need antibiotics.**

If you **do not** feel better, experience **new symptoms,** or have **other concerns**, call your healthcare professional **_____. Discuss whether you need a recheck or antibiotics.**

It may not be convenient to visit your healthcare professional multiple times, but it is critical to take antibiotics only when needed. When antibiotics aren't needed, they won't help you and the side effects could still hurt you. Common side effects of antibiotics can include rash, dizziness, nausea, diarrhea, and yeast infections.

Antibiotics save lives, and when a patient needs antibiotics, the benefits outweigh the risks of side effects. You can protect yourself and others by learning when antibiotics are and are not needed.

To learn more about antibiotic prescribing and use, visit **www.cdc.gov/antibiotic-use.**

CDC

Core Element: Tracking and Reporting

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

Clinicians	Organizational Leadership
• Self-evaluate antibiotic prescribing practices • Participate in continuing medical education and quality improvement activities to track and improve antibiotic prescribing	• Implement at least one antibiotic prescribing tracking and reporting system • Assess and share performance on quality measures and established reduction goals addressing appropriate antibiotic prescribing from health care plans and payers

Audit and feedback with peer comparison is an evidence-based antibiotic stewardship intervention

Practice Summary

	Chart Icd Antibiotics Stewardship Diagnosis Category	Antibiotics Prescription Rate
1	BRONCHITIS	33%
2	PHARYNGITIS	56%
3	SINUSITIS	70%
4	URI	6%

Your Results

	Provider Last Name	Provider First Name	Chart Icd Antibiotics Stewardship Diagnosis Category	Call Prescriptions Aggregate Antibiotics Calls	Call Count	Antibiotics Prescription Rate
1	[redacted]		BRONCHITIS	2	50	4%
2	[redacted]		PHARYNGITIS	2	7	29%
3	[redacted]		SINUSITIS	1	6	17%
4	[redacted]		URI	3	150	2%

Your Difference From Practice

Last Name	First Name	Antibiotics Stewardship Diagnosis Category	Email	Difference From Practice
[redacted]		BRONCHITIS		-29%
[redacted]		PHARYNGITIS		-27%
[redacted]		SINUSITIS		-53%
[redacted]		URI		-4%

Antibiotic report card from Du Yan et al. *JGIM* 2021.

[Name]
[Title]
[Address 1]
[City] [State] [Zip]

BE ANTIBIOTICS AWARE
SMART USE, BEST CARE

Dear X,

I am writing to ask for your help in promoting appropriate antibiotic use to protect patients from harms caused by unnecessary antibiotic use and combat antibiotic resistance, one of the most urgent threats to the public's health.

Antibiotics are powerful tools we have to fight life-threatening infections, like those that can lead to sepsis. However, anytime they are used, they can cause side effects and lead to antibiotic resistance. Side effects can include rash, dizziness, nausea, diarrhea, and yeast infections, but also more serious conditions like *C. difficile* infection and severe or life-threatening allergic reactions. Infections caused by antibiotic-resistant bacteria often require extended hospital stays, additional follow-up visits to healthcare providers, and treatments that may be more costly and potentially more toxic.[1]

[STATE HD] is working to combat the growing threat of antibiotic resistance and improve patient safety by participating in a Centers for Disease Control and Prevention (CDC) initiative to improve antibiotic prescribing. As part of this effort, [STATE HD] is identifying and alerting providers who are writing a higher number of antibiotic prescriptions than other clinicians in our state.

You prescribe more antibiotics than the majority (90%) of Insert Specialty **in** Insert State .

This analysis was based upon the number of antibiotic prescriptions dispensed from community pharmacies in 2018 from data provided by IQVIA, a research organization participating in CDC's Antimicrobial Resistance (AMR) Challenge to fight antibiotic resistance across the globe.[2] While volume of antibiotic prescribing does not indicate appropriateness, we hope you will consider taking the following actions and using the below tools to optimize antibiotic prescribing:

1. **Display a personalized commitment poster**[3] to communicate your commitment to using antibiotics appropriately with your patients.
2. **Communicate to patients why antibiotics are not needed for certain infections** – you can use the enclosed CDC factsheet: "Viruses or Bacteria: What's got you sick?"[4]
3. **Take the CDC Training on Antibiotic Stewardship** to learn more about appropriate antibiotic use.[5]

CDC's national campaign, *Be Antibiotics Aware*, aims to raise awareness about antibiotic resistance and the importance of appropriate antibiotic prescribing and use among healthcare providers, patients, and their families. We encourage you to visit the *Be Antibiotics Aware* campaign website to find resources that you can use to educate your patients about appropriate antibiotic use: www.cdc.gov/antibiotic-use.

Antibiotic prescribing is a complex issue, but there are simple changes that we can all make that will have the potential for big impact. We look forward to collaborating with you to improve patient safety and combat antibiotic resistance.

Sincerely,

https://www.cdc.gov/antibiotic-use/community/pdfs/state-example-plan-letter-508.pdf

Core Element: Education and Expertise

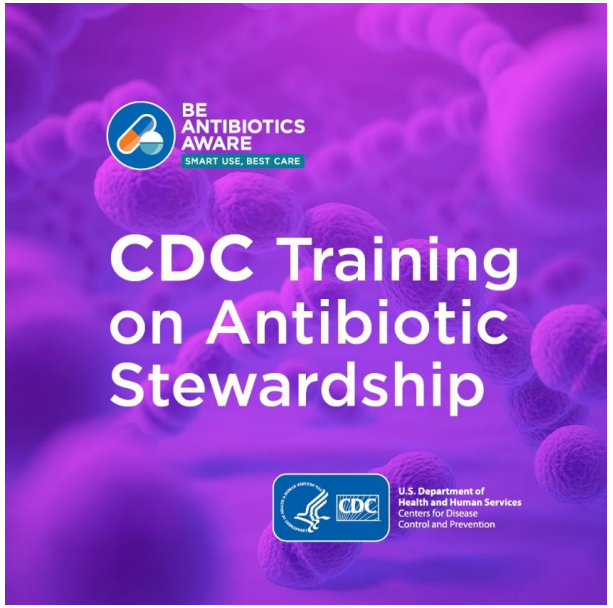
- Provide educational resources to clinicians and patients on antibiotic prescribing and ensure access to needed expertise on optimizing antibiotic prescribing
- Inappropriate antibiotic prescribing is rarely due to clinical knowledge gaps alone

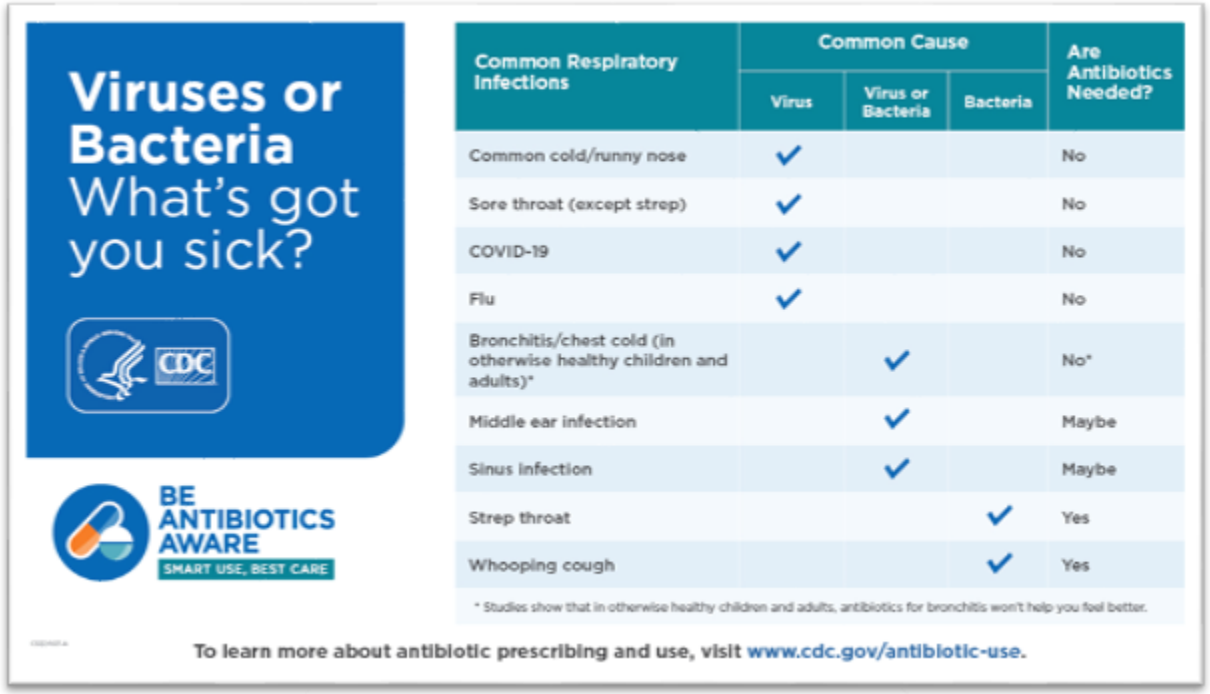
Clinicians	Organizational Leadership
• Use effective communications strategies to educate patients about when antibiotics are and are not needed • Educate about the potential harms of antibiotic treatment • Provide patient education materials	• Provide face-to-face educational training (academic detailing) • Provide continuing education activities for clinicians • Ensure timely access to persons with expertise

Improving communication strategies and educating patients

DIALOGUE AROUND RESPIRATORY ILLNESS TREATMENT

DART



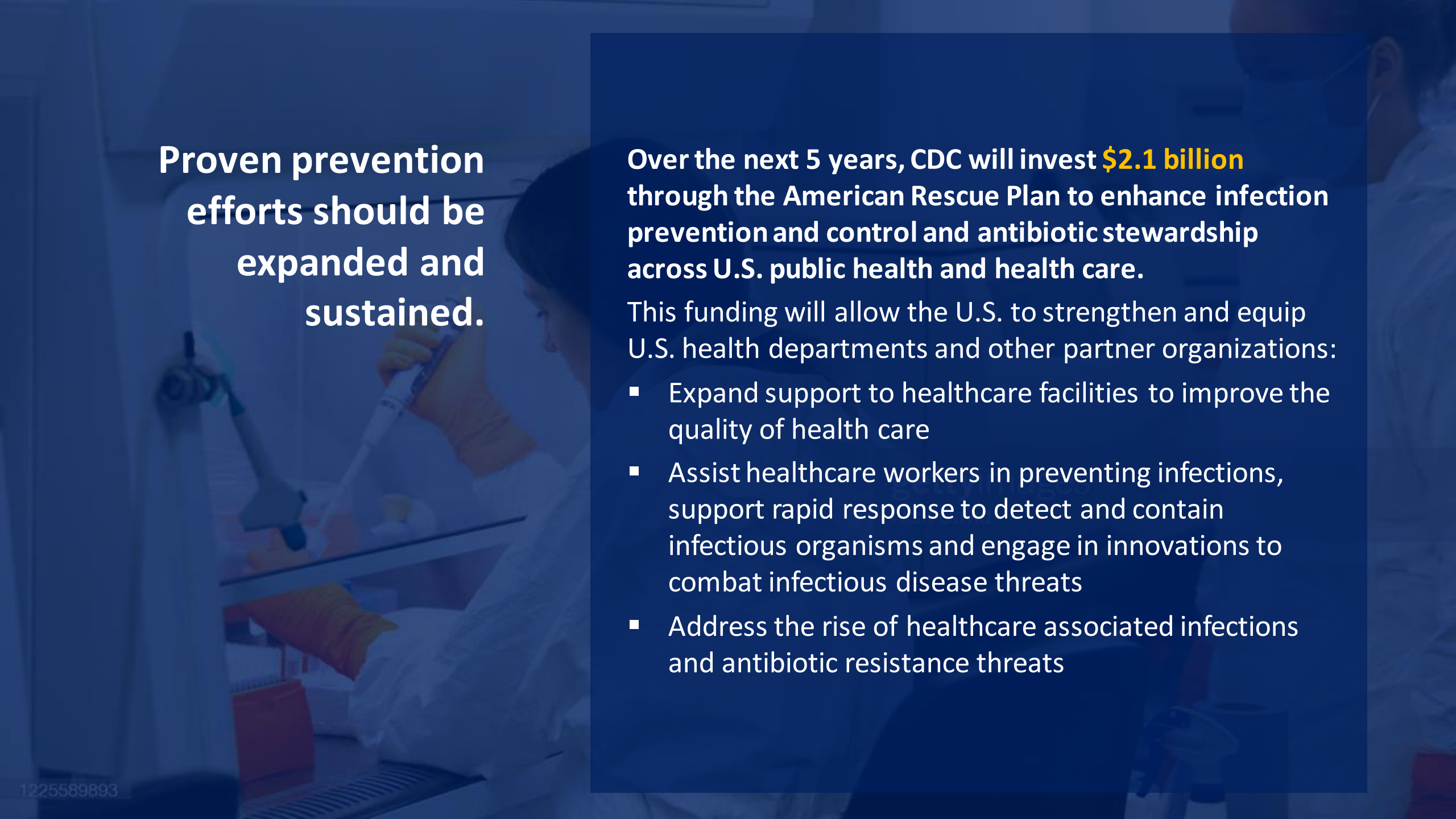


https://www.uwimtr.org/dart/

https://www.train.org/cdctrain/training_plan/3697

https://www.cdc.gov/antibiotic-use/materials-references/index.html

What’s new in outpatient antibiotic stewardship?



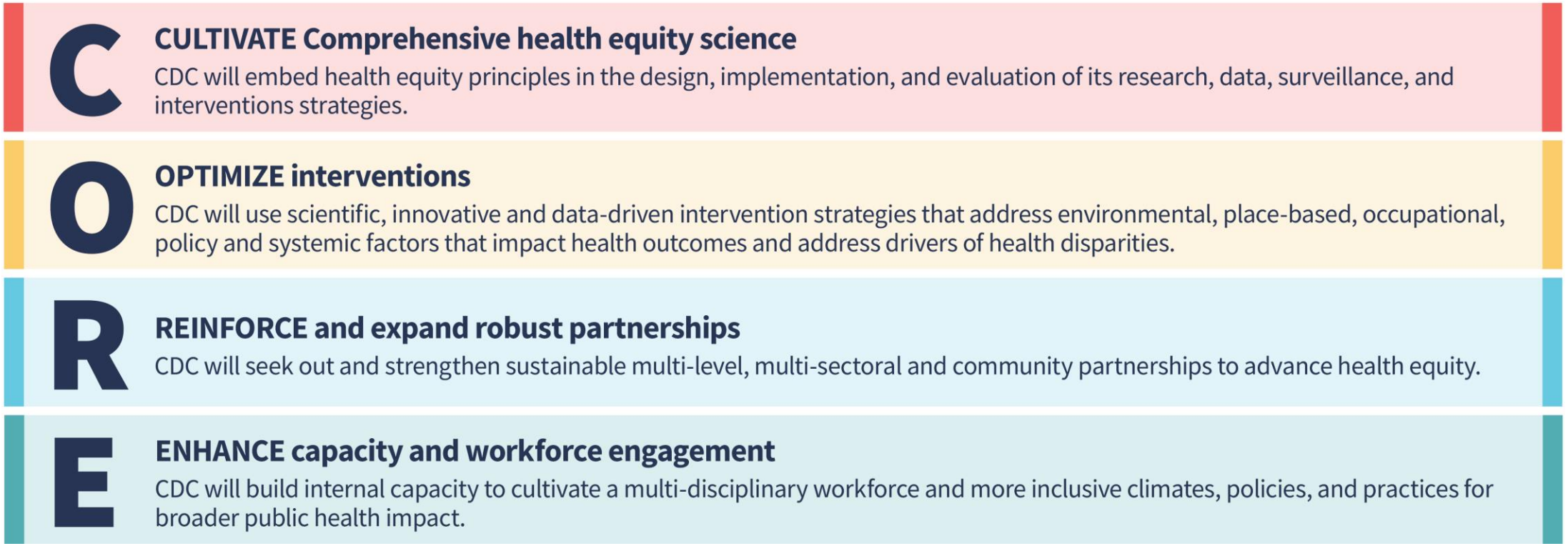
Proven prevention efforts should be expanded and sustained.

Over the next 5 years, CDC will invest $2.1 billion through the American Rescue Plan to enhance infection prevention and control and antibiotic stewardship across U.S. public health and health care.

This funding will allow the U.S. to strengthen and equip U.S. health departments and other partner organizations:

- Expand support to healthcare facilities to improve the quality of health care
- Assist healthcare workers in preventing infections, support rapid response to detect and contain infectious organisms and engage in innovations to combat infectious disease threats
- Address the rise of healthcare associated infections and antibiotic resistance threats

CDC is transforming its public health research, surveillance, and implementation science efforts to shift from simply listing the markers of health inequities to identifying and addressing the drivers of these disparities.



https://www.cdc.gov/healthequity/core/index.html

https://www.cdc.gov/healthequity/index.html

Conclusions

- Antibiotic prescribing decreased on the national level during the COVID pandemic, but is rebounding, and there is room for improvement
  - Decreasing unnecessary prescriptions
  - Improving quality (selection, dosing, duration)

Conclusions

- Antibiotic prescribing decreased on the national level during the COVID pandemic, but is rebounding, and there is room for improvement
  - Decreasing unnecessary prescriptions
  - Improving quality (selection, dosing, duration)
- Stewardship is key to decreasing resistance and keeping patients safe

Conclusions

- Antibiotic prescribing decreased on the national level during the COVID pandemic, but is rebounding, and there is room for improvement
  - Decreasing unnecessary prescriptions
  - Improving quality (selection, dosing, duration)
- Stewardship is key to decreases resistance and keeping patients safe
- CDC's *Core Elements of Outpatient Antibiotic Stewardship* provides a framework for improving outpatient antibiotic prescribing based on evidence

Conclusions

- Antibiotic prescribing decreased on the national level during the COVID pandemic, but is rebounding, and there is room for improvement
  - Decreasing unnecessary prescriptions
  - Improving quality (selection, dosing, duration)
- Stewardship is key to decreases resistance and keeping patients safe
- CDC's *Core Elements of Outpatient Antibiotic Stewardship* provides a framework for improving outpatient antibiotic prescribing based on evidence
- Current national priorities include expanding existing stewardship work in public health jurisdictions and actively incorporating health equity goals

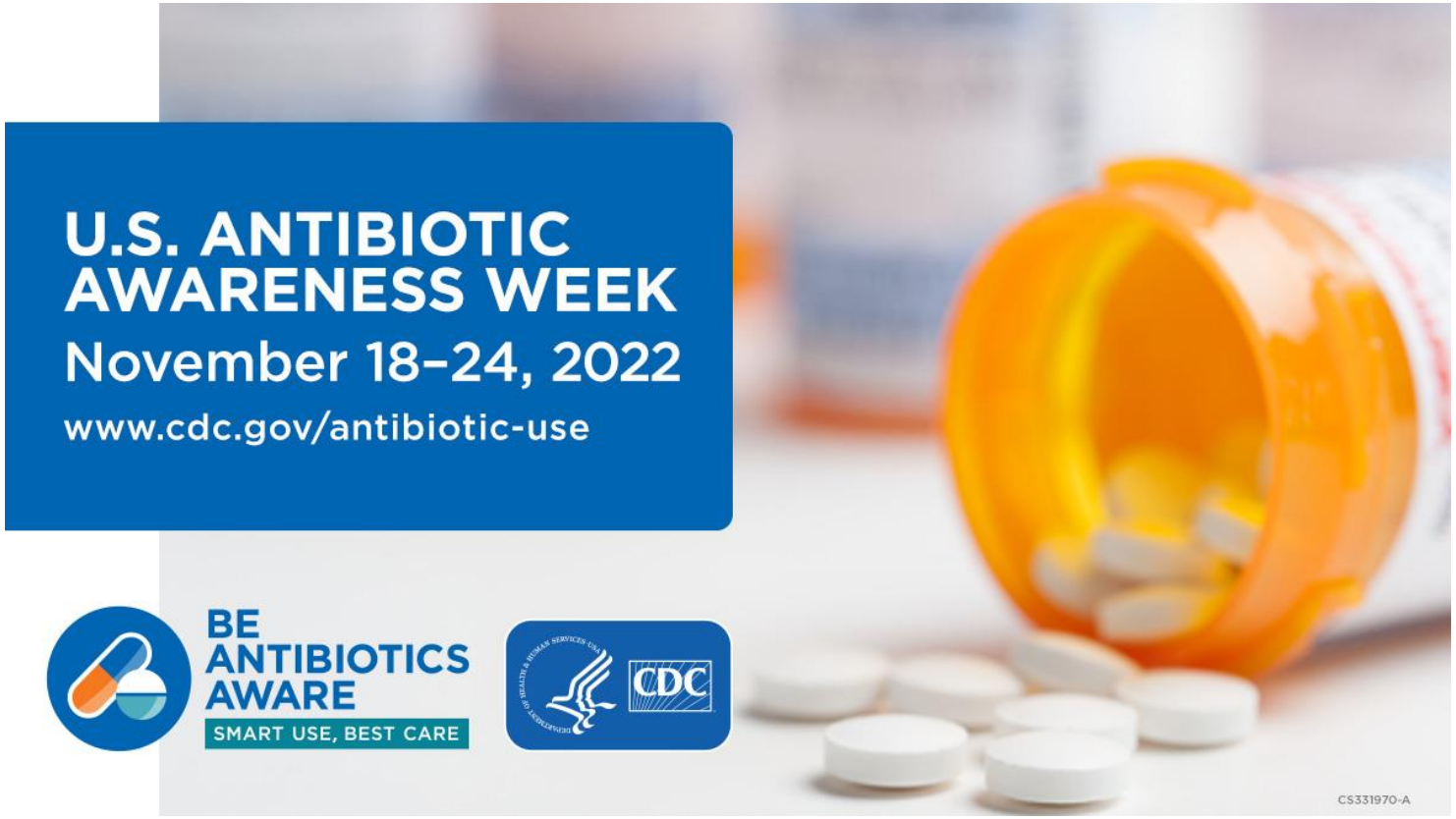
Conclusions

- Antibiotic prescribing decreased on the national level during the COVID pandemic, but is rebounding, and there is room for improvement
  - Decreasing unnecessary prescriptions
  - Improving quality (selection, dosing, duration)
- Stewardship is key to decreases resistance and keeping patients safe
- CDC's *Core Elements of Outpatient Antibiotic Stewardship* provides a framework for improving outpatient antibiotic prescribing based on evidence
- Current national priorities include expanding existing stewardship work in public health jurisdictions and actively incorporating health equity goals

We can improve antibiotic prescribing together!

STsay@cdc.gov
AntibioticUse@cdc.gov

For more information, contact CDC
1-800-CDC-INFO (232-4636)
TTY: 1-888-232-6348 www.cdc.gov



The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

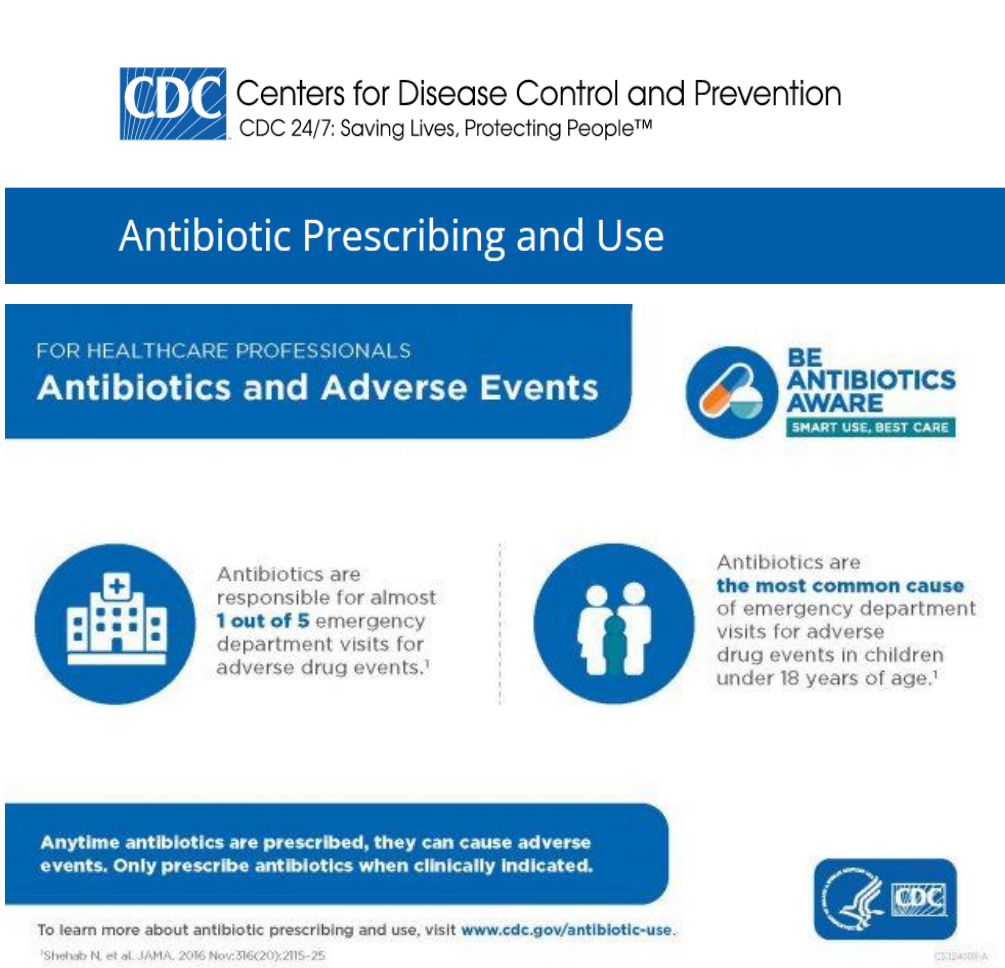
Q&A

Quality INNOVATION SERIES

#QISeries

Supplemental Materials

Centers for Disease Control and Prevention Antibiotic Use Resources



Continuing Medical Education and Informational Resources

Healthcare Professional Resources

Patient Resources and Education

Visit the CDC's Antibiotic Prescribing and Use page to access multiple resources and training videos for your use

Thank You

Quality INNOVATION SERIES

#QISeries

Steps to claim continuing education credits

1. Register for your course

- Navigate to **education.ncqa.org**
- Select Login with NCQA Account
- Select "Create Account" if you do not have an existing account, complete the requested information to complete the form and to gain access to the account. If you have an existing account, log in using those same credentials.
- Once you have logged on, click the course link to register: **What's New in Antibiotic Stewardship? Part Two: Impacts of COVID and Use of Telehealth**

2. Complete your course and download your certificate

- Complete the Evaluation and Attestation to gain access to your certificate.
- Click on your name at the top right to select your profile.
- On profile, please be sure you have entered your Name and Credential(s) as they should appear on your certificate by clicking "edit"→ "info" → "save"
- Select Awards on the left to retrieve the certificate and download the PDF file
- If you are a pharmacist completing a course offering CPE credits, please notify NCQA through ncqa.org within 14 calendar days that you have completed a CPE course. You must provide the title of the course, your NABP identification number and your DOB (month/date) within the notification to NCQA. We also recommend you update your education.ncqa.org profile with your NABP identification number