

Embargoed Until Nov. 13, 2019, 1:00 p.m. ET

ANTIBIOTIC RESISTANCE THREATS IN THE UNITED STATES, 2019

Partner Packet
November 2019

- Upcoming Events
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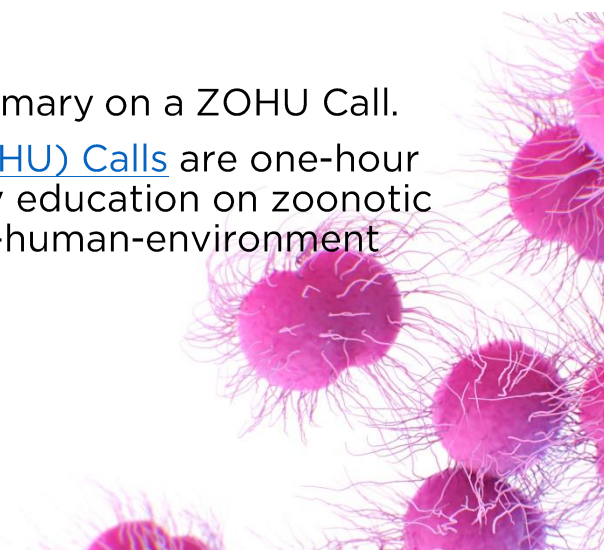


We encourage you to share this information when the embargo lifts. Help raise awareness of this threat and the continued action needed to combat AR.

The full 2019 AR Threats Report is available online at www.cdc.gov/DrugResistance/Biggest-Threats.html.

Upcoming Events

- **Nov. 13 at 12:00 p.m. ET:** Listen to a press telebrief with CDC's director, Robert R. Redfield, M.D., as he announces the release of the 2019 AR Threats Report.
Contact: (404) 639-3286, www.cdc.gov/media
- **Nov. 13 at 1:00 p.m. ET:** Spread the word—embargo lifts.
Share 2019 AR Threats Report materials by newsletter, e-mail, social media, and more. #CDCARthreats
- **Nov. 15 at 12:00 p.m. ET:** [Register](#) for the congressional briefing.
Hosts: Infectious Diseases Society of America & Pew Charitable Trusts
CDC Speaker: Michael Craig, MPP, Senior Advisor for Antibiotic Resistance
Location: House Visitors Center (1450 Pennsylvania Ave NW)
- **Nov. 18-24:** Participate in U.S. Antibiotic Awareness Week!
The annual one-week observance highlights the importance of appropriate antibiotic use to effectively treat infections, protect patients, and combat antibiotic resistance.
Global Twitter Storm: Nov. 18 at 9:00 a.m. ET.
#AntibioticResistance
[Antibiotic Use Partner Toolkit](#)
- **Dec. 4 at 2 p.m. ET:** Listen to a report summary on a ZOHU Call.
[Zoonoses & One Health Updates \(ZOHU\) Calls](#) are one-hour monthly webinars that provide timely education on zoonotic and infectious diseases at the animal-human-environment interface.



Press Release

Embargoed Until: Nov. 13, 2019, 1:00 p.m. ET

Contact: [Media Relations](#), (404) 639-3286

More People in the United States Dying from Antibiotic-Resistant Infections than Previously Estimated

Significant progress since 2013 could be lost without more action

The Centers for Disease Control and Prevention (CDC) released today its updated [Antibiotic Resistance Threats in the United States](#) (AR Threats Report) indicating that antibiotic-resistant bacteria and fungi cause more than 2.8 million infections and 35,000 deaths in the United States each year. That means, on average, someone in the United States gets an antibiotic-resistant infection every 11 seconds and every 15 minutes someone dies. When *Clostridioides difficile*, a bacterium which is not typically resistant but can cause deadly diarrhea and is associated with antibiotic use, is added to these, the U.S. toll of all the threats in the report exceeds 3 million infections and 48,000 deaths.

Using data sources not previously available, the new report shows that there were nearly twice as many annual deaths from antibiotic-resistant infections as CDC originally reported in 2013. Since then, the new report shows, prevention efforts have reduced deaths from antibiotic-resistant infections by 18 percent overall and by nearly 30 percent in hospitals. Without continued vigilance, however, this progress may be challenged by the increasing burden of some infections.

CDC's 2019 report thus establishes a new national baseline of infections and deaths from antibiotic-resistant germs. Moreover, the new report categorizes the top antibiotic-resistant threats based on level of concern to human health: urgent, serious, or concerning.

In recent years, there have been fewer infections from five of the germs previously listed as "serious." Infections from the urgent threat "nightmare bacteria" carbapenem-resistant Enterobacteriaceae (CRE) have remained stable—a noteworthy accomplishment given how quickly and broadly this deadly germ spread across the United States in the early 2000s.

"The new AR Threats Report shows us that our collective efforts to stop the spread of germs and preventing infections is saving lives," says Robert R. Redfield, M.D., director of the Centers for Disease Control and Prevention. "The 2013 report propelled the nation toward critical action and investments against antibiotic resistance. Today's report demonstrates notable progress, yet the threat is still real. Each of us has an important role in combating it. Lives here in the United States and around the world depend on it."

New in the 2019 report:

- Antibiotic resistance threats list—The list of 18 germs includes two new urgent threats: drug-resistant *Candida auris* and carbapenem-resistant *Acinetobacter*, bringing the number of urgent threats to five. These are added to the three identified in 2013: CRE, *Neisseria gonorrhoeae*, and *Clostridioides difficile*.
- Watch list—The new report identifies three additional germs that have yet to spread resistance widely or are not well understood in the United States, but that CDC and other public health experts closely monitor.

- Trends—For some germs, CDC studied how estimates of antibiotic-resistant infections and deaths has changed over time. Resistant infections and deaths from germs often associated with hospitals are steadily declining. Resistance to essential antibiotics is increasing in seven of the 18 germs.
- Electronic health data—For the first time, the infection and death estimates for healthcare-associated germs were calculated using electronic health data from hospitals.

Antibiotic resistance: A continuing threat

Overall, there has been significant progress preventing infections and deaths from resistant germs typically associated with hospitals. Deaths from antibiotic-resistant infections in hospitals went down 28 percent from 2012 to 2017. Nevertheless, antibiotic-resistant germs often found in healthcare, including CRE and methicillin-resistant *Staphylococcus aureus* (MRSA), caused more than 85 percent of the total deaths calculated in the report.

CDC strategies—preventing spread of germs, preventing device- and procedure-related infections, implementing the [Containment Strategy](#) to stop spread of emerging threats, and improving antibiotic use in outpatient settings by five percent—have helped hospitals and public health departments combat the antibiotic-resistant threats across the nation. Further preventing infections, including getting ahead of sepsis, and stopping the spread of germs will save more lives.

Rapid detection and prevention strategies have helped protect people from two community-associated germs: drug-resistant *Streptococcus pneumoniae* and drug-resistant tuberculosis (TB). Vaccines have helped reduce infections from *Streptococcus pneumoniae* in many at-risk groups, and the drug-resistant TB cases in the United States remain stable due to effective TB control strategies.

However, CDC is concerned about antibiotic-resistant infections that are on the rise in the community:

- Drug-resistant *Neisseria gonorrhoeae*—More than half a million resistant gonorrhea infections occur each year, twice as many as reported in 2013. Gonorrhea-causing bacteria have developed resistance to all but one class of antibiotics, and half of all infections are resistant to at least one antibiotic. These infections contribute to significant adverse reproductive health outcomes, such as infertility in women and to new HIV infections especially in men.
- Extended-spectrum beta-lactamase (ESBL)-producing Enterobacteriaceae—ESBL-producing Enterobacteriaceae are one of the leading causes of death from resistant germs. They make urinary tract infections harder to treat, especially in women, and could undo progress made in hospitals if allowed to spread there.
- Erythromycin-resistant group A *Streptococcus*—Invasive infections from these germs have quadrupled since the 2013 report. If resistance continues to grow, infections and deaths could rise.

Estimating the threat of antibiotic-resistant germs

CDC experts analyzed data from various CDC data systems to create the 2019 AR Threats Report. These data and new methodologies provide more precise, though still conservative, estimates of the human costs of antibiotic resistance.

For the first time, CDC used electronic health data from U.S. hospitals to measure the burden of antibiotic-resistant infections, including attributable mortality, for seven of the 18 germs listed. CDC researchers assessed all 18 threats according to seven factors associated with resistant infections: health impact, economic impact, how common the infection is, a 10-year projection of how common it could become, how easily it spreads,

availability of effective antibiotics, and barriers to prevention. Because new methods have been used, the burden of some germs can be compared to the 2013 estimates while others cannot.

Through its [AR Solutions Initiative](#), CDC will continue to take a comprehensive approach to antibiotic resistance:

- Sizable investments in every U.S. state in programs such as the AR Lab Network to rapidly detect and help prevent antibiotic-resistant infections.
- Partnerships with groups such as the Centers for Medicare and Medicaid Services, the Agency for Healthcare Research and Quality, and other Federal partners, data experts, and healthcare providers and veterinarians to improve the use of the antibiotics we have now.
- CDC and the U.S. Food and Drug Administration will continue to supply samples of resistant germs from the AR Isolate Bank to drug and diagnostic test developers who can uncover new drugs and treatments.
- Investing millions of dollars finding prevention strategies that can be scaled up across the nation.
- Working with private industry to enhance food-product safety, medical devices, and surveillance capabilities.
- Coordinating with domestic partners to expand the national response and prevention capacity, and with global partners to enhance our ability to combat the growing threat of antibiotic resistance worldwide.

See the full 2019 AR Threats Report: <https://www.cdc.gov/DrugResistance/biggest-threats.html>.

###

CDC's Key Messages

- CDC analyzed the state of antibiotic resistance (AR) in the United States and released a new national baseline of antibiotic resistance in its second Antibiotic Resistance Threats Report.

- **More than 2.8 million antibiotic-resistant infections occur in the United States each year, and more than 35,000 people die as a result.**

This means that, on average, in the United States, someone gets an antibiotic-resistant infection about every 11 seconds and every 15 minutes someone dies.

When *Clostridioides difficile*, a bacterium which is not typically resistant but can cause deadly diarrhea and is associated with antibiotic use, is added to these, the U.S. toll of all the threats in the report exceeds 3 million infections and 48,000 deaths.

Data from the new report also show progress made in fighting these infections. Since 2013, prevention efforts have reduced deaths from antibiotic-resistant infections by 18% overall and by nearly 30% in hospitals.

- Using the most robust and reliable data to date, the new report's data show that the scope and burden of antibiotic-resistance threats in the United States were greater than previously estimated in the 2013 AR Threats Report.
- New CDC data show that infection prevention and containment of emerging threats are working but more action is needed to protect all people. Addressing this threat (bacteria and fungi) requires:

Preventing infections in the first place

Slowing the development of resistance through improved antibiotic use

Stopping the spread of resistance when it does develop

This report is intended to:

- Serve as a reference for anyone looking for recent information on antibiotic resistance
- Provide the latest antibiotic resistance burden estimates for human health in the United States, including a list of 18 germs listed on level of concern to human health—urgent, serious, and concerning
- Highlight emerging areas of concern and additional action needed to address this threat at a national and global level

Key Messages, continued

Background

- In 2013, CDC published the first-ever report highlighting the most threatening antibiotic-resistant germs in the U.S., sounding the national alarm. The report was titled *Antibiotic Resistance Threats Report in the United States, 2013*.

The report listed the top 18 pathogens (germs—bacteria and fungi—that can be harmful) into three categories based on level of concern to human health (urgent, serious, and concerning) and released conservative estimates of death and infections related to AR.

The burden estimate in the 2013 report was: Each year in the United States at least 2 million people are infected with antibiotic-resistant germs. At least 23,000 people died as a result.

This report helped inform the [National Action Plan for Combating Antibiotic-Resistant Bacteria](#) by identifying the most critical germs to be addressed and actions needed that would help the U.S. address these threats.

- CDC released the second report in fall 2019, titled *Antibiotic Resistance Threats Report in the United States, 2019* (2019 AR Threats Report).

- New in 2019 includes:

Antibiotic resistance threats list—The list of 18 germs includes two new urgent threats: drug-resistant *Candida auris* and carbapenem-resistant *Acinetobacter*, bringing the number of urgent threats to five. These are added to the three identified in 2013: carbapenem-resistant Enterobacteriaceae (CRE), *Neisseria gonorrhoeae*, and *Clostridioides difficile*.

Watch list—The new report identifies three additional germs that have yet to spread resistance widely in the United States, but that CDC and other public health experts closely monitor.

Trends—For some germs, CDC studied how estimates of antibiotic-resistant infections and deaths has changed over time. Resistant infections and deaths from germs often associated with hospitals are steadily declining. Resistance to essential antibiotics is increasing in seven of the 18 germs.

Electronic health data—For the first time, the infection and death estimates for healthcare-associated germs were calculated using electronic health data from hospitals.

- CDC is using updated analyses to inform domestic efforts to combat AR.
- Like the 2013 report, the 2019 report does not include viruses (HIV, influenza) or parasites.

Key Messages, continued

Data

- For the 2013 report, CDC used the best data available at the time, but data limitations led to an underestimate of the true burden of antibiotic resistance.
- New data sources (electronic health data) that provide a more complete estimate of antibiotic resistance are now available and were used to produce portions of the 2019 report.
- Several estimates, specifically the healthcare-associated germs, were calculated using updated methods and new data sources—electronic health data from hospitals. This is the first time CDC has leveraged these data to estimate the national burden of resistance.
- Using the most robust and reliable data to date, the new 2019 report's data show that the scope and burden of antibiotic-resistance threats in the United States were greater than previously estimated in the 2013 report.

CDC applied the new methods used for the 2019 report to recalculate the overall burden previously published in 2013.

When compared to the previously published estimate, the updated 2013 report estimate is nearly two times higher.

However, deaths from antibiotic-resistant infections decreased by 18 percent since the 2013 report. This suggests that prevention efforts in healthcare are working. Yet the number of people facing antibiotic resistance in the United States is still too high.

- All estimates are likely also an underestimate because estimates for many germs include only patients who were admitted to a hospital; other cases likely occurred but were not counted because the patient was not hospitalized.

Estimates excluding *C. difficile*

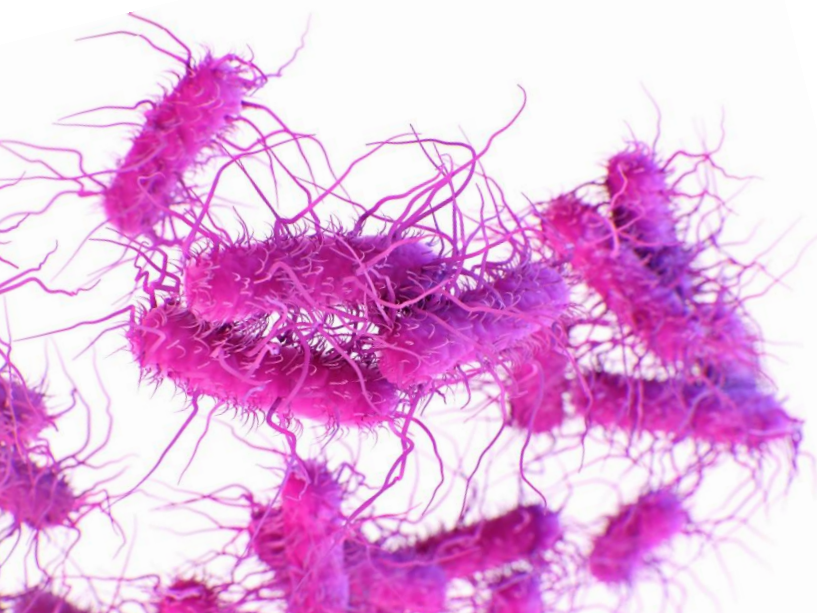
	2013 Report	"Revised baseline" Estimates [†]	2019 Report
Infections	2,049,616	2.6 Million	2.8 M
Death	23,855	44,000	35,000

[†]2013 Report + 2012 e-health data estimates, recalculated retrospectively

Key Messages, continued

Action Needed

- **Together, more action is needed** across settings, industries, and countries to fully protect people from antibiotic-resistant threats.
- Data show that **prevention efforts**—preventing infections, improving antibiotic use, and stopping spread—are **saving lives, especially in hospitals** (ex: significant reductions in MRSA, VRE). **Vaccination**, when available, is also making a difference to prevent infections in the community (ex: *Streptococcus pneumoniae*).
- However, some community-associated germs (e.g., ESBLs, resistant gonorrhea, group A strep) are on the rise. And our progress in healthcare may be undermined by some of these **increasing risks in the community**.
- CDC continues to be concerned about the emergence and spread of **new forms of resistance**, especially resistance shared among germs through **mobile genetic elements**. (Antibiotic-resistant germs can share their resistance genes with other germs and can make them untreatable.)
- Increases in antibiotic resistance are driven by a combination of germs exposed to antibiotics and the spread of those germs or their mechanisms of resistance. This naturally occurring process is accelerated when antibiotics are constantly present in the environment or in the germs' hosts (e.g., humans or animals).
- Without continued vigilance toward prevention, germs will continue to spread, cause infections, and harm and kill people.
- **We need continued prevention action now.** Addressing this threat requires:
 - Preventing infections in the first place
 - Slowing the development of resistance through better antibiotic use in humans, animals, and the environment
 - Stopping the spread of resistance when it does develop



The Threat of Antibiotic Resistance in the United States

Antibiotic resistance—when germs (bacteria, fungi) develop the ability to defeat the antibiotics designed to kill them—is one of the greatest global health challenges of modern time.

New National Estimate*

Each year, antibiotic-resistant bacteria and fungi cause at least an estimated:



Clostridioides difficile is related to antibiotic use and antibiotic resistance:



2,868,700
infections



223,900
cases



35,900 deaths



12,800 deaths

New Antibiotic Resistance 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. Data show infection prevention and control is saving lives—especially in hospitals—but threats may undermine this progress without continued aggressive action now.

Learn more: www.cdc.gov/DrugResistance/Biggest-Threats



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

*National burden reflects de-duplicated infection and death estimates.

CDC's 2019 AR Threats Report: PREVENTION WORKS.

↓ **18%** fewer deaths from antibiotic resistance overall since 2013 report

↓ **28%** fewer deaths from antibiotic resistance in hospitals since 2013 report

AND DECREASES IN INFECTIONS CAUSED BY:

↓ **41%** Vancomycin-resistant *Enterococcus*

↓ **33%** Carbapenem-resistant *Acinetobacter*

↓ **29%** Multidrug-resistant *Pseudomonas aeruginosa*

↓ **25%** Drug-resistant *Candida*

↓ **21%** Methicillin-resistant *Staphylococcus aureus* (MRSA)

STABLE Carbapenem-resistant Enterobacteriaceae (CRE) & drug-resistant tuberculosis (TB disease cases)

CDC strategies that work in healthcare:



Preventing device- and procedure-related infections, such as from urinary catheters or central lines



Stopping the spread of resistant germs within and between healthcare facilities



Containing emerging threats through early detection and aggressive response



Tracking and improving appropriate antibiotic use



Infection prevention and control in non-hospital settings, such as long-term care facilities

CDC strategies that work in communities:



Widespread use of vaccines to prevent infections and spread



Routine tuberculosis and gonorrhea screening for at-risk groups and prompt treatment



Using safer sex practices (e.g., condoms)



Safe food handling and preparation



Improving antibiotic use everywhere

Despite these gains, CDC's 2019 AR Threats Report shows additional actions are needed to protect people.

2.8M+ antibiotic-resistant infections each year

35k+ deaths from antibiotic resistance each year

Plus: 223,900 cases and 12,800 deaths from *Clostridioides difficile*

**AND INCREASES
IN INFECTIONS
CAUSED BY:**

↑ 315%
Erythromycin-resistant
invasive group A strep

↑ 124%
Drug-resistant
Neisseria gonorrhoeae

↑ 50%
ESBL-producing
Enterobacteriaceae

Challenges in healthcare:



Preventing the spread of germs, including in non-hospital settings such as long-term care facilities



Spread of germs from the healthcare environment (e.g., bedrails, devices, other surfaces)



Incomplete adoption of the Containment Strategy



Inconsistent implementation of some CDC recommendations (e.g., Contact Precautions)



Introduction of emerging threats from outside of the United States



Continued vigilance against serious threats like "nightmare bacteria" CRE

Challenges in the community:



Poor hygiene, such as not keeping hands clean or not wiping properly after toileting or diapering



Spread of resistant threats in the food supply



Inconsistent use of safer sex practices



Few vaccines to prevent infections and spread of resistant threats



Stopping spread of germs in animals



Understanding the role of antibiotic-resistant germs in the environment



Improving antibiotic use everywhere

For further progress, the nation must continue to innovate and scale up effective strategies to prevent infections, stop spread, and save lives.

Learn more:
www.cdc.gov/DrugResistance/Biggest-Threats



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

(strep) *Streptococcus*

(ESBL) extended-spectrum beta-lactamase

List of 18 Antibiotic-Resistant Threats & Watch List



Urgent Threats



CARBAPENEM-RESISTANT
ACINETOBACTER



CARBAPENEM-RESISTANT
ENTEROBACTERIACEAE



CANDIDA AURIS



DRUG-RESISTANT
NEISSERIA GONORRHOEAE



CLOSTRIDIODES DIFFICILE



Serious Threats



DRUG-RESISTANT
CAMPYLOBACTER



DRUG-RESISTANT
SALMONELLA SEROTYPE **TYPHI**



DRUG-RESISTANT
CANDIDA



DRUG-RESISTANT
SHIGELLA



ESBL-PRODUCING
ENTEROBACTERIACEAE



METHICILLIN-RESISTANT
STAPHYLOCOCCUS AUREUS



VANCOMYCIN-RESISTANT
ENTEROCOCCI



DRUG-RESISTANT
STREPTOCOCCUS PNEUMONIAE



MULTIDRUG-RESISTANT
PSEUDOMONAS AERUGINOSA



DRUG-RESISTANT
TUBERCULOSIS



DRUG-RESISTANT
NONTYPHOIDAL SALMONELLA



Concerning Threats



ERYTHROMYCIN-RESISTANT
GROUP A STREPTOCOCCUS



CLINDAMYCIN-RESISTANT
GROUP B STREPTOCOCCUS

Watch List



AZOLE-RESISTANT
ASPERGILLUS FUMIGATUS



DRUG-RESISTANT
BORDETELLA PERTUSSIS



DRUG-RESISTANT
MYCOPLASMA GENITALIUM

Social Media Messages

Spark conversations on social media! Use **#CDCARthreats** & follow along:

- **Twitter:** [@cdcgov](https://twitter.com/cdcgov) & [@CDC_NCEZID](https://twitter.com/CDC_NCEZID)
- **Facebook:** [/cdc](https://www.facebook.com/cdc)
- **Instagram:** [@cdcgov](https://www.instagram.com/cdcgov)
- **LinkedIn:** [/centers-for-disease-control-and-prevention](https://www.linkedin.com/company/centers-for-disease-control-and-prevention)



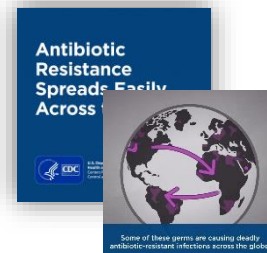
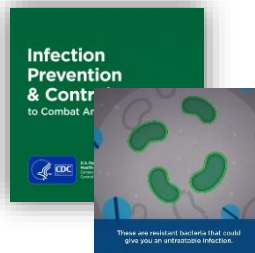
For your use: Social Media Posts

- **NEW:** Antibiotic-resistant bacteria & fungi cause more than 2.8M infections and 35k deaths in the United States each year, according to the second #CDCARthreats Report released today. Progress has been made, but aggressive action must continue. <http://bit.ly/CDCARthreats>
- The new #CDCARthreats Report shows that stopping spread of germs & preventing infections is saving lives. The threat is still too large & we all must play our role to combat it. Lives here in the U.S. & around the world depend on it. <http://bit.ly/CDCARthreats>
- New CDC Report: The burden of #AntibioticResistance is greater than previously thought. Antibiotic-resistant bacteria & fungi cause more than 2.8 million infections & 35,000 deaths in the U.S. each year. Read the report: <http://bit.ly/CDCARthreats> #CDCARthreats
- **DYK:** Bacteria & fungi live in, on, & all around us. They can become resistant to antibiotics and cause serious infections. Protect yourself & your family by keeping hands clean, covering wounds, & only taking antibiotics as prescribed. Learn more: <http://bit.ly/CDCARthreats>
- CDC's new report shows prevention efforts have reduced deaths from antibiotic-resistant infections by 18% overall & by nearly 30% in hospitals since the first 2013 report. More work still needs to be done. Read the new report: <http://bit.ly/CDCARthreats> #CDCARthreats
- Antibiotic-resistant bacteria and fungi cause more than 2.8 million infections and 35,000 deaths in the United States each year, according to CDC estimates in its second Antibiotic Resistance Threats Report released today. Learn how to protect yourself and your family from infections: <http://bit.ly/CDCARthreats>

For your use: Visuals

Download Social Cards, Gifs, & Pathogen Illustrations

- [Cards](#)
- [Gifs](#)
- [TB & *M. genitalium*](#)
- [Gonorrhea](#)
- [Healthcare pathogens](#)
- [Enteric pathogens & fungi](#)
- [Streptococcus & *B. pertussis*](#)

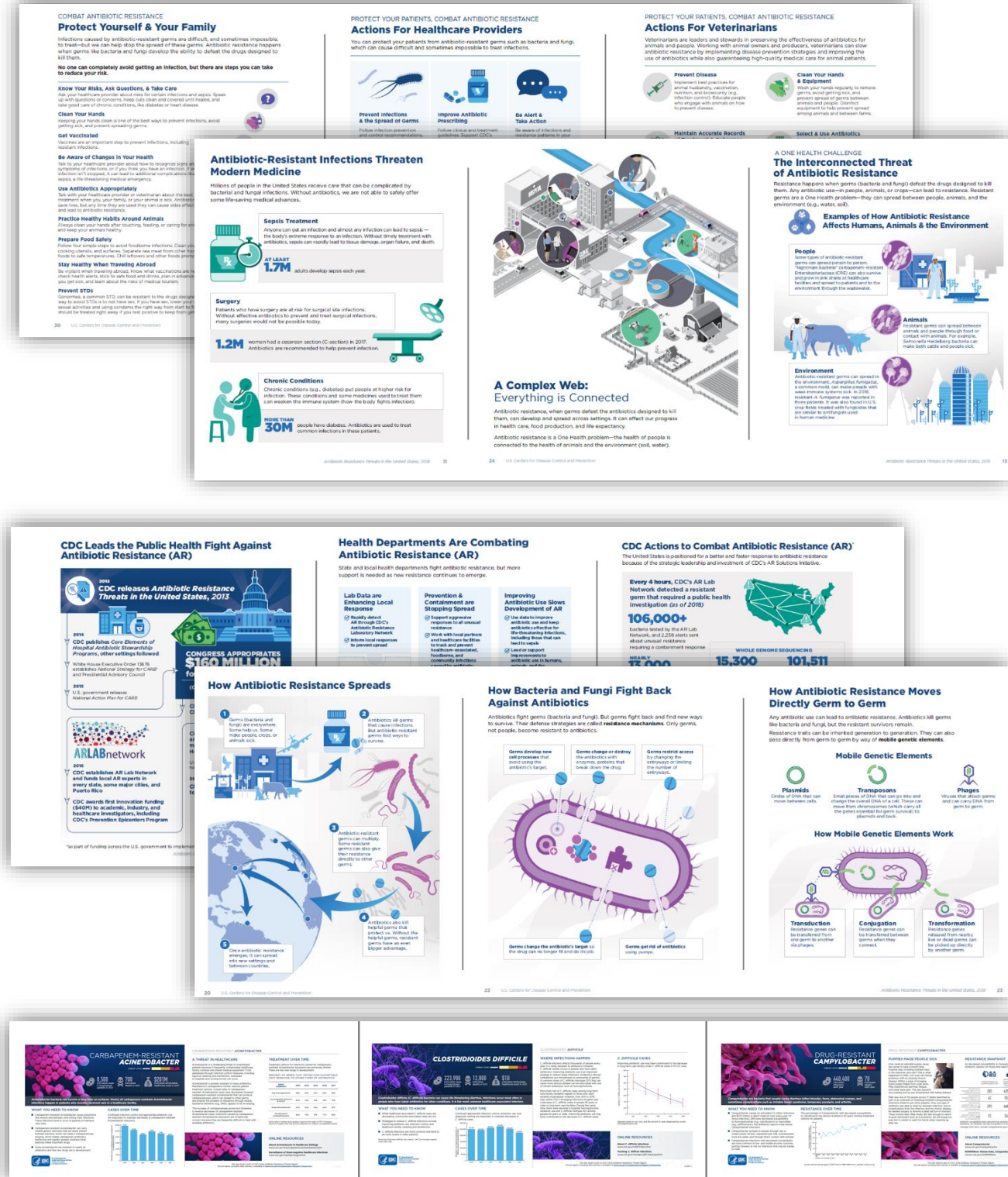


Share CDC Videos about Combating Antibiotic Resistance

- About the Threats Report – *Coming Soon*
- [Protecting Patients & Innovating](#)
- [Protecting Humans & Animals](#)
- [It's in Your Hands: Protecting Yourself & Your Family](#)
- [Fighting a Global Threat: CDC & Partners Combat Antibiotic Resistance](#)



Snapshot of Report Content & Graphics



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Thank you for your support and continued efforts!

