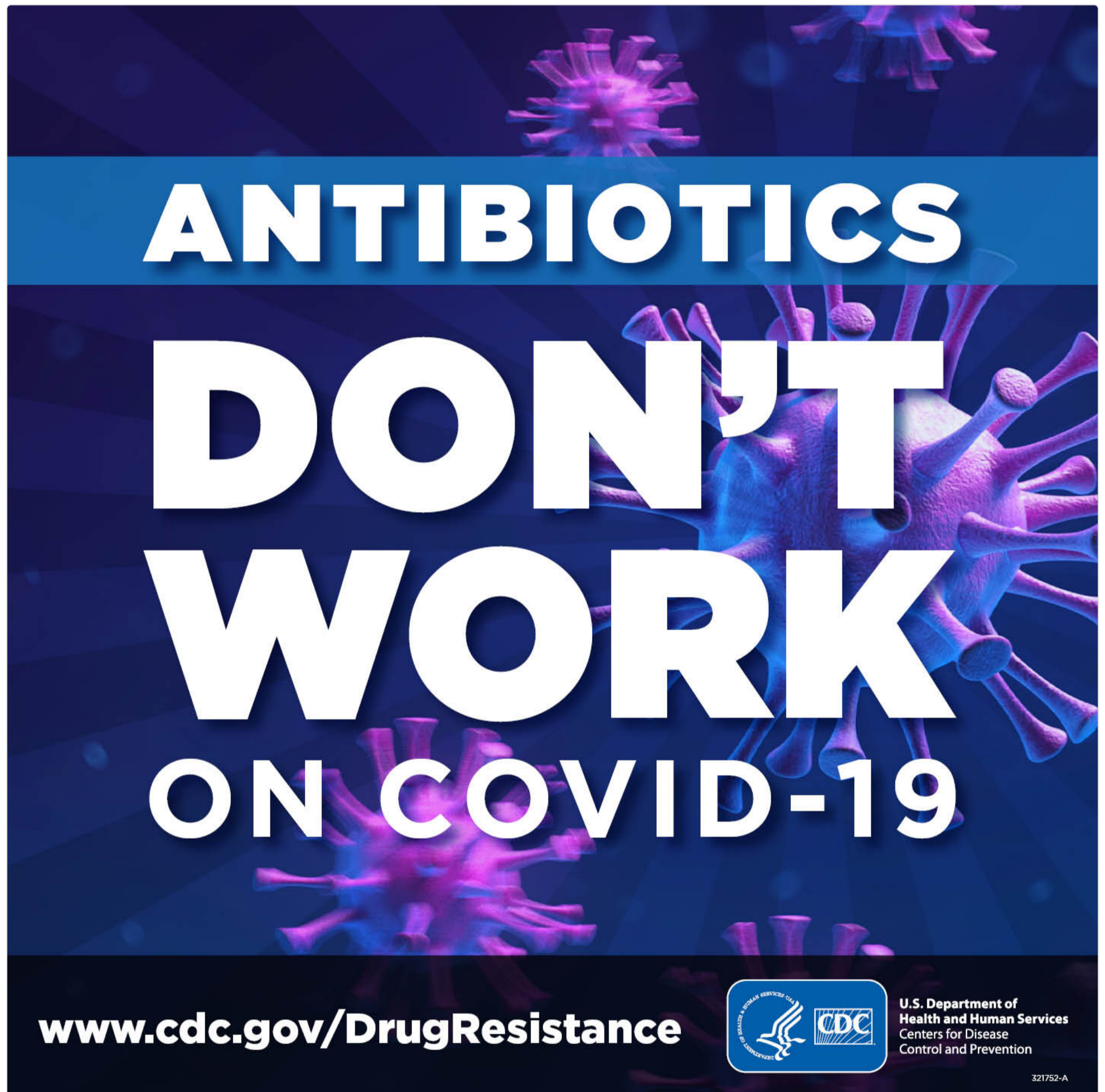



COVID-19 & Antibiotic Resistance



**ANTIBIOTICS
DON'T
WORK
ON COVID-19**

www.cdc.gov/DrugResistance





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

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Share this [graphic](#) to help improve antibiotic use during the COVID-19 pandemic.

Antibiotic resistance is still a public health threat during the COVID-19 pandemic. CDC experts are closely monitoring the possible effects of COVID-19 on the national state of antibiotic resistance and antibiotic use.

Experts are concerned that the pandemic could undo much of the nation's progress on antibiotic resistance, especially in hospitals. [Data show](#)  [\[PDF - 35 pages\]](#)  that COVID-19 can create a perfect storm for antibiotic-resistant infections in healthcare settings. For example, some patients with COVID-19 might stay in hospitals for a long time. Hospitals have also experienced staffing shortages, a higher number of sick patients to care for, and difficulties implementing infection control practices. Unfortunately, these burdens on some healthcare systems could have made it harder to track hospital-onset infections early in the pandemic.

In the community, public health personnel experienced difficulty monitoring antibiotic-resistant germs like [drug-resistant gonorrhea](#) and [foodborne germs](#). Public health personnel have been diverted to the pandemic response, and people had reduced access to care and testing services. For example, fewer people received regular screening for gonorrhea, according to data presented during a 2020 STD Prevention Conference panel discussion ([recordings](#) and [transcript](#)) and a National Coalition of STD Directors [survey](#). This means many cases were not identified, leading to the possible spread of more infections—including potentially antibiotic-resistant ones.


Many of the nation's efforts to prevent the spread of COVID-19 also help in the fight against antibiotic resistance. These efforts include CDC investments in infection prevention and control, training, surveillance, and public health personnel, such as:

- Supporting experts in infection prevention and control addressing healthcare infections and antibiotic resistance
- Providing COVID-19 testing and identifying antibiotic-resistant outbreaks through CDC's [Antibiotic Resistance Laboratory Network](#) (AR Lab Network) in 50 states and several cities/territories
- Developing and implementing antibiotic use tools for frontline workers
- Working with partners and [supporting projects](#) to improve clinical and public health outcomes and control emerging infectious disease threats, such as antibiotic resistance and COVID-19

Latest Data

As of February 2021, data show:

Healthcare infection control is critical to fight antibiotic resistance and COVID-19.

Patients hospitalized with a viral infection, such as COVID-19 or influenza (flu), can also get infections caused by bacteria or fungi. These are sometimes referred to as "secondary" infections. [Data collected](#)  [\[PDF - 35 pages\]](#) during the pandemic in 2020 indicate that, overall, most hospitalized patients with COVID-19 are about as likely to have a secondary infection as hospitalized patients with influenza-like illness (influenza-like is used for flu surveillance worldwide, [defined as](#) fever and cough and/or sore throat).

Data show that hospitalized patients with COVID-19 were likely to get these secondary bacterial or fungal infections while in the hospital (called hospital-onset infections). In contrast, hospitalized patients with influenza-like illness more often got secondary bacterial or fungal infections while in the community (called community-onset infections) before hospitalization.

These data show that patients with COVID-19 may be more susceptible to getting a secondary infection while hospitalized. Infections that occur while in a hospital are more likely to be caused by resistant germs.

Also, during the pandemic in 2020, some germs—including methicillin-resistant *Staphylococcus aureus* (MRSA)—caused more hospital-onset blood infections overall (in all patients, not just those with COVID-19 infections).

Reports also describe hospital-onset [COVID-19-associated pulmonary aspergillosis](#) (infections caused by the fungus *Aspergillus*, which can be resistant with few treatment options). Scientists thought that aspergillosis occurred mostly in people with weakened immune systems or organ transplants. However, in recent years and during the pandemic, it has been increasingly reported as a co- or secondary respiratory infection among people with other respiratory infections, like COVID-19. Resistant *Aspergillus fumigatus* is emerging globally though only a few cases have been reported in the United States.

CDC is [working with partners](#) to identify the individual patient and healthcare facility factors driving the increases of some infections, which are putting patients hospitalized with COVID-19 at greater risk for bacterial or fungal secondary infections that can be resistant to the drugs designed to treat them.

Reports describe sporadic antibiotic-resistant outbreaks in COVID-19 units and higher rates of hospital-onset infections.

There have been outbreaks of antibiotic-resistant *Acinetobacter* and *Candida*, including *C. auris*, in COVID-19 units. Scientists suspect that infection control lapses caused by pressures of the pandemic (e.g., increased hospitalizations, PPE shortages) may have influenced the spread of these germs in hospitals. CDC and public health partners responded to more than 20

outbreaks caused by resistant germs in COVID-19 treatment and observation units. The long-term impact on the spread of antibiotic-resistant germs in a region is uncertain.

Antibiotic use varies across healthcare settings.

Antibiotics are not effective against COVID-19 because antibiotics do not treat infections caused by viruses. Antibiotics save lives but any time antibiotics are used, they [can cause side effects](#) and lead to antibiotic resistance.

- In hospitals, antibiotic use increased for some specific antibiotics like azithromycin and ceftriaxone, which are often used to treat community-onset respiratory infections. This use likely reflects difficulties in distinguishing COVID-19 from community-acquired pneumonia caused by bacteria when patients first arrive for inpatient healthcare.
- In outpatient settings, such as doctor's offices, antibiotic use has dropped significantly. This is likely because outpatient healthcare use declined during the pandemic. Azithromycin prescribing was higher than expected, especially in geographic areas with high numbers of COVID-19 cases. This might be a reflection of its early promotion as a potential therapy, despite its ineffectiveness against viruses.
- In nursing homes, antibiotic use spiked with changes in the pandemic, but remains lower overall compared to pre-pandemic measurements. In nursing home settings, azithromycin prescribing remained elevated through October 2020.

CDC's AR Lab Network Adapts to Pandemic

During the COVID-19 pandemic, CDC's National Tuberculosis Molecular Surveillance Center used its AR Lab Network sequencing capacity to study SARS-CoV-2 (the virus that causes COVID-19). The lab sequenced more than 2,100 genomes from January to September 2020 to support contact tracing and help stop the virus from spreading. These collaborations display the flexibility of the AR Lab Network and how CDC's antibiotic resistance investments can be adapted during a crisis.






Find more CDC-led antibiotic resistance and COVID-19 [public health activities](#)  [PDF – 2 pages]

Some testing for antibiotic resistance slowed during the pandemic.

The number of bacterial and fungal specimens and isolates received/tested in 2020 by CDC's AR Lab Network was about 23% less than 2019 levels. This may be because healthcare facility and public health staff had to shift focus to COVID-19. The AR Lab Network's seven regional labs supported each other during the COVID-19 pandemic to maintain critical national testing for antibiotic resistance. For example, some labs offered tests outside of their typical regions when others were challenged by supply shortages or staff and equipment were diverted to COVID-19 testing.

At points throughout the pandemic, there have been shortages of sexually transmitted infection testing kits and laboratory supplies. These shortages, coupled with health department staff called to the front lines of the response, led to fewer tests conducted throughout the last year to determine trends in antibiotic-resistant gonorrhea.

Find more antibiotic resistance and COVID-19 data in CDC presentations to the [Presidential Advisory Council on Combating Antibiotic-Resistant Bacteria](#):

- Feb. 2021 [slides](#)  [PDF – 35 slides] 
- Sept. 2020 [recording](#)  and [slides](#)  [PDF – 24 slides] 

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