COVID-19 Reverses Progress in Fight Against Antimicrobial Resistance in U.S.

Hospitalization related infections grew 15% from 2019 to 2020

Media Statement

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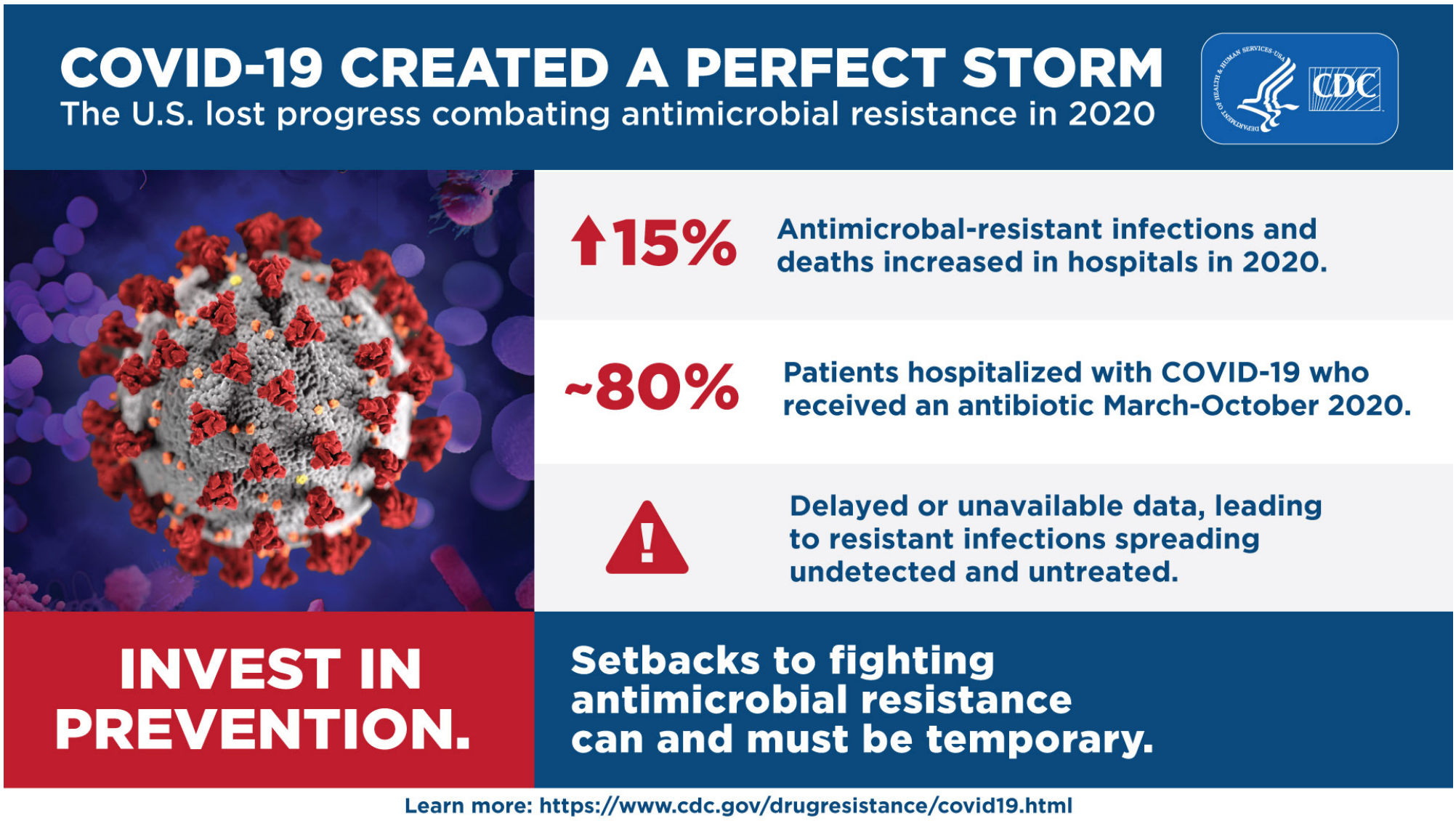

The COVID-19 pandemic pushed back years of progress made combating antimicrobial resistance (AR) in the United States. The report from the Centers for Disease Control and Prevention (CDC), COVID-19: U.S. Impact on Antimicrobial Resistance, Special Report 2022, concludes that the threat of antimicrobial-resistant infections is not only still present but has gotten worse—with resistant hospital-onset infections and deaths both increasing at least 15% during the first year of the pandemic.

“This setback can and must be temporary. The COVID-19 pandemic has unmistakably shown us that antimicrobial resistance will not stop if we let down our guard; there is no time to waste,” said Michael Craig, MPP, Director of CDC’s Antibiotic Resistance Coordination & Strategy Unit. “The best way to avert a pandemic caused by an antimicrobial-resistant pathogen is to identify gaps and invest in prevention to keep our nation safe.”

In the report, CDC analyzed the state of antimicrobial resistance in the United States immediately following the 2020 peaks of the COVID-19 pandemic. The data show an alarming increase in resistant infections starting during hospitalization, growing an overall 15% from 2019 to 2020 among seven pathogens. Increases in specific pathogens included:

- carbapenem-resistant *Acinetobacter* – 78% increase in infections,

- multidrug-resistant *Pseudomonas aeruginosa* – 32% increase in infections,
- vancomycin-resistant *Enterococcus* (VRE) – 14% increase in infections, and
- methicillin-resistant *Staphylococcus aureus* (MRSA) – 13% increase in infections.

Antifungal-resistant threats rose in 2020, too, including *Candida auris*—which increased 60% overall—and *Candida* species (excluding *Candida auris)*, with a 26% increase in infections in hospitals. By comparison, in a 2019 report, significant national reductions in hospitals were celebrated, where antimicrobial-resistant infections fell by 27% 2012 to 2017; data show these reductions continued in hospitals until the pandemic began. *Clostridioides difficile* is the only healthcare-associated pathogen to improve in 2020, likely driven in part by changes in healthcare-seeking behavior.

In U.S. hospitals, CDC data show significant surges in antibiotic use and difficulty in following infection prevention and control guidance, which are key to preventing antimicrobial-resistant infections and their spread. During the pandemic, hospitals experienced personal protective equipment supply challenges, staffing shortages, and longer patient stays. Hospitals also treated sicker patients who required more frequent and longer use of medical devices like catheters and ventilators. The impact of the pandemic likely resulted in an increase of healthcare-associated, antimicrobial-resistant infections.

During the first year of the pandemic, more than 29,400 people died from antimicrobial-resistant infections commonly associated with healthcare. Of these, nearly 40% got the infection while they were in the hospital. The total national burden of deaths from AR may be much higher, but data gaps caused by the pandemic hinder that analysis. CDC has limited data for the spread of antimicrobial-resistant infections in the community; many clinics and healthcare facilities had limited services, served fewer patients, or closed their doors entirely in the face of challenges from COVID-19. Data are unavailable or delayed for nine of the 18 pathogens listed in CDC's 2019 Antibiotic Resistance Threats Reports.

In the 2019 report, the last year comprehensive healthcare and community data were available to calculate, CDC estimated that more than 2.8 million antimicrobial-resistant infections occur in the U.S. each year, with more than 35,000 people dying as a result.

Historic progress made in antibiotic prescribing was reversed as well during the pandemic. Antibiotics were often the first option given to treat those who presented with pneumonia-like symptoms of fever and shortness of breath even though this often represented the viral illness of COVID-19, for which antibiotics are not effective. From March 2020 to October 2020, almost 80% of patients hospitalized with COVID-19 received an antibiotic. While some of this prescribing can be appropriate when risks for related bacterial or fungal infections are unknown, this high level of prescribing can also put patients at risk for side effects and create a pathway for resistance to develop and spread.

Despite the pandemic, in 2020, more than 90% of U.S. hospitals had an antibiotic stewardship program aligned with CDC's Core Elements of Hospital Antibiotic Stewardship—which may have contributed to the reduction in *Clostridioides difficile* infections.

During the pandemic, many antimicrobial resistance programs contributed to stopping the spread of COVID-19. For example, CDC's AR Solutions Initiative provided infection control expertise to healthcare facilities, many of them nursing homes, to perform more than 14,000 outbreak consultations; CDC's AR Lab Network sequenced more than 4,700 SAR-CoV-2 genomes; and CDC's NHSN, which drives patient safety programs by tracking antimicrobial-resistant infections and antibiotic use in healthcare, provided added capabilities to support COVID-19 data collection in hospitals and nursing homes.

"We need to emphasize and expand the implementation of the effective prevention strategies that are already in CDC's toolbox to all healthcare facilities," said Denise Cardo, MD, Director of CDC's Division of Healthcare Quality Promotion. "The 2021 launch of the Global AR Lab and Response Network and the Global Action in Healthcare Network is an example of how aggressively CDC is moving to combat antimicrobial resistance not only in the U.S., but in nearly 50 countries across the world. We made significant progress before the pandemic, and I'm confident that we will make significant progress going forward."

With prevention and preparedness as its top goal, CDC remains committed to the U.S. National Action Plan for Combating Antibiotic-Resistant Bacteria (CARB) and will move forward by addressing gaps in the public health system and exploring investments in U.S. healthcare infrastructure in the following key areas:

- **Enhance Data Systems and Sharing:** Expanding automation of electronic data under NHSN to allow healthcare facilities and systems to have information they need on antibiotic use and antimicrobial resistance. Additionally, this includes sharing established networks like CDC's AR Lab Network during emergencies, using telehealth for contact tracing, and working to support uninterrupted laboratory supplies and equipment for patient care and infection control.
- **Infection Control:** Continuing to offer high-quality infection prevention and control training like Project Firstline to every healthcare professional and to healthcare facilities beyond hospitals, such as nursing homes and other long-term care facilities. This also means educating the public on how they can stop the spread of germs and practice infection prevention in the communities where they live and work.
- **Antibiotic/Antifungal Use and Access**: Optimizing antibiotic use across all healthcare settings and implementing CDC's Core Elements across healthcare settings. In addition, working to promote optimal antibiotic and antifungal use and tracking for companion animals and agriculture.
- **Environment and Sanitation:** Expanding the capacity of the National Wastewater Surveillance System to collect antimicrobial resistance data from wastewater treatment plants and healthcare facilities, studying resistance in community and healthcare wastewater domestically and globally. This also includes expanding global capacities to fight antimicrobial resistance in the environment and monitor antimicrobial resistance across One Health.
- **Vaccines, Therapeutics, and Diagnostics:** Enhancing interagency collaboration to accelerate research for developing new antibiotics, antifungals, and therapeutics. For example, working with the Food and Drug Administration to identify ways to support availability of decolonization products. This also includes supporting the use of vaccines to prevent infections, slow the spread of resistance, and reduce antibiotic use, and building a vaccine data platform to inform the development of new vaccines.

CDC is and will remain at the forefront of combating antimicrobial resistance. Though the pandemic reversed much of the progress in the past decade on infection prevention and control, the fight will now take on a renewed fervor in prevention-focused public health actions to keep the nation safe.

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