The pandemic legacy of antimicrobial resistance in the USA

The COVID-19 pandemic inflicted a new burden on health systems worldwide and compounded existing health challenges across many aspects of global health. According to the annual Tripartite AMR Country Self-Assessment Survey 2020–21, 151 (94%) of 161 countries ascribed the pandemic as having impacted their national response to tackling antimicrobial resistance.[1] An acute increase in the burden of antimicrobial resistance was thus a feared outcome of the pandemic, but this speculation had not been comprehensively measured.

A new special report by the Centers for Disease Control and Prevention (CDC) is among the first to show country-level estimates of the effect of COVID-19 on antimicrobial resistance in the USA.[2] The report highlights a devastating undoing of progress in efforts to control antimicrobial resistance. Declines in death from antimicrobial resistance by 18% from 2012 to 2017, including a 30% reduction in US hospitals, were crudely reversed by a 15% increase in drug-resistant nosocomial infection rates in 2020, compared with the previous year. Pathogen–drug combinations that were classified as critical by WHO and urgent by the CDC—based on their risk to human health—showed particularly alarming increases in rates of infection since the previous year (2019), with rates of carbapenem-resistant Enterobacterales infections up 35%, and carbapenem-resistant *Acinetobacter* increasing by 78% (appendix).

These data signify a distinct undoing of progress towards the foremost goal of the US National Action Plan for Combating Antibiotic-Resistant Bacteria[3]—built on the successes of infection prevention and control interventions across US hospitals—to slow the emergence of resistant bacteria and prevent the spread of resistant infections. The danger of allowing a continuation or sustenance of these trends is an evolutionary acceleration of the emergence of further multidrug-resistant, extensively drug-resistant, and even pan-resistant organisms. In the absence of sustainable supply-side solutions, and with the ease at which pathogens can rapidly spread worldwide, the continuity of modern medicine is gravely endangered. These setbacks can and must be temporary.

We believe the path to recovery requires a broader shift in current approaches to tackling public health challenges. The most urgent health threats of the 21st century (eg, climate change, demographic shifts, infectious disease outbreaks, and antimicrobial resistance) together represent a complex predicament for modern medicine.[4] The multisectoral complexity of modern health threats warrants bold, collaborative, strategic approaches with governance strategies embedded in a One Health framework—an internationally recognised approach to develop and implement policy across human, animal, and environmental health sectors. For most countries, this means transitioning national health governance away from policy responses with variable priorities for vertical, disease-focused interventions, and instead recognising and capitalising on the shared benefits of horizontal efforts that strengthen health systems and promote combination prevention. Interventions that are strategically designed for broader benefits are advantageous both in terms of enhancing core capacities to prevent, detect, and manage acute health emergencies, and in the day-to-day functioning of health-care systems. We believe that developing health security with this economic framing should be able to encourage investments from governments.

Responses to antimicrobial resistance in a post-pandemic era can be strengthened by increasing political and public realisation that health security is transnational. Governments and institutions can only protect the health of their populations by assuming a responsibility that the causes and consequences of health threats transcend national boundaries. Accordingly, policy makers should recognise the global externalities—policy areas in which the actions (or inaction) of any nation can affect all global actors.[5] We consider the USA, with support from the CDC, well positioned to initiate this leadership and rebuild post-pandemic public health capacities to steer large scale efforts. At least four major interconnected domains relevant to antimicrobial resistance control have been damaged by the COVID-19 pandemic (infection prevention and control, diagnostics, therapeutics development, and surveillance), but each present important opportunities for shared benefits across health security.

The CDC are among the first groups to quantitatively characterise the effect of the COVID-19 pandemic on antimicrobial resistance at a national level. Their

See **Online** for appendix

findings underscore an urgent need for a renewed focus on antimicrobial resistance to prevent a pandemic legacy becoming more damaging than COVID-19 itself. We must resist a naive assumption that the acute exacerbation in the burden of antimicrobial resistance will reach a natural recalibration, or that minor changes in existing structures will enable a return to pre-pandemic trends.[6] Investment opportunities for substantial health, social, economic, and political dividends are clear, but policy makers must be prepared to take a long term view and transcend political cycles. Health leaders in the USA and other countries cannot overlook this opportunity to reverse the pandemic's damaging effect on antimicrobial resistance and rebuild the national and international architecture to meet multiple health challenges, simultaneously.

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2   Centers for Disease Control and Prevention. COVID-19: US impact on antimicrobial resistance, special report 2022. Atlanta, GA: US Department of Health and Human Services, CDC, 2022.

3   The White House. National Action Plan for Combating Antibiotic-Resistant Bacteria, 2020–2025. Washington, DC: The White House, 2014.

4   Goldberg J, Clezy K, Jasovský D, Uyen-Cateriano A. Leaving no one behind: the need for a truly global response to antimicrobial resistance. *Lancet Microbe* 2022; **3:** e2–3.

5   Williamson A, Forman R, Azzopardi-Muscat N, et al. Effective post-pandemic governance must focus on shared challenges. *Lancet* 2022; **399:** 1999–2001.

6   The Lancet Microbe. Antimicrobial resistance is part of a perfect storm of health crises. *Lancet Microbe* 2021; **2:** e645