

A just transition for antimicrobial resistance: planning for an equitable and sustainable future with antimicrobial resistance



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Antimicrobial resistance is among the most urgent global health challenges of our time, with an estimated 4.95 million deaths associated with resistant bacteria in 2019.¹⁻³ That microbes develop resistance to antimicrobials is accepted as an evolutionary inevitability for their survival, driven by competition between and among micro-organisms in the natural environment.⁴ How to reduce the impact of drug resistance in the future is a matter of global concern, considering the consequences that clinically ineffective antimicrobials will have for health care and agricultural systems that have come to rely on these powerful substances. Paradoxically, this reliance, underpinning massive use of antimicrobials, is understood to drive antimicrobial resistance in humans, animals, and the environment. Planning for a future with antimicrobial resistance, and reducing its burden in clinical, social, and economic terms, will require addressing this paradox.

The global antimicrobial resistance response has been successful in galvanising support around drug resistance as an emerging threat to the health and economies of the world.⁵ But attention must now turn to ensuring our response alleviates rather than exacerbates the antimicrobial resistance burden for the people for whom it is heaviest: populations with high risk of infection, patients without access to next-line treatment, carers with few resources, and other groups. Efforts to reduce drug pressure risk creating further disadvantages to these same groups. For example, indiscriminate access to non-prescription antibiotics is understood as an antimicrobial resistance driver, as is the prophylactic use of antibiotics in livestock production.² But when these practices become targets for restrictions and policing, they can result in inequitable outcomes. Banning non-prescription antibiotics sales, although effective in curbing excessive antibiotic use in some settings, could deny individuals with the least economic and social capital access to potentially life-saving treatment.⁶ Similarly, when livestock markets pressure farmers into routine antibiotic use, individuals operating on razor-thin margins absorb greater risks of economic collapse if they are unable to use antibiotics.^{7,8} This lives-and-livelihoods dimension of the antibiotic access-excess trade-off is underscored by structural inequities (eg, systemic racism, wealth disparities, and

gender inequality), which leave socioeconomically disadvantaged populations more vulnerable, including to antimicrobial resistance and regulatory responses.⁹ The uneven burden of drug-resistant infections, exposure to antimicrobial pollution and antimicrobial resistance in the environment, and livelihood risks, particularly among low-income and middle-income countries³ and their most vulnerable populations,¹⁰ warrants more serious consideration by both public and private actors to jointly address health, inequality, and environmental implications of antimicrobial resistance.

Any action to reduce antimicrobial resistance can thus have consequences for other health and development goals. How these trade-offs and co-benefits (inherent to these actions and goals) are articulated and navigated will be crucial in planning for and achieving an equitable and sustainable future in which the threat of antimicrobial resistance is reduced. Clear guiding parameters are needed to frame these trade-offs, which a just transition approach can offer. The notion of a just transition gained prominence in climate governance, when questions about equity, access to benefits, and allocation of burdens became key concerns, articulating the need to prioritise justice, sustainability, inclusivity, and solidarity amid urgent low-carbon and climate-resilient transformations.¹¹⁻¹³ Applying a just transition approach to antimicrobial resistance introduces a cross-disciplinary



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framework, rendering visible the uneven impacts of antimicrobial resistance action and inaction, ensuring that policies and interventions mitigate the effects of drug resistance while also addressing inequalities and trade-offs arising across sectors, societies, and communities with differing interests and priorities in the use of, and access to, antimicrobials. Making such trade-offs legible and navigating competing interests through a transparent, inclusive, and equitable process will ensure that efforts to curb antimicrobial resistance are aimed towards reducing rather than reinscribing health inequalities.

How actions are prioritised and resources allocated to address antimicrobial resistance will play an important role in ensuring an ability to make systemic changes to reduce reliance on antimicrobials while also responding to structural inequities and inequality in the distribution of the antimicrobial resistance burden now and in coming decades. The largest proportion of funding for antimicrobial resistance has been channelled into new pharmaceuticals and other technology-driven solutions aimed at replacing or better targeting of antimicrobials.¹⁴ Strategic goal-oriented investment that aims to reduce systemic reliance on antimicrobials and minimise the effects of drug resistance must complement this emphasis on technological solutions, with measures that address infrastructural and organisational dimensions of antimicrobial resistance, such as infection prevention and control in clinical settings; biosecurity on farms; water, sanitation, and hygiene in communities; and efforts to reduce pollution from antimicrobials and antimicrobial-resistant genes in the environment. Shifting to a transitions framework allows those concerned with antimicrobial resistance to move beyond the immediacy of averting drug-resistance to start thinking more deliberately about a future in which humanity lives more sustainably with microbial ecosystems. For example, a just transition might allow questioning what forms of epistemic injustice underpin the current approach to living with or without microbes and to look at underexplored pathways of managing disease.

Although the breadth of societal entanglement with antimicrobials can be daunting, case studies and scenario-based approaches can successfully bring into conversation evidence and expertise across different domains to explore trade-offs for the application of a given intervention. Evaluating the potentially unequal impact and implications of interventions then becomes possible as

an explicit comparative exercise in policy decision making. A just transition for antimicrobial resistance serves as a starting point for these discussions prioritising justice, sustainability, inclusivity, and equity in the planning for a future with antimicrobial resistance. In anticipation of the second high-level meeting of the UN General Assembly in 2024,¹⁵ we propose a just transition to frame the global agenda on antimicrobial resistance in the coming decades.

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For the Just Transitions Framework for the Equitable and Sustainable Mitigation of AMR see <https://www.thebritishacademy.ac.uk/projects/just-transitions-to-contain-antibiotic-resistance-while-minimising-potential-burdens-and-harms/>