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Short Communication

What and where should the next antimicrobial resistance policies focus on?

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Antimicrobial resistance (AMR) has quietly become a major health and economic threat to countries worldwide. However, it is still often misperceived to be a technical issue of limited societal significance and one whose impact will be felt in the distant future. However, the evidence base strongly indicates that AMR constitutes a major, if under-appreciated, vulnerability for all countries. We believe three areas currently warrant particular emphasis. First, ensure existing policies are being effectively implemented. Second, focus new policy making at the sub-national level to take local conditions into account. Third, collect and analyze the data needed to identify and close major policy and strategy gaps. As the world moves on from the COVID-19 pandemic, there will be a continued and perhaps even greater focus on pandemic-preparedness, surveillance, and response capabilities. Our view is that policy responses to AMR should be built into this agenda and remain visible to enable all nations to solve the global challenge posed by infectious diseases effectively. However, in the face of more visible global threats, such as the COVID-19 pandemic and climate change, many governments have failed to pay sufficient attention to addressing this issue [1]. In part, AMR is still often misperceived to be a technical issue of limited societal significance and one whose impact will be felt in the distant future. The evidence base, however, strongly indicates that AMR constitutes a major, if underappreciated, vulnerability for all countries. Over decades of scientific research, much has been learned about AMR, including why it occurs, how it develops, and its adverse direct and indirect consequences.

The core issue is that a broad range of microbes have grown increasingly more 'resistant' to available medicines. This means medicines are less able to cure or prevent infections and people have less of a chance of recovering from a broad range of common to lethal infections. A direct result is an increasing trend in serious illnesses and deaths, as well as increases in health-associated costs, including lowered population productivity [2]. An underappreciated aspect is that it reduces food safety and security by reducing the ability to prevent disease among animals [3–5].

The seemingly inescapable dilemma is that the medicines used to control or prevent human and animal infections, and in some situations to promote animal growth, are simultaneously driving microbes to evolve genetically and develop resistance to treatment. The risks of individuals dying from resistant infections and the associated increase in healthcare costs are considerable [6–9]. Recent studies have estimated the magnitudes of such consequences to be larger than those of major global diseases such as HIV and malaria [10]. A sobering point is that most studies and estimates of the health and economic consequences have focused on AMR among bacteria, but the same phenomenon is also occurring among viruses, parasites, and fungi. Because the ability to treat

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infections is a foundational pillar of modern medicine, and because the scientific basis and magnitude of the health and economic consequences of AMR have been sufficiently documented for the world to be alarmed, a position of wait and see is no longer defensible. The central question for policy makers is no longer whether to address AMR, but how?

Much progress related to policymaking has been made in the past seven years. In 2016, the World Health Assembly of WHO adopted a Global Action Plan (GAP) for AMR which, unusually, was endorsed within weeks by the Member States assemblies of the Food and Agriculture Organization (FAO) and the World Organization for Animal Health (OIE). In 2015, at the High-Level Meeting of the United Nations (UN), world leaders made a commitment to act against AMR, which resulted in a UN General Assembly resolution. Between 2016 and 2021, at least 119 countries developed National Action Plans (NAPs) based on the GAP [11,12]. In addition, countries like Nepal and Thailand have established surveillance systems and multi-sectoral partnerships [12,13]; early champions of efforts to address AMR, like Sweden and the United Kingdom, have implemented local and overseas programs to address AMR, including support for surveillance, AMR stewardship programs [14,15], and funding [16,17]. While such actions provide a good foundation, levels of antibiotic resistance remain largely unchanged [18,19] and more measures taken by others are needed.

We believe three areas currently warrant particular emphasis. First, ensure existing policies are being effectively implemented. Second, focus new policy making at the sub-national level to take local conditions into account. Third, collect and analyze the data needed to identify and close major policy and strategy gaps.

Currently, not all AMR policies appear to be implemented consistently across relevant sectors or national levels, including within health care systems [20,21]. Why? While some AMR policies reflect local data and concerns, we have seen other policies that do not, and therefore may seem irrelevant to those responsible for their implementation. While national policies are critical for ensuring comparability across countries, acknowledging and accommodating local concerns is also important to gain 'buy in.' An inflexible 'one-size-fits-all' approach to implementation is likely to create barriers. Practically, using data from local surveillance systems and studies to augment information from other locations is ideal and more likely to result in interventions that are acceptable to stakeholders. For instance, documenting the extent of AMR and antimicrobial use in local hospitals and farms (WHO antimicrobial consumption report 2016–18) [22,23] can help engage local stakeholders and convince them of the relationships between the use of antibiotics and the incidence of AMR infections and, consequently, the need to act.

Even when the local health burden and evolution of AMR are documented, however, some countries find it difficult to marshal the necessary attention needed to develop and implement AMR policies due, in part, to competition among various issues [24,25]. Joint Program Initiative AMR (JPIAMR) is an example that illustrated the importance of linking accurate AMR diagnostics and surveillance data to policy making, funding, and research priorities [26]. In such situations, establishing policies and supporting measures that can benefit multiple areas broadly can be useful. For example, developing policies that jointly address related concerns such as food safety, food security, and the prevention and control of infectious disease and AMR can reflect subnational and sectoral concerns while fostering closer working-level collaborations among public and private sector actors. Additionally, efforts to establish microbiology and genomics surveillance in countries that have not had the resources should be supported [27,28]. As the world moves on from the COVID-19 pandemic, there will be a continued and perhaps even greater focus on pandemic-preparedness, surveillance, and response capabilities. We must ensure that policy responses to AMR are built into this agenda and remain visible to enable us to solve the global challenge posed by infectious diseases effectively.

Author Contributions

OC wrote the original draft. KF and HT contributed ideas. PW reviewed surveillance-related information and policy. CU reviewed policy applications and contextual consideration. All authors contributed equally to reviewing and editing.

Conflict of interest

None declared

Ethical Approval

Not required

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