Next Generation of AMR Network

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Antimicrobial resistance (AMR) is one of the top 10 global public health threats facing humanity, especially in low-resource settings, and requires an interdisciplinary response across academia, government, countries, and societies. If unchecked, AMR will hamper progress towards reaching the United Nations Sustainable Development Goals (SDGs), including ending poverty and hunger, promoting healthy lives and well-being, and achieving sustained economic growth. There are many global initiatives to curb the effects of AMR, but significant gaps remain. New ways of thinking and operating in the context of the SDGs are essential to making progress. In this entry, we define the next generation of the AMR research network, its composition, and strategic activities that can help mitigate the threats due to AMR at the local, regional, and global levels. This is supported by a review of recent literature and bibliometric and network analyses to examine the current and future state of AMR research networks for global health and sustainable development.

Keywords: AMR ; networks ; bibliometrics ; SDGs

Antimicrobial resistance (AMR) happens when microorganisms no longer respond to antimicrobials to treat them. Modern medicine depends on these medical substances to protect people against infection. However, several decades of antimicrobial abuse and misuse in humans, animals, and agricultural practices have accelerated AMR and created health emergencies [1] with huge socioeconomic impact [2]. Current interventions exist, yet many are not sufficient to counteract AMR and its drivers, and the AMR community identified this as an 'implementation gap' [3]. With new AMR mechanisms spreading globally, generating greater burden in low-resource non-U.S. settings, all these consequences and threats are expected to rise more affecting the delivery of Sustainable Development Goals (SDGs)—the "blueprint to achieve a better and more sustainable future for all" [4]. Addressing AMR as a global public health and development challenge requires holistic, multi-sectoral, and multi-disciplinary approaches across academic institutions, government sectors, and society [1]. Sustained collaborations are needed to curb current and future AMR challenges and not to place SDGs at risk. In this entry, we review AMR, define its drivers, and present its impact on SDGs. We also describe current global collaborative efforts on mitigating AMR and corroborate this review with bibliometric and network analyses. We identify gaps and present our definition and views on the next generation of AMR research networks, and what this network model shall look like. We define hallmarks, strategic areas, and phase-gate milestones that countries, institutions, and networks of AMR experts need to invest in to mitigate the effects of AMR as a globally multifaceted phenomenon.

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