

## Measuring Global Response to Antimicrobial Resistance



In order to evaluate current progress and future planning to overcome antimicrobial resistance, it is important to understand strategic commitments and policy responses. The most important mechanism guiding national strategy and action for antimicrobial resistance governance is the national action plans (NAPs). Several NAPs have been developed, but to date, there has been no comprehensive analysis of these plans. In this review, the authors propose a governance framework to assess publicly available NAPs on antimicrobial resistance.

A systematic review of NAPs on antimicrobial resistance from 114 countries was conducted using a governance framework with 18 domains and 54 indicators in three areas: policy design, implementation tools, and monitoring and evaluation. The review included searching NAPs, online and literature searches, and using various data sources to generate scores. The review included NAPs submitted to the Tripartite Antimicrobial Resistance Country Self-Assessment Survey, the Global Antimicrobial Resistance and Use Surveillance System, the Global Antimicrobial Resistance Research and Development Hub, and WHO datasets. In addition, all NAPs that were retrievable through a publicly accessible database or website and were published in English or eligible for machine translation were included. Three researchers independently reviewed each NAP and used a quantification system to score each of the 54 indicators. Discrepancies in scoring were resolved through a consensus agreement. The data were transformed to a scale of 0-100, ranked countries based on their mean scores, and used descriptive statistics to analyse global and regional trends.

Out of 306 NAPs identified, 114 were eligible for analysis. The mean antimicrobial resistance governance score for these 114 countries was 51 (with a standard deviation of 14) between 2020 and 2021. Norway had the highest governance score with a mean of 85 (standard deviation of 32), while Federated States of Micronesia had the lowest governance score with 28 (standard deviation of 37). The domain with the highest score was participation, with a mean of 83 (standard deviation of 16), while the lowest scores were in the domains of accountability and feedback mechanism, both with a mean of 30 (standard deviation of 18 and 25, respectively). The domains relating to policy design and implementation tools scored similarly, with mean scores of 55 (standard deviation of 13) and 54 (standard deviation of 17), respectively, while the efforts in monitoring and evaluation were lower, with a mean score of 38 (standard deviation of 20).

The results of the systematic review indicate that international efforts to control antimicrobial resistance varied significantly between countries, with some countries having significantly higher governance scores than others. The lowest-scoring domains were accountability and feedback mechanism, indicating that these areas may require the most attention and improvement. Additionally, monitoring and evaluation efforts were found to be lower compared to other domains, suggesting that there is a need for improvement in these areas to better understand national and international progress in controlling antimicrobial resistance. Overall, the results imply that the international response to the issue of antimicrobial resistance may not be adequate to address the scale and severity of the problem.

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