

# Knowledge of Antibiotic Use and Resistance Among Medical Students in Saudi Arabia [Letter]

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## Dear editor

We read with interest the insightful research conducted by Nukaly et al on the topic of medical students' knowledge of antibiotic use and resistance in Saudi Arabia.<sup>1</sup> Their study opens an essential dialogue about the role of medical education in antimicrobial resistance (AMR), with valuable insights. As a result, we extend our gratitude towards the authors for their efforts. We have provided our comments below to further expand on this area of research, with the aim of offering additional details and recommendations for improving strategies against AMR in Saudi Arabia. It is essential to adopt a comprehensive approach to AMR with both human and environmental health considered. This should help us better understand and tackle this global health threat.

As mentioned, this study offers us insight to the importance of medical student education in addressing AMR. However, health policy and patient education are also crucial in this regard. Alajel et al concludes the effectiveness of regulatory measures and public education in reducing antimicrobial sales after a nationwide antimicrobial restriction policy implemented in 2018.<sup>2</sup> Despite these efforts, current studies reveal poor knowledge and practices among the population regarding antibiotics and AMR, such as the research of Al-Mehmadi et al which found that it is common for people to store and reuse leftover antibiotics.<sup>3</sup> To effectively address AMR in Saudi Arabia beyond the sphere of medical education, comprehensive educational initiatives, stewardship programs and stricter prescription regulations should be implemented. Government-funded public awareness campaigns, similar to the Antibiotic Guardian campaign launched by Public Health England in 2014, could help motivate public commitment to address antibiotic misuse, as noted by Flintham et al.<sup>4</sup> In the same vein, educating farmers and agricultural workers about AMR risks and proper antibiotic use is important. Integrating global recommendations like those from the World Health Organization for the use of antibiotics in agricultural practices could help in our efforts. Reinforcing stringent regulations on non-prescription antibiotic use in the agricultural sector, like the human healthcare regulations above, may reduce antibiotic misuse.

To add to this, we recommend governmental investment in comprehensive, real-time surveillance systems that span across healthcare institutions in order to closely monitor the national usage and resistance patterns of antibiotics in Saudi Arabia. This is because the country's antibiotic resistance landscape exhibits significant variations in regional resistance patterns, as demonstrated by Alhifany et al.<sup>5</sup> Their research shows clear potential for mapping technology to effectively visualize antibiotic resistance data.<sup>5</sup> Such findings highlight the need for advanced surveillance systems that quickly identify hotspots and can guide responsive, targeted interventions and resource allocation, to better control the emergence of antibiotic resistance in Saudi Arabia.

Planning in all these areas will contribute to our collective efforts to combat AMR. A coordinated effort is needed, encompassing modifications to the medical curriculum, engagement of the global research community, policymakers, and healthcare providers.

## Disclosure

The author reports no conflicts of interest in this communication.

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