University of Hertfordshire UH

BRITISH SOCIETY FOR ANTIMICROBIAL CHEMOTHERAPY

From Pandemic to Policy: Leveraging COVID-19 Lessons to Strengthen Antimicrobial Stewardship

Rasha Abdelsalam Elshenawy

Consultant in Antimicrobial Resistance, South Centre, Geneva, Switzerland

School of Health, Medicine and Life Sciences, University of Hertfordshire, United Kingdom

Background

- The COVID-19 pandemic disrupted healthcare services, straining antimicrobial stewardship (AMS) efforts. Uncertainty about bacterial co-infections led to widespread empiric antibiotic use, heightening antimicrobial resistance (AMR) concerns.
- Fewer than 10% of COVID-19 patients had confirmed bacterial infections, yet over 70% received antibiotics [1].
- Translating research into evidence-based policies is crucial for strengthening AMS, promoting health system resilience, and ensuring preparedness for future global health emergencies [2,3] (Figure 1).

Figure 1. COVID-19 pandemic and antimicrobial resistance silent pandemic.

Objectives

- To evaluate hospital-based AMS practices during COVID-19 and translate insights into a policy brief highlighting the pandemic's impact, lessons learned, and recommendations for resilient, sustainable AMS and global AMR policy improvements.

Method

- A comprehensive evaluation of AMS practices during the COVID-19 pandemic comprised three studies. First, a systematic literature review screened 8,763 AMS-related articles and included 13 studies that examined global AMS implementation over the past two decades, including during the COVID-19 pandemic.
- Second, a retrospective review of medical records evaluated antibiotic prescribing patterns in 640 patients across two NHS Trust hospitals between 2019 and 2020.
- Finally, a prospective cross-sectional survey of 240 healthcare professionals assessed their knowledge, attitudes, and perceptions regarding antibiotic prescribing, antimicrobial resistance and stewardship [4].
- This was further enriched by reviewing institutional guidelines and national and global policy responses, such as WHO and United Nations advisories on antibiotic use and AMR surveillance, as well as the impact of the COVID-19 pandemic on AMS. Key governmental and published reports on lessons learned from the pandemic and emergency preparedness were also included.

Results

The findings informed the development of a policy brief addressing three key areas:

- the impact of COVID-19 on AMS;
- critical lessons learned during the pandemic (Figure 2);
- and strategic recommendations for building resilient and sustainable AMS practices (Figure 3).

These outcomes highlight the importance of embedding AMS in emergency preparedness, strengthening diagnostic capacity, and ensuring evidence-based policymaking to combat AMR in future health crises.

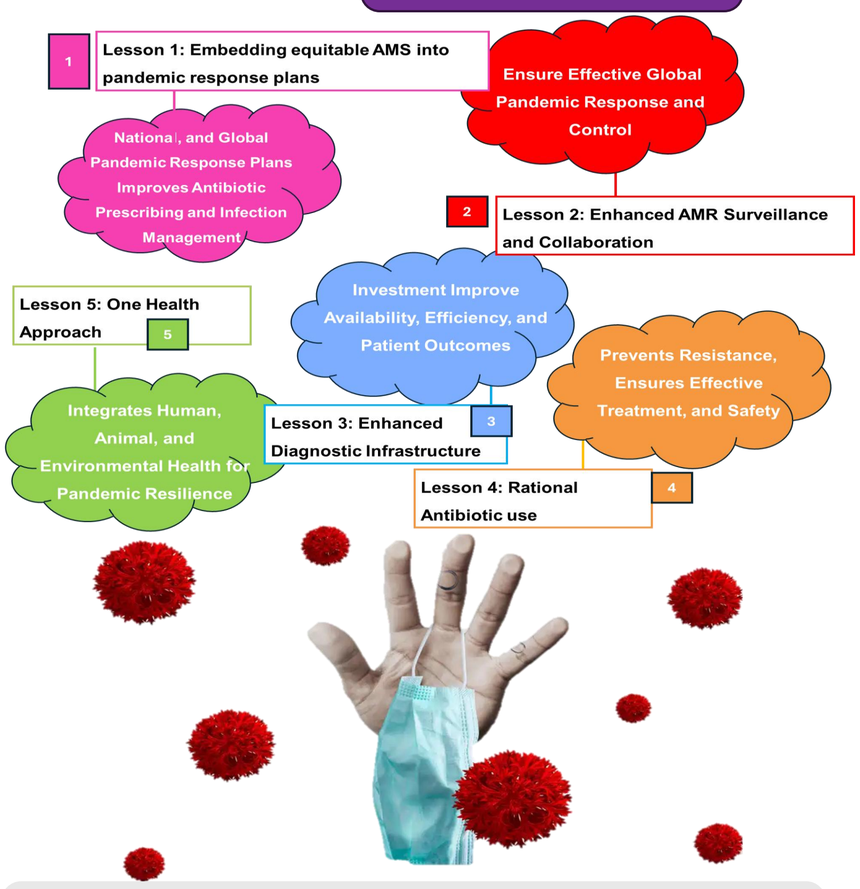

Figure 2. Summary of the Lessons Learned From the COVID-19 Pandemic

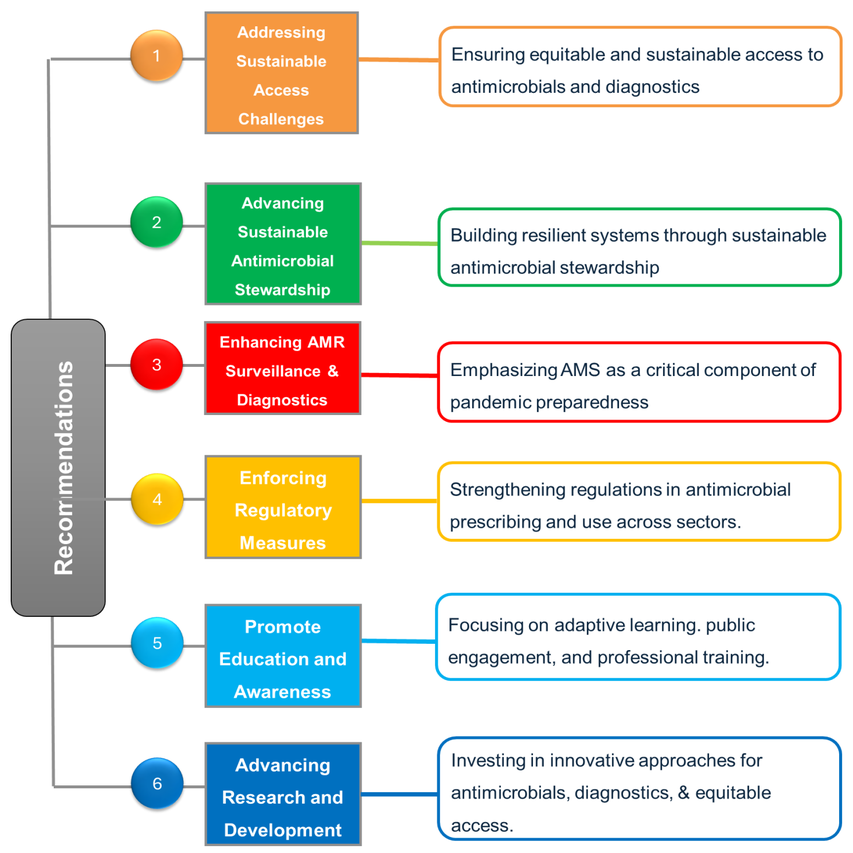

Figure 3. Policy Recommendations: Lessons from COVID-19 - Strengthening Antimicrobial Stewardship

Conclusion

The COVID-19 pandemic highlighted the critical role of resilient and adaptable AMS in public health emergencies. Key lessons—such as integrating AMS into emergency planning, enhancing diagnostic capacity, and reinforcing infection prevention—must inform routine practice and preparedness strategies. Translating these insights into policy is essential to sustain AMS gains, guide AMR strategies, and ensure long-term protection of antibiotic effectiveness at national and global levels.

References

1. **Rasha** Abdelsalam Elshenawy, Nkiruka Umaru, Amal Bandar Alharbi, Aslanpour Z. Antimicrobial stewardship implementation before and during the COVID-19 pandemic in the acute care settings: a systematic review. BMC Public Health. 2023 Feb 10;23(1).
2. WHO. Strengthening the global architecture for health emergency prevention, preparedness, response and resilience [Internet]. www.who.int. 2023. Available from: https://www.who.int/publications/m/item/strengthening-the-global-architecture-for-health-emergency-prevention--preparedness--response-and-resilience.
3. GOV.UK. Confronting antimicrobial resistance 2024 to 2029 [Internet]. GOV.UK. 2024. Available from: https://www.gov.uk/government/publications/uk-5-year-action-plan-for-antimicrobial-resistance-2024-to-2029/confronting-antimicrobial-resistance-2024-to-2029.
4. Elshenawy RA, Umaru N, Aslanpour Z. Report: Optimising Antimicrobial Use During the COVID-19 Pandemic in UK Acute Care Settings (2020-2024) – Insights from Three Sequential Studies. researchprofileshertsacuk [Internet]. 2024 Jun 18; Available from: https://researchprofiles.herts.ac.uk/en/publications/report-optimising-antimicrobial-use-during-the-covid-19-pandemic-
5. South Centre. Policy Brief- Lessons from COVID-19: Strengthening Antimicrobial Stewardship Prior and During Pandemics [Internet]. Southcentre.int. 2025 [cited 2025 Mar 21]. Available from: https://www.southcentre.int/policy-brief-136-25-february-2025/.

r.a.elshenawy@herts.ac.uk