

## Possible Solution for Antimicrobial Resistance

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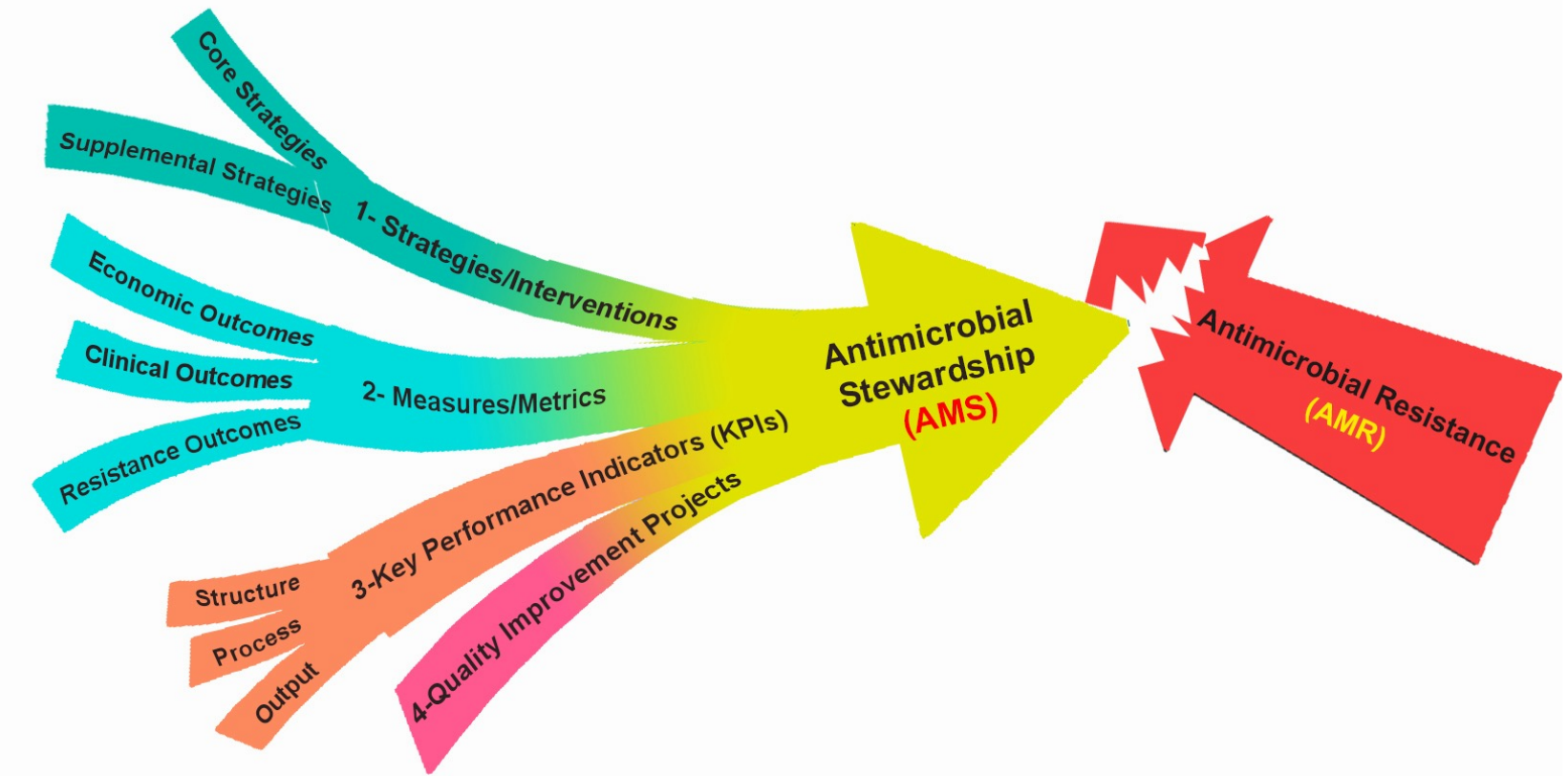
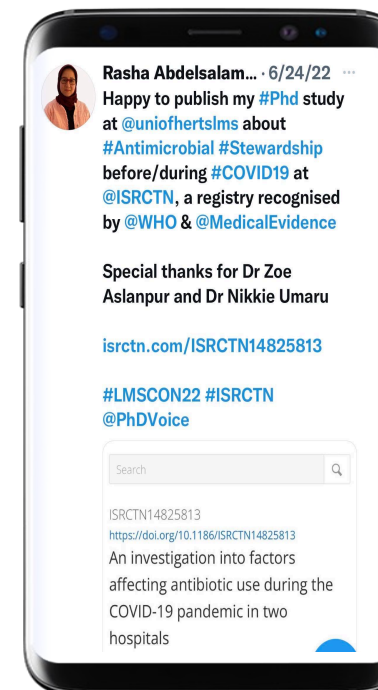
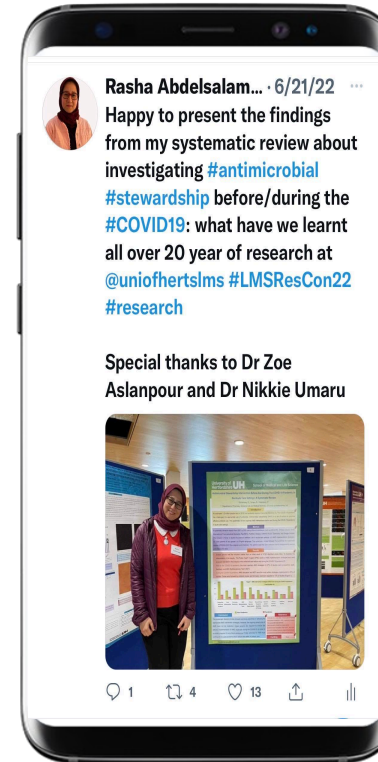


### Overview

- Antimicrobial resistance (AMR) is a global crisis which will not end. In 2019, the estimated global deaths from AMR, published in *The Lancet*, was 1.2 million. Antimicrobial Stewardship (AMS) is a set of activities that aims to promote the effective and appropriate use of antibiotics.
- In June 2022, the global estimate for the number of deaths from COVID-19 was about 6 million. The COVID-19 pandemic has reminded us that the best way to prevent a looming AMR silent pandemic is AMS. This systematic literature review was conducted to investigate the AMS intervention Pre-pandemic (PP) and During-the-pandemic (DP) from the literature.

### Impact

- Collaboration among health care professionals in implementing AMS shows a significant outcome in AMS intervention during the pandemic, such as clinical practice guidelines, AMS multidisciplinary team and education.
- Selection for the relevant AMS strategy results in maintaining appropriate use of antibiotics and achieving action plan goals, such as the UK 5-year action plan of reducing antimicrobial use by 15% by 2024.
- Novel AMS measures provide a promising effect on AMS, such as using procalcitonin for antibiotic stewardship and the innovative use of technology.
- There is a need to standardise systems for measuring the outcome of AMS, as this will allow a better comparison, benchmarking, and effective planning of AMS intervention.
- During a crisis, or emergency, such as the COVID-19 pandemic, antibiotics appeared to be over-used with hospitalised people. An organisational action plan for AMS implementation should be established to prepare for any future emergencies.
- The reliability of country-specific AMS, such as the UK Health Security Agency (UKHSA) country-level AMR indicators, showed more promising outcomes than the individual AMS strategies, such as prior authorisation and de-escalation.



### Future

- A retrospective study of the patients' medical records aims to investigate the AMS implementation in Bedfordshire Hospitals NHS Foundation Trust (Luton & Dunstable and Bedford hospitals) pre-pandemic and during the COVID-19 pandemic.
- Another prospective study for the Healthcare Professionals (HCPs) aims to explore healthcare professionals (doctors, pharmacists, and nurses') knowledge, attitudes, and perceptions toward antibiotic prescribing and factors affecting the AMS implementation at Bedfordshire Hospitals NHS Trust pre-pandemic and during the pandemic.

