

# Antimicrobial stewardship at Prince Mshiyeni Memorial Hospital in KwaZulu-Natal – A pharmacist's perspective on this multidisciplinary strategy

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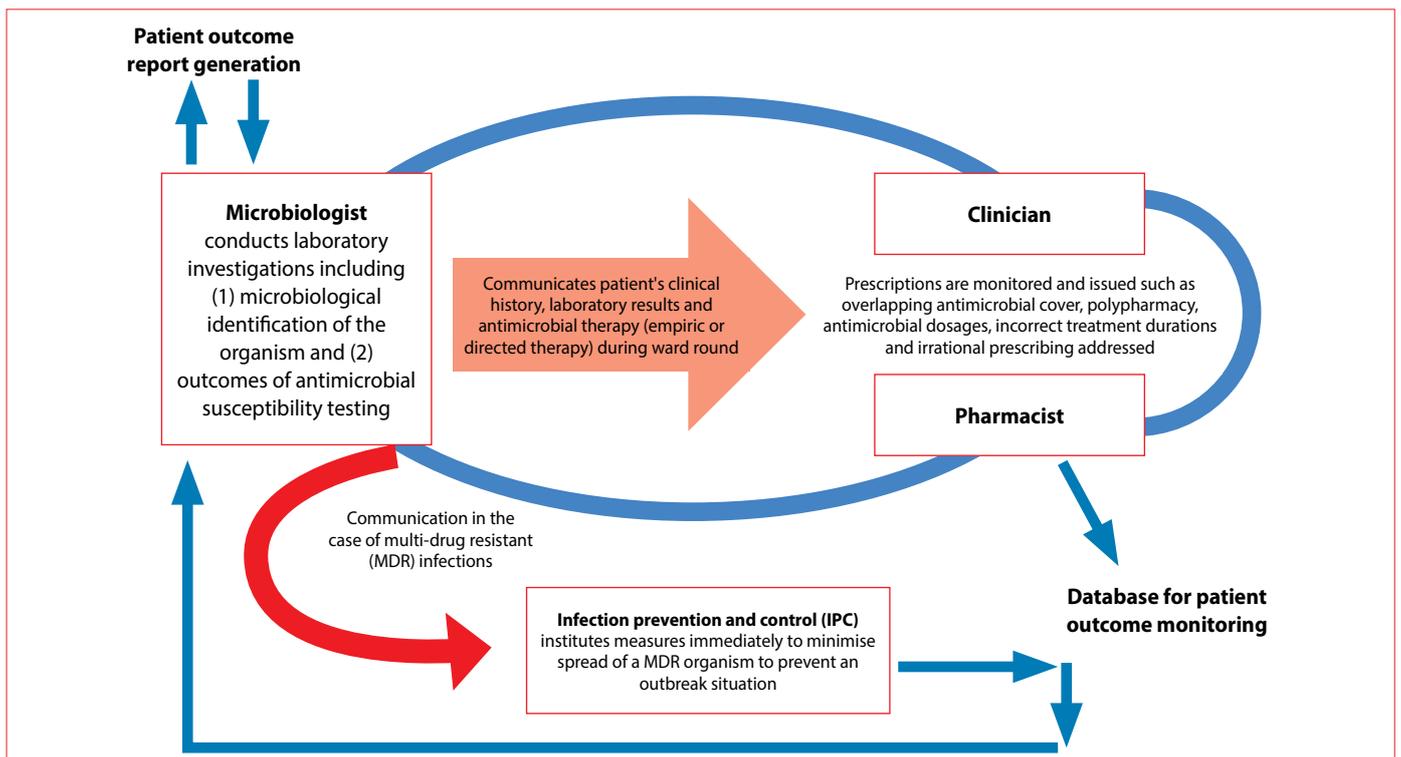
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In the fight against the ever-increasing problem of antimicrobial resistance (AMR), we have reached the end of the antibiotic pipeline and very few lifesaving interventions remain. Surveillance of multidrug-resistance pathogens is essential in obtaining a comprehensive picture of antimicrobial resistance and identifying areas in which actions are required.<sup>1</sup> Globally, many countries lack essential pathogen surveillance required to address antimicrobial resistance.<sup>2</sup> Many countries also have poor implementation of core antimicrobial stewardship strategies. Reasons for this range from poor resources and infrastructure, to a lack of trained experts and poor financial backing. This is especially noted for countries in Africa. The implementation of any intervention such as an antimicrobial stewardship programme is always challenging, more so for countries with resource constraints. South Africa has taken bold steps in answering the call to combat antimicrobial resistance. An antimicrobial resistance national strategy framework 2014–2024 has been developed to join the international community in combating the threat of antimicrobial resistance.<sup>3</sup> Additionally, the Guidelines for the Prevention and Containment of AMR in South African Hospitals is a practical guide in addressing AMR with essential infection prevention and control (IPC) measures as well as antimicrobial stewardship (AMS) in a hospital.<sup>4</sup> The success of antimicrobial stewardship relies on interested clinicians, microbiologists, pharmacists, infection prevention and control practitioners, nurses and ultimately the patient. Patients need to be educated and understand that antibiotics may not be the answer to every medical ailment. Additionally, pathogen surveillance and the knowledge of local resistance patterns, coupled with an antimicrobial policy that optimises the choice, dose and duration of therapy is essential.<sup>5</sup>

This editorial, describing the implementation of an antimicrobial stewardship programme at Prince Mshiyeni Memorial Hospital in Umlazi, KZN, highlights the pivotal role and daily experiences of pharmacists as part of a multidisciplinary team (Figure 1).

The primary goal of antimicrobial stewardship is to optimise clinical outcomes while minimising unintended consequences of antimicrobial use, including toxicity, the selection of pathogenic organisms (such as *Clostridium difficile*), and the emergence of resistance.<sup>6</sup> At Prince Mshiyeni Hospital communications are sent out daily by the microbiologist to the pharmacist responsible for ward rounds. In parallel the clinician and the microbiologist discuss the outcome of laboratory investigations and the institution of antimicrobial therapy. Thereafter, the pharmacist carrying out ward rounds is also brought into the discussion about such patients. Details regarding the patient's clinical history, laboratory results and antimicrobial therapy (empiric or directed therapy) are communicated to the pharmacist performing clinical ward rounds. Laboratory results include the microbiological identification of the organism and the outcomes of antimicrobial susceptibility testing. In the cases where patients have multi-drug resistant (MDR) infections, the infection control practitioner is simultaneously notified so that IPC measures can be instituted immediately to minimise spread of a MDR organism to prevent an outbreak situation. The pharmacist documents information daily onto a database with a "flag number" for easy identification and review during antimicrobial stewardship ward rounds.



**Figure 1.** Multidisciplinary approach to antimicrobial stewardship at Prince Mshiyeni Hospital in KwaZulu Natal – process flow

The antimicrobial stewardship pharmacist ensures that the move from empiric therapy to direct therapy occurs as soon as the patient's antimicrobial susceptibility results are available. Prescriptions are monitored and issues such as overlapping antimicrobial cover, polypharmacy, antimicrobial dosages not in keeping with standard treatment guidelines, incorrect treatment durations and irrational prescribing are immediately addressed upon discussion with the attending clinician. The patient's clinical condition and infection markers are noted to assess the response to antimicrobial therapy. Matters related to antimicrobial therapy from "flagged" patients are discussed in a multidisciplinary manner between clinician, microbiologist, nurses and pharmacist. Data from all antimicrobial stewardship ward rounds is collated and added to the database to generate monthly reports.

The microbiologist provides a quarterly pathogen surveillance report which reflects the distribution of pathogens within the hospital. This informs empiric therapy and identifies "hotspots" for nosocomial infections. Surveillance of microbial disease patterns, empiric and target antibiotic choice and the relevant drug susceptibility profiles are of paramount importance in ensuring the appropriate treatment of sepsis in the adult and paediatric populations. Still in its infancy, the pharmacy team as part of the antimicrobial stewardship team at Prince Mshiyeni Memorial Hospital, has, to date, followed up on 80 patients. An observed change in prescribing habits has been noted such as

early switching from intravenous to oral antimicrobial therapy and changing empiric to directed antimicrobial therapy. Rational and conservative prescribing habits have eliminated polypharmacy but not to the detriment of the patient. The team noted good patient clinical outcomes during the critical implementation phase of AMS at Prince Mshiyeni Memorial Hospital.

Although further evolution and maturation of the antimicrobial stewardship programme at Prince Mshiyeni Memorial Hospital is still required, a multidisciplinary team with a passion to save antimicrobials for the future has made a start in addressing the global antimicrobial crisis.

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