

## The Global Antibiotic Resistance Partnership (GARP)

Antimicrobial resistance (AMR) is an important public health concern shared by developed and developing countries. In developing countries the burden of infectious diseases is greater and exacerbated by limited access to, and availability and affordability of, antimicrobials required to treat infections caused by AMR organisms. With drugs not listed on the essential drugs list (EDL), problems of increased morbidity, costs of extended hospitalisation and mortality are extremely serious. The problem of susceptibility to and spread of infections caused by multidrug-resistant (MDR) infectious agents is fuelled by factors such as limited access to clean water and sanitation to ensure personal hygiene, malnutrition, and the HIV/TB epidemic.

AMR is a consequence of complex interactions of many factors, including inappropriate use (clinical indication, choice, administration and dosing) and poor quality of antimicrobials, inadequate infection prevention and control, empirical treatment prescribed because of inadequate laboratory support, problems with the supply chain, increased mobility of people as a result of ease of travel and escape from conflict zones, patient non-compliance in taking antimicrobials, and the use of antimicrobials in agricultural and veterinarian animal settings. In contrast to most developed countries, there are scant data on the extent of the problem and trends of AMR in developing countries, including South Africa.

In South Africa, considerable AMR information can be found, or mined, from South African experts in the field and from public and private health sector data sources. 'Classic' community-acquired infections such as sexually transmitted infections (STIs), opportunistic HIV/AIDS-related infections (e.g. cryptococcosis), specific enteric infections, and those caused by respiratory and meningial pathogens (with particular, but not exclusive, focus on pneumococcal disease) have been researched in depth. Considerable information is available on the AMR challenges posed by some of these infections. Health care-associated infections, particularly *Klebsiella pneumoniae* and *Staphylococcus aureus* from bloodstream isolates, are being monitored for their AMR profiles and trends.

National AMR surveillance activities in South Africa have focused predominantly on data available from the National Antibiotic Surveillance Forum (NSAF), superseded by the current South African Society for Clinical Microbiology (SASCM), in the public health care sector. The NSAF (SASCM) reports data from eight microbiology laboratories affiliated to academic centres nationwide. Although this approach provides useful data, it has several limitations, e.g. data

are only collected from large academic centres. Since this does not profile AMR in the general population attending primary, secondary and non-academic tertiary health care facilities, it precludes the possibility of assessing the true extent of the problem of AMR countrywide. The private sector carries out surveillance of AMR in pathogens isolated from various sources. Access to these data, and their limitations, are highlighted in part V (Surveillance activities) of this AMR situational analysis issue of *SAMJ*.

No discussion on AMR is complete without considering the impact of antimicrobial use in the veterinary sector. Although the impact on the development and spread of resistance from use in animals is debated globally, it is generally accepted that it is prudent to reduce unnecessary use. Valuable work done in this regard is discussed in part VI (Antibiotic management and resistance in livestock production).

In order to slow the spread of AMR among our population, it is clear that interventions such as immunisation and infection prevention and control programmes should be given high priority at national, provincial and local levels. Limiting the unnecessary use of antimicrobials and introducing systems of checks and balances to monitor misuse or overuse of antimicrobials are crucial to limit the problem of AMR. In addition to those of doctors and nurses, the roles of the infection prevention control practitioner and the clinical pharmacist must be enhanced to assist prevention of transmission of MDR pathogens and to curb inappropriate/incorrect use of antimicrobials.

Ultimately, South Africa's contribution in investigating strategies and solutions to curb AMR does not end at national level. AMR is of global concern and some of the issues and solutions that we discover will undoubtedly be of interest and relevance in other countries. Thus we embrace our role as a founding country in an active and ongoing collaboration with the Global Antibiotic Resistance Partnership (GARP), whose mission, vision and proposed phases of work with regard to AMR are described in part I of this issue.

Finally, this is the first document to be published in South Africa that attempts to bring together all the initiatives, research and proposed future directions for dealing with AMR in our country. I thank all the contributing authors for the outstanding work that they have done, and will continue to pursue.

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