

## The World Health Organization Global Action Plan for antimicrobial resistance



If our overuse and misuse of antibiotics is not halted now, about 10 million people will die annually from drug-resistant bacterial infections within 35 years.<sup>[1]</sup> The hammer blow will fall hardest on Africa and Asia, accounting for 4.1 and 4.7 million deaths, respectively, and the world's economy will lose more than 7% of its gross domestic product (USD210 trillion) by 2050.

These numbers should make people sit up, listen and change behaviour. But more often than not, it has to be personal to achieve this. So imagine that you or someone close to you is in need of a hip replacement to allow them to walk again, pain free. As Smith and Coast<sup>[2]</sup> point out, if no antibiotics were available to prevent a surgical site infection, which would happen 40 - 50% of the time without antibiotic prophylaxis, and 30% of those not receiving prophylaxis would die from the resulting surgical site infection, would you choose to have that operation, or allow someone you love to have it? The same questions could be asked for patients embarking on cancer chemotherapy with the risk of neutropenic sepsis, people requiring transplantation, or indeed any number of other treatments that we have come to take for granted that rely on antibiotics. This is not a futuristic scenario ... it is being played out right here, right now, in South Africa (SA) and other countries across the globe. Decisions to withhold surgery based purely on the patient being colonised by pan-resistant bacteria are being made, and people are dying of untreatable infections in our hospitals and communities. Quite simply, our abuse of antibiotics is destroying modern medicine as we know it. Unless the international community can alter its path, we will lose the 'miracle of antibiotics'.

In May this year, the World Health Assembly debates the international response to this crisis, a Global Action Plan (GAP) on antimicrobial resistance (AMR).<sup>[3]</sup> Adoption of the GAP would see the culmination of a year of intense consultation between the tripartite alliance comprising the World Health Organization, the Food and Agriculture Organization and the World Organization for Animals, with governments and all relevant stakeholders. Its overall goal is to ensure the continuity of successful treatment and prevention of infectious diseases. At its heart lies access: access to the means of preventing infection in the first place, i.e. safe water, sanitation, and vaccines; and access to affordable, quality-assured antimicrobials, and the diagnostics needed to ensure that they are prescribed appropriately. Access, not excess!

The draft GAP has five specific strategic objectives: (i) to improve awareness and understanding of AMR through effective communication, education and training; (ii) to strengthen knowledge and evidence base through surveillance and research; (iii) to reduce the incidence of infection through effective sanitation, hygiene, and infection prevention measures, which include vaccination and heightened infection control in health facilities; (iv) to optimise the use of antimicrobials in humans and animals; and (v) to develop the economic case for sustainable investment in new medicines, diagnostics, vaccines and other interventions for the needs of all countries.

The GAP will provide a framework for national operational action plans that should be in place within 2 years of its endorsement. They should reflect engagement of the whole of society, be sustainable, incorporate incremental targets for implementation, and above all promote access, not excess, and prevention of infection first. The GAP applies equally to human and animal health. Approximately 80% of all antimicrobials used in countries such as the USA are used in animal feed,<sup>[4]</sup> and it is becoming increasingly clear that bacterial resistance in livestock is influencing infection and colonisation with the same bacteria in humans.<sup>[5,6]</sup>

There is a lack of data concerning levels of resistance, particularly in low- and middle-income countries (LMICs), which is hampering progress.<sup>[7]</sup> International collaboration to support health systems strengthening, surveillance and reporting is written into the GAP, and is also a focus of parallel initiatives. Two of the work streams of the Global Health Security Agenda<sup>[8]</sup> (Prevent-1; Prevention of AMR, and Detect-1, National Laboratory Systems) directly support the GAP. Similarly, a Laboratory Twinning Initiative driven by the Commonwealth and Public Health England,<sup>[9]</sup> which seeks to strengthen public health laboratories in LMICs, has the potential to stimulate regional collaboration, as recently demonstrated by Caribbean countries.<sup>[10]</sup>

In many respects, by having a definitive strategy and binding commitments signed by government departments and stakeholders, SA's national plan is ahead of the curve (Department of Health, Antimicrobial Resistance National Strategy Framework, 2014 - 2024 – to be placed on <http://www.health.gov.za> shortly). However, as one of the BRICS nations that are collectively responsible for three-quarters of the 36% increase in antibiotic prescribing that has occurred globally in the past 10 years,<sup>[11]</sup> it is time for us to put our own house in order. To save antibiotics and the future of modern medicine, we must adopt a quote by Mahatma Gandhi: 'You must be the change you wish to see in the world.' Each and every one of us, prescribers and recipients alike, need to understand the gravity of the situation, the fact that overuse and misuse of antibiotics is driving resistance, and put a stop to inappropriate prescribing.

### Marc Mendelson

*Division of Infectious Diseases and HIV Medicine, Department of Medicine, Groote Schuur Hospital, Cape Town, South Africa, and Faculty of Health Sciences, University of Cape Town*  
[marc.mendelson@uct.ac.za](mailto:marc.mendelson@uct.ac.za)



### Malebona Precious Matsoso

*National Department of Health, Pretoria, South Africa*



1. Review on Antimicrobial Resistance. December 2014. <http://amr-review.org> (accessed 2 January 2015).
2. Smith R, Coast J. The true cost of antimicrobial resistance. *BMJ* 2013;346:f1493. [<http://dx.doi.org/10.1136/bmj.f1493>]
3. World Health Organization. Draft Global Action Plan for Antimicrobial Resistance. [http://apps.who.int/gh/ebwha/pdf\\_files/EB136/B136\\_20-en.pdf](http://apps.who.int/gh/ebwha/pdf_files/EB136/B136_20-en.pdf) (accessed 13 March 2015).
4. United States Food and Drug Administration. Summary Report on Antimicrobials Sold or Distributed for Use in Food-producing Animals. Department of Health and Human Services, 2009.
5. Rinsky JL, Nadimpalli M, Wing S, et al. Livestock-associated methicillin and multidrug resistant *Staphylococcus aureus* is present among industrial, not antibiotic-free livestock operation workers in North Carolina. *PLoS One* 8(7):e67641. [<http://dx.doi.org/10.1371/journal.pone.0067641>]
6. Voss A, Loeffen F, Bakker J, Klassen C, Wulf M. Methicillin-resistant *Staphylococcus aureus* in pig farming. *Emerg Infect Dis* 2005;11(12):1965-1966.
7. World Health Organization. Antimicrobial resistance: Global report on surveillance, 2014. <http://www.who.int/drugresistance/documents/surveillance-report/en/> (accessed 1 March 2015).
8. United States Department of Health and Human Services. The Global Health Security Agenda. <http://www.globalhealth.gov/global-health-topics/global-health-security/ghsagenda.html> (accessed 15 March 2015).
9. The Commonwealth. Commonwealth and Public Health England to strengthen public health laboratories. <http://thecommonwealth.org/media/news/commonwealth-and-public-health-england-strengthen-public-health-laboratories> (accessed 6 March 2015).
10. Caribbean Public Health Agency. <http://carpha.org/Media-Centre/CARPHA-Events/AMR-Workshop> (accessed 17 March 2015).
11. Van Boeckel TP, Sandra S, Ashok A, et al. Global antibiotic consumption 2000 to 2010: An analysis of national pharmaceutical sales data. *Lancet Infect Dis* 2014;14(8):742-750. [[http://dx.doi.org/10.1016/S1473-3099\(14\)7080-7](http://dx.doi.org/10.1016/S1473-3099(14)7080-7)]

*S Afr Med J* 2015;105(5):325. DOI:10.7196/SAMJ.9644