

Mobilizing political will to contain antimicrobial resistance

The third part of our series on antimicrobial resistance looks at what governments are doing and what they can do next to combat this global threat. Patralekha Chatterjee and Fiona Fleck report.

Vemu Lakshmi is one of several Indian physicians who had long been calling for more to be done about drug resistance. Then, last year, a whirlwind of controversy blew up in her country about the highly resistant “superbugs”, bacteria containing the so-called “NDM-1” enzyme.

“Some Indian microbiologists had been flagging the urgent need for micro-

biological laboratory support for doctors and strict guidelines on antibiotic prescriptions and policies for quite some time,” says Lakshmi, who is professor and head of the Department of Microbiology at Nizam’s Institute of Medical Sciences, in Hyderabad.

Lakshmi and her colleagues knew that antimicrobial resistance would be the inevitable result of inappropriate use of an-

tibiotics in hospitals and in the community (including sub-therapeutic doses due to ignorance about resistance mechanisms), widespread over-the-counter sales of antibiotics and patients failing to complete their courses of antibiotics. She discussed these problems in detail in an article in the *Indian Journal of Medical Microbiology* in 2008.

The spread of the resistant bacteria in India, Pakistan and the United Kingdom of Great Britain and Northern Ireland was described in a paper published in *the Lancet Infectious Diseases* in August 2010. “NDM-1”, or New Delhi metallo-beta-lactamase, was first identified in a Swedish patient who had returned from New Delhi in 2008.

Experts were particularly concerned about the fact that the enzyme was found in one of the most commonly encountered bacteria in the human population, *Escherichia coli*, and that at least one in 10 of the strains containing this enzyme appeared to be resistant to all known antibiotics.

Antimicrobial resistance is a global problem that affects all countries. This year’s World Health Day on 7 April aims to make governments more aware of the problem and to encourage them to take measures to combat this global threat.

“[Antimicrobial resistance] is a real public health problem and it is emerging globally and in Europe. We have to do much more about it – both in the World Health Organization (WHO) and also in Member States,” says Zsuzsanna Jakab, WHO Regional Director for Europe. Jakab is well aware that the struggle against antimicrobial resistance in Europe requires continuous vigilance if problems such as drug-resistant tuberculosis are not to get worse. “This is the start of a process; we can and have to raise awareness among policy-makers and the public, and follow up with strategies after World Health Day,” Jakab says.

It is not the first time WHO has tackled the issue. In 2001, WHO released the *Global Strategy for Containment of Antimicrobial Resistance*, containing recommendations that countries could customize for their own use. But the launch in Washington DC coincided with the attacks of 11 September 2001 in the United States of America (USA) and any momentum was lost in the subsequent turmoil.

For Dr Gerald Dziekan, from WHO’s Patient Safety Programme, the 2001 initiative nevertheless provided a start for some countries in tackling the problem.



Campaign poster to raise awareness of the global threat of antimicrobial resistance



Zsuzsanna Jakab, WHO Regional Director for Europe

“It certainly triggered the development of national plans in some countries, but all in all the response was quite weak in the sense of global awareness and coordinated action,” Dziekan says. One of the challenges governments face in Dziekan’s view is enforcing laws banning over-the-counter sales of antibiotics. “This is particularly difficult in [low- to middle-income] countries where there are often no doctors to prescribe medicines but people need to get the drugs somehow.”

But it is also in these countries where the problem is increasingly being felt. “Antibiotic resistance is not confined to the emergency rooms of rich countries in Europe and North America,” according to Anthony So, professor at the Sanford School of Public Policy at Duke University in the USA.

“It is a growing, global health problem that severely affects disadvantaged populations in low-income countries,” So says, adding: “Children in Africa, Asia and Latin America suffering from pneumonia, meningitis or blood stream infections are often given old drugs rendered ineffective by resistance since they are the only available treatment options.”

A concerted effort on the part of regulatory authorities can have an impact, as shown in Chile, for example, where the mandatory prescription of antibiotics and the ban of over-the-counter sales has made a difference.

Dr Luis Bavestrello, medical director of Clinica Reñaca in Viña del Mar in Chile, says that highlighting the risks of antimicrobial resistance in the media has paid off.

“Even if antimicrobial resistance is not considered a priority problem by the government some suggestions are discussed and important measures have been taken,” says Bavestrello, who is also coordinator of the Antimicrobial Commission of the Chilean Infectious Diseases Society. He gives the examples of a nationwide surveillance programme of antimicrobial resistance in hospitals and a national committee of representatives from medical communities and government ministries responsible for health and for agriculture.

As in Chile and India, medical communities in Kenya, for example, are also at the forefront of efforts to tackle the problem. “Doctors, pharmacists, other professionals and academics are aware of the antimicrobial resistance problem,” says Eric Mitema, professor of pharmacology and toxicology at the faculty of Veterinary Medicine at the University of Nairobi, adding: “These professionals make efforts to make the government aware of antimicrobial resistance.”

In India, several initiatives are under way to address the problem. A national antibiotic policy is being prepared, though not yet in the public domain, which hospitals can customize into their own guidelines, clinicians say.

“[Another] positive development is that the government is urging hospitals to get themselves accredited with the National Accreditation Board for Hospitals and Health Care Providers,” says Lakshmi, adding: “Once a hospital is accredited, it will have to put in practices relating to judicious use of antibiotics.”

But Lakshmi adds that as yet, “neither the government nor any other organiza-

tion has any specific laws or regulations to prevent antimicrobial resistance”.

Even in western Europe, where countries such as Belgium and France have reduced the use of antibiotics, misuse continues. A few of these countries have policies on containing and preventing antimicrobial resistance. Campaigners praise Scandinavian countries such as Norway and Sweden for having done a lot to tackle the problem. They also cite the Netherlands as an example of a country with low prescribing of antibiotics and excellent guidelines on their use.

One of the most powerful measures globally to prevent antimicrobial resistance has been the ban of the use of antibiotics as growth promoters in livestock in the 27 European Union countries since 2006. The ban underlines the complex nature of the problem. “Antimicrobial resistance is a problem that goes beyond the health sector, so it is important to involve all sectors,” says Jakab. “Every government should have a national intersectoral plan on how to address the issue and respond to it.”

Clinicians agree that one of the biggest challenges is finding out the true size of the problem of resistant infections in each country. “We need better microbiology labs to test antibiotic resistance to infections but above all we need better data to inform policies,” says Professor Nirmal Ganguly, Chair of the Global Antibiotic Resistance Partnership – India National Working Group.

For some, simply restricting over-the-counter sales of antimicrobials does not go far enough, and they suggest that more is needed to curb the use of second-line antibiotics, which should be used to treat infections when first-line antibiotics fail and may be the last resort.

As Dr Abdul Ghafur, a consultant in infectious diseases and clinical mycology in Chennai, argues: “The beneficial effect of restriction of first-line antibiotics sold over the counter will be evident in the long term, but what we need most is restriction of higher-end antibiotics used in hospitals.” ■

SAGE: request for nominations

The Strategic Advisory Group of Experts (SAGE) is the principal advisory group to WHO for vaccines and immunization. WHO is soliciting proposals for nominations for current vacancies in this group, particularly from the African, Eastern Mediterranean, South-East Asian and Western Pacific regions.

Nominations for members have to be submitted by 29 April 2011, following the instructions provided at: http://www.who.int/immunization/sage_nominations