

Antimicrobial resistance: international health threat

Case scenario

Reading the news online you see that at the recent United Nations meeting, heads of state committed to taking a broad, coordinated approach to addressing the root causes of antimicrobial resistance (AMR). "Why did this come to the United Nations?" you ask yourself and read on. It is more than a human health problem. Antibiotics are used in animals, so this also has to do with animal health, food supply, international trade, and the environment. New antibiotics, diagnostics, and vaccines are needed to address AMR, so industry needs to be involved too. "Antimicrobial resistance poses a fundamental threat to human health, development, and security. We are running out of time," warned the Director-General of the World Health Organization.¹

Evidence

Antimicrobial resistance has been described as a slow catastrophe. It used to be that if you treated a bacterial infection and one antibiotic did not work, you simply used another. The choices, however, are decreasing and in some cases are gone. The number of cases of multidrug-resistant gonorrhoea reported globally and nationally has increased, and there is the potential for gonorrhoea to become untreatable.² Extensively drug-resistant tuberculosis is resistant to at least 4 antituberculosis drugs and has been identified in 105 countries.³ Another worrisome development is the rapid spread of the *MCR1* gene, which confers resistance to colistin, a medication of last resort for multidrug-resistant Gram-negative bacteria. The *MCR1* gene is a plasmid, so it can transfer to other types of bacteria.⁴

How does a complex global health threat get addressed nationally? As the public health lead on infectious diseases in Canada, the Public Health Agency of Canada has aligned their work with the World Health Organization's Global Action Plan and adopted a One Health approach, which recognizes that the health of humans is connected to the health of animals and the environment. The Public Health Agency of Canada has been working with 12 other federal organizations and has identified key areas we need to focus on: surveillance (so we can track the problem and the effects of our interventions), stewardship (to prevent and control infections and make the best use of the antibiotics we have), and innovation (to stop the progression of resistance and find alternatives).⁵ About 80% of antibiotics in Canada are for use in food-producing animals,⁶ so work is under way to moderate the use of antibiotics in the food industry. Work has also begun on a pan-Canadian AMR framework, involving federal, provincial, and territorial governments and key partners to guide national efforts in tackling AMR in Canada.⁵

La traduction en français de cet article se trouve à www.cfp.ca dans la table des matières du numéro de novembre 2016 à la page e659.

Bottom line

Expect to see more initiatives to address AMR. Your hospital might advance its antimicrobial stewardship program so that there are more checkpoints—if antibiotics have been ordered, have they been reassessed after 48 hours? How long does the patient need to be taking them? Research and innovation is under way to address the need for rapid point-of-care diagnostic testing, apps to look up local resistance patterns to antibiotics for common infections, stewardship programs to support primary care, and advancing infection prevention and control techniques. Antimicrobial resistance is a wonderful example of "think globally, act locally." We all need to be part of the global effort to preserve this important therapeutic option. 🌱

References

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