

## Antibiotic Resistance: We have met the enemy and he is us...

Most of the antibiotics we use today, from penicillins to carbapenems, were originally created by microbes living in soil. For billions of years these microbes have been waging war on each other – soil microbes producing antibiotics and bacteria evolving to become resistant. Humans became involved in this battle with the discovery of penicillin by Fleming in 1928 and moving into industrial scale production in the 1940s. Since that time we have been caught in a race against evolution; new antibiotics are developed and, within a few years of them coming to market, bacteria begin to develop resistance.

Some countries have been more successful in the battle (e.g. Scandinavia and the Netherlands) through enacting strict policies that control the use of antibiotics. In most countries, the use of antibiotics is poorly controlled and resistance rates continue to climb. Many organizations have called for stricter controls, but despite this, unregulated use of antibiotics continues on a massive scale.

In North America, it is estimated that nearly 80% of the antibiotics used are in farm animals. The use of antibiotics for whatever purpose over time creates an environment that allows drug-resistant strains of bacteria to flourish. Despite wide acceptance of this principle, enormous quantities of antibiotics are routinely fed to livestock and poultry, not to treat disease, but to promote faster growth and prevent infections related to raising animals in overcrowded, unsanitary conditions. Thirty years after the Food and Drug Administration in the US warned that the use of antibiotics in agriculture threatens human health; the majority of these drugs continue to be routinely given to animals that are not sick.

Practitioners in both human and animal health, including physicians, pharmacists, veterinarians and farmers contribute to the overuse of antibiotics. All have a part to play in using them more wisely. If we continue to overuse antibiotics, more and more people will suffer from serious infections for which these vital drugs no longer offer effective treatment. According to the World Health Organization (WHO) this is no longer a future threat – it is happening now! In order to curtail this disaster we need to act aggressively to stop the needless use of antibiotics in both agriculture and human medicine. However, changing practices in any setting is challenging. The governments of countries that are major producers and consumers of antibiotics need to introduce legislation and regulations that promote improved practice.

The WHO, CDC Atlanta, the Public Health Agency of Canada and scientists from around the world are now calling for immediate action to address this issue! This is not new – in the 25 years that I have been working in healthcare – we have known about this problem – but so little has been done. We have been relying on people to do the right thing. That hasn't worked.

IPAC-Canada represents over 1600 healthcare professionals involved in the field of infection prevention and control. Collectively we constitute a strong political voice calling for both our federal and provincial politicians to take strong action to address the misuse of antibiotics.

As a first step, the use of antibiotics as growth promoters in animal husbandry must be banned. As with human medicine, antibiotics should only be used in animals to treat bacterial infections. Antibiotics should only be administered to an animal under the supervision of a veterinarian. Legislative loop holes that allow the unrestricted importation and use of antibiotics by farmers need to be closed.

I encourage each member of IPAC-Canada to send a letter to their federal Member of Parliament and provincial representative requesting that direct action be taken to change legislation and regulations that allow these practices. A template for these letters is available for use by our members at [www.ipac-canada.org](http://www.ipac-canada.org) (Headlines).