

## Lessons from Europe on reducing antibiotic use in livestock

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In Canada, agriculture accounts for a large volume of antibiotic use believed to be employed to help farmers increase growth and prevent disease in their livestock. However, studies show that nontherapeutic use of antibiotics selects for resistance, and that resistance in humans is determined by the same mechanism as in animals. Resistance genes disseminate via the food chain, both from the meat we consume and through the dispersal of antibiotics into soil and water, and can make their way into the digestive tract of humans.

Canada is not the only country in which prevalent antibiotic use is of concern. In the June 2011 issue of *Microbe*, the report “Restricting antimicrobial use in food animals: Lessons from Europe” reviewed the impact of the EU decision to stop using antimicrobials intended to promote growth in food animals.<sup>1</sup>

In 1986, Sweden became the first country to regulate the withdrawal of antibiotics used in food animal production. By 2009, Swedish sales of antibiotics for use in agriculture were reduced from an average of 45 tons of active substance to 15 tons. Sweden was followed by Denmark, the United Kingdom, and the Netherlands.

Danish swine and poultry production continued to flourish with gradual reductions of antibiotic use beginning in 1992 and continuing to 2008 (latest data). During this time, Danish farmers increased swine production by 47% while reducing antimicrobial use by 51%. As well, poultry produc-

tion increased slightly while reducing antimicrobial use by 90%. Denmark remains one of the largest pork exporters in the world.

The Netherlands has not had the success of Denmark and Sweden, mostly because their attempts at reducing the use of antimicrobials in agriculture was not accompanied by other necessary interventions such as monitoring and disease control measures. Important lessons have been learned here.

Farm practices involving antibiotics affect patients in our offices, some of whom die as a result of resistant infections. When we order culture of a patient’s urine, sputum, or other bodily fluids, we’re frustrated when organisms are not sensitive to the antibiotics we like to use. The practice of medicine would drastically change if antibiotics were no longer effective in curing infections.

It’s not only physicians who are concerned about this scenario, but veterinarians too. The Canadian Veterinary Medical Association is requesting to work with us and the Canadian Medical Association to help reduce antibiotic resistance.

The CMA has adopted the Council on Health Promotion’s motion to restrict access and availability of these antibiotics by recommending they be

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by veterinary prescription only. This is also the position of the World Health Organization. Now that this is CMA policy the future of medical care may favorably alter, particularly for infectious disease and surgery in Canada.

The use of low concentrations of antibiotics in food animals induces random mutagenesis, which in turn can promote horizontal gene transfer. This practice creates antibiotic resistance genes, which cannot be reversed. Without eradicating the usage of these nontherapeutic antibiotics in our food animals, we are creating treatment issues for the future. We must take a stand in the regulation of how antimicrobials are used within our agricultural industries.

—Bill Mackie, MD  
Chair, Environmental Committee

### Reference

1. Cogliani C, Goossens H, Greko C. Restricting antimicrobial use in food animals: A lesson from Europe. *Microbe* 2011;6:274-279.

*This article is the opinion of the Council on Health Promotion and has not been peer reviewed by the BCMJ Editorial Board.*