

# **MDs sound warning about antibiotics in feed**

**There's lots of evidence the practice endangers humans, and government must step in, they say**

By Randy Shore, Vancouver Sun September 11, 2010



**Postmedia News Files / Antibiotics are used on animals to treat illnesses and prevent the spread of diseases, but also to promote growth and improve feed conversion — the rate at which feed turns into lean protein.**

**Photograph by: Ted Rhodes, Vancouver Sun**

Canadian doctors and scientists say that feeding antibiotics to healthy beef cattle, poultry and hogs poses a danger to humans, and they want to government to investigate the practice.

Lacing animals' feed with low-dose antibiotics to accelerate their growth is spreading drug-resistant bacteria to humans and rendering common antibiotics useless to treat illness, they say.

A food chain contaminated by drug-resistant bacteria bodes ill for both public health and the cost of health care, and as drug resistance in microbes increases, the number of effective antibiotics in the doctors' arsenal has dropped.

“As doctors we are seeing that people have infections that were easily treated years ago, when all the basic antibiotics took care of most of the infections that people had,” said Vancouver physician Dr. Bill Mackie, chairman of the environmental health committee of the B.C. Medical Association. “Of late there has been increasing [drug] resistance; when you put someone on an antibiotic that you expect to do its job, it doesn't work.”

When a course of antibiotic treatment fails, people stay sick longer and doctors must resort to more exotic and often more expensive drugs, Mackie said.

The BC Centre for Disease Control has tracked a rise in the number of courses of antibiotics required to treat common bacterial illnesses, such as bladder infections. Medical authorities are also grappling with a rise in multi-drug-resistant *Staphylococcus aureus*, which mainly affects hospital patients but is also found in hogs and cattle, where it can be passed to humans, according to a 2009 report by the European Food Safety Authority.

But the evidence does not end there, said Dave Patrick, BCCDC director of communicable-disease epidemiology. “Some of the burden of salmonella is clearly coming from animals; we can demonstrate that with molecular fingerprinting.”

## **A STRONG CORRELATION**

A study on emerging infectious diseases released by the Canadian Integrated Program for Antimicrobial Resistance Surveillance earlier this year confirmed a strong correlation between increasing levels of drug-resistant *Salmonella heidelberg* found in Canadian retail chicken and resistant salmonella infection in humans.

The incidence of the resistant strain increased in both chickens and humans during 2003 and 2004, when an antibiotic called ceftiofur was being widely used in Canadian hatcheries. However, the incidence of the resistant strain dropped dramatically when the drug was voluntarily withdrawn from use in Quebec in 2005 and 2006, then rebounded when the drug was partly reintroduced a few years later.

The report lamented that “drug use monitoring in chicken is non-existent in Canada,” making precise tracking of the effects of antibiotics in feed difficult.

The BCMA brought Mackie's concerns to the Canadian Medical Association annual general meeting in August. There, it won the support of doctors to call for Health Canada and the Public Health Agency of Canada to launch an investigation into agriculture-related contamination of water and soil by drug-resistant organisms and the role they play in the emergence of drug-resistant infections in humans — and to back research into animal-husbandry techniques that would reduce dependence on antibiotics.

The CMA has been pressuring the government to reactivate stagnant efforts to regulate the use of antibiotics on healthy livestock, particularly since the Public Health Agency of Canada disbanded its own committee on microbial resistance in 2009.

Health Canada enforces pre-market evaluation guidelines for antibiotic growth promoters and the Public Health Agency of Canada monitors the development of antimicrobial resistance through the Canadian Integrated Program for Antimicrobial Resistance Surveillance.

But doctors and scientists worry that drugs licensed as growth promoters can be purchased without veterinary oversight and without prescription, which makes their effects almost impossible to study accurately.

In the third in a series of articles published by the Canadian Medical Association Journal over the past two years, the threat posed by antibiotic resistance was described by the committee as “one of the most significant public health issues facing Canada and the world today.”

We can't say we weren't warned, said Kevin Allen, a food microbiologist at the University of British Columbia.

## **SCIENTIFIC WARNINGS**

British scientist Michael Swann warned in a 1969 report to the British Parliament that the continued use of antimicrobial agents as growth promoters would lead to the creation of drug-resistant strains of salmonella and E. coli. Swann recommended that drugs of therapeutic value for treating illness in humans and animals not be used as growth promoters.

While that report did put a temporary chill on the global use of antibiotic growth promoters, the lure of profit proved too great for some nations to resist, and many of the antibiotics commonly used to treat illness in human beings have been widely used as growth promoters in animals over the years.

Antibiotics have been used on animals both therapeutically, to treat illness, and to promote growth since soon after they were developed for use on humans in the 1950s. In

nontherapeutic doses fed to poultry, swine and beef cattle, antibiotics improve feed conversion — the rate at which feed turns into lean protein — and reduce mortality and disease in high-density animal-rearing operations.

The Union for Concerned Scientists reported in 2001 that 25 million pounds of antibiotics were being fed to American livestock each year, about 70 per cent of all such drugs manufactured in the United States or eight times the amount prescribed to sick Americans.

Because antibiotics sold as growth promoters to Canadian farmers are available without prescription and can be administered without the supervision of a veterinarian, how much medication is consumed by Canadian beef cattle, swine and poultry is unknown, but the rules governing growth promoters are similar to those of the United States.

“We are part of a North American integrated system with cattle moving both ways across the border, with fed cattle going south and [processed] beef coming in from the U.S. in the box,” said Alberta Cattle Feeders Association spokesman Bryan Walton.

“[Feed additives] are used judiciously and no producer wants to use more than what is necessary to make sure that animals are healthy, because there are costs associated with this,” Walton explained.

Canada permits the use of several classes of medications as feed additives for cattle, including beta-antagonists such as ractopamine hydrochloride, which is related to asthma medications used by human beings, and antibiotics such as chlortetracycline hydrochloride, which is related to tetracycline medications that have been commonly used to treat infections in human beings. The effectiveness of tetracyclines in humans has been severely compromised, increasing bacterial resistance.

## **EU BANS FIVE DRUGS**

As microorganisms become resistant to common antibiotics, those medications are lost to the medical arsenal.

The European Union has banned the use of five antibiotic feed additives because they belong to classes of medications that are used in human medicine. But Canadian and American producers continue to use several of those banned drugs, including salinomycin for cattle, bacitracin for chickens, turkeys and swine, tylosin in swine, and virginiamycin for chickens and swine.

The U.S. Congress is considering a bill that would curtail the practice of feeding growth promoters to healthy animals, and the U.S. Food and Drug Administration has recommended that farmers stop using them. The bill reportedly stalled in June with little hope of passing.

Ali Khan, a deputy director at the U.S. Centers for Disease Control and Prevention, recently told a congressional hearing: “There’s unequivocal evidence [of a] relationship between use of antibiotics in animals and transmission of antibiotic-resistant bacteria causing adverse effects in humans.”

Canadian scientists reached the same conclusion nearly a decade ago.

A 2002 report by Health Canada's advisory committee on animal uses of antimicrobials identified their use on animals as the main factor in the development of drug-resistant strains of *Salmonella enterica* and *Campylobacter jejune*. The report cites studies from the United States and Europe that recorded increases in human infection by resistant forms of both salmonella and campylobacter after antimicrobial drugs known as fluoroquinolones were licensed for use on animals.

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