Bee Sting More Deadly Than Antibiotic Risk

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This week the CBS Evening News with Katie Couric aired a two-part series on antibiotics in animal agriculture (view Segment One --http://tinyurl.com/ydluceu; Segment Two http://tinyurl.com/yac93k2).

According to livestock industry, veterinary and scientific experts, the information presented about the use of antibiotics in livestock was fraught with misinformation, speculation, and inaccuracies. “The CBS report was rather short on facts and science and long on speculation,” said Dr. Richard Carnevale, veterinarian and vice president, Regulatory, Scientific and International Affairs, Animal Health Institute, in a media conference call on Feb. 11.

“The segment failed to portray that antibiotics used in livestock are FDA approved and monitored for residues and bacterial resistance,” Carnevale explained. “They undergo a rigorous approval process and all are subject to surveillance. The implication was that antibiotic-resistant bacteria freely flow between people and animals, but there are numerous layers of protection. Bacteria do not fly and cause human infection despite what the PEW spokesman said in the CBS interview. I am dismayed the FDA commissioner did not discuss this.”

Carnevale noted that the CBS segment did not differentiate between the methicillin-resistant Staphylococcus aureus (MRSA) infections that can occur in people and animals. “The CDC and FDA have recognized they are two different strains,” he said, “and that hospital-acquired and human MRSA infections have no animal connection. MRSAs in animals are not the same as in hospital infections, but that’s what CBS focused on. The story was short on these key facts.”

On the media call, Dr. Scott Hurd, senior epidemiologist, College of Veterinary Medicine, Iowa State University and former Deputy Undersecretary for Food Safety, USDA, spoke about risk assessments for antibiotic resistance. “The actual risk assessments that have been and quantified the steps in the causal chain to get from on-farm to sick humans say there is virtually no risk at all. You are more likely to die from a bee sting than have a few extra days of illness from products that are used on the farm.” Hurd noted that there are so many steps between the farm and the fork, that by the time you get meat products in the kitchen, there are very few pathogenic bacteria and very, very few are resistant bacteria.

Banning antibiotics for use in food animals can also lead to other unwanted problems. “If you ban the antibiotics there won’t be any improvement in public health,” Hurd stated. “Research and published papers show that if antibiotics are not used in animals at all, there are small changes in animal health, a few more subclinically infected animals go to market, and there’s an increase in pathogen load, which means they probably will have Salmonella or Campylobacter on the carcass.
Hurd noted that this has been modeled out in poultry and the end result would be more human illness days when you ban antibiotics than you have now. “The Danes have shown that Salmonella rates in humans have not gone down after antibiotics were banned,” he said. “The World Health Organization concluded there was no benefit in public health and there was an increased cost of pig production.”

Hurd has posted a point-by-point response to segments one and two of the CBS show here http://tinyurl.com/yfz3mux.

Dr. Liz Wagstrom, assistant vice president of science and technology for the National Pork Board was interviewed by Couric for the CBS show. “Pork producers have a closer relationship with their veterinarians to strategically place antibiotics at a time in the animals’ life when they may be at risk,” she said on the media call. “For over 20 years with the Pork Quality Assurance Program we have focused on responsible use and residue avoidance. A transition to the PQA-Plus program now also looks at regulations regarding residues and also the responsible use of antibiotics to protect animal and human health.”

Wagstrom explained that the on-farm assessment for producers requires them to show they have a valid veterinarian-client-patient-relationship, records and decision-making strategies. “It’s just one tool they use to

protect animals and produce safe food. Other tools include hygiene, vaccination, ventilation, and keeping them warm, clean, dry and safe. All of these are part of a continuous process to raise healthy animals and produce safe food."

While Katie Couric wanted to pin MRSA infections on the livestock industry (even though they are different strains of MRSA), MRSAs are not confined to livestock or humans. I received a note from Peder Cuneo, DVM, MS, Arizona Veterinary Diagnostic Laboratory (who is currently in Egypt working on a US AID project with water buffalo) regarding MRSAs in other species.

Cuneo pointed me to University of Florida research by Amanda House, DVM, Dipl. ACVIM, that found an increasing MRSA infection rate in horses (http://tinyurl.com/y9wjcuz). Methicillin-resistant Staph aureus infections in the horse have manifested as wound and surgical site infections, cellulitis (soft tissue infections, typically of the limb), catheter-site infections, pneumonia, septic arthritis and skin infections, among others. Equine MRSA infections began to increase in prevalence in the late 1990s. The paper says MRSA is an important emerging pathogen in horses and can be zoonotic, and it is also possible for humans to transmit the bacteria to horses as well. While studies show approximately 0-5% of horses carry the MRSA bacteria in their nasal passages, some farms with a history of MRSA infections in horses have demonstrated carrier rates of 50% or more (reported in Canada).

It's important (especially for veterinarians) to wash hands as hand contamination has been identified as one of the most important methods for MRSA to infect people and horses. The paper recommends using disposable gloves when working with horses that have wounds or may be infected with MRSA. The paper recommends that people in general follow CDC guidelines for thoroughly washing hands, keeping cuts and scrapes clean and bandaged, avoiding contacts with other people's wounds and avoiding sharing personal items such as towels or razors.

We must keep in mind that MRSA strains occur in humans as well as many animal species including livestock and pets. To pin the blame for human infections solely on livestock is a stretch at best, and, CBS, it's also some really poor journalism.