STATEMENT FOR THE RECORD
Subcommittee on Health, Committee on Energy & Commerce
U.S. House of Representatives
For the hearing, "Antibiotic Resistance and the Use of Antibiotics in Animal Agriculture"
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I am Raymond Tarpley, a veterinarian in College Station, TX, with an interest in acquainting veterinary students, veterinarians and biologists with the emerging field of Conservation Medicine, linking human, animal and environmental health. I am retired from the veterinary faculty at Texas A&M University where I taught anatomy, and I am currently enrolled in the MPH program at the Johns Hopkins Bloomberg School of Public Health.

I am writing to express my concern regarding the administration of low-dose antimicrobials to healthy animals for non-therapeutic uses in the animal production industry. Even as a veterinary student studying pharmacology many years ago, one of the bedrock concepts impressed upon me again and again was that if we as veterinarians chose to use an antibiotic, it was essential that it be administered in sufficiently high doses for a long enough period of time to avoid what was considered malpractice – the selection for resistant bacteria that could harm antibiotic efficacy. To this day, I cannot use an antimicrobial without this sacrosanct principle coming to mind.

U.S. industrial animal agriculture routinely incorporates low-dose concentrations of antimicrobials into the feed or water of healthy production animals to promote growth and feed efficiency, an application currently permitted by the U.S. Food and Drug Administration (FDA). It is widely recognized that this practice selects for bacterial resistance to these antibiotics, and there has been concern that such resistance could negatively impact public health.

Considerable evidence has accumulated that these resistant organisms (and/or antimicrobial residues) move beyond the food animal production environment via 1) food products, 2) soils (upon which animal wastes are applied), 3) water (waste runoff into surface streams and seepage into underground aquifers, 4) crops (antimicrobial uptake from soil), 5) air (blown out of animal confinement facilities by industrial fans), 6) insect carriage (e.g., flies), 7) rodent carriage and 8) human carriage (e.g., farm personnel).

During a time when bacterial resistance to an array of antimicrobials is increasing, renewed attention has been directed toward the threat that resistance arising from low-dose use of antimicrobials in food animals could pose for human and veterinary pharmaceuticals, particularly with fewer novel antimicrobials reaching the market. We now know that resistance to antimicrobials can develop rapidly, extend to other antimicrobials in the same or a different class, and be shared among bacteria through multiple genetic exchange mechanisms within or between genera, culminating in multi-drug resistance in some organisms.

While the FDA Center for Veterinary Medicine has acknowledged the threat of microbial resistance with their June 2010 draft guidance (#209) on the judicious use of antimicrobials in food animals, regulatory action has been slow to evolve on this problem, particularly in an atmosphere of industry pushback. Nonetheless, discontinued use of antimicrobials for non-

therapeutic applications has been called for by the World Health Organization, the World Organization for Animal Health, the Food and Agricultural Organization, the American Medical Association, the American Public Health Association, the American College of Preventive Medicine, the Council of State and Territorial Epidemiologists, the Infectious Diseases Society of America and others.

The American Veterinary Medical Association (AVMA) has a significant role in counseling animal agriculture on issues of animal and public health, and has taken an important step on the resistance question by creating the Antimicrobial Task Force, charged with reviewing the judicious use of veterinary antimicrobials, including the use of these compounds for growth promotion and feed efficiency. A report from the task force was sent to the AVMA Executive Board for consideration this past June, and a decision by the AVMA on this issue is expected this summer.

The AVMA is a keen advocate for veterinarians as well as public health and, while the association has thus far supported the position of industry in the use of low-dose antimicrobials, I am hopeful, as a veterinarian and AVMA member, that my professional association will reformulate its position to conscientiously guide the veterinary community toward improved industrial management strategies that will reduce the risks of bacterial resistance and thus protect the efficacy of the antimicrobials we depend on daily for therapeutic use in sick animals. This can be accomplished through policies that disallow the use of antimicrobials as growth promoters and require that antimicrobials be available only through veterinary prescription for use in unhealthy animals or in animals at immediate risk of contagious exposure to diseased animals.

The AVMA, as stated in its response to the recent Report of the Pew Commission on Industrial Farm Animal Production, is fully aware that antimicrobial exposure selects for resistant bacteria, but believes that the use of these compounds at low doses for growth promotion is also effective against unapparent, subclinical disease that could otherwise lead to costly, unsafe outbreaks. Industrial agriculture and the AVMA maintain that including antimicrobials in the feed or water of healthy animals is ethically correct because such a practice is required to prevent animal illness under the conditions demanded for production efficiency.

The AVMA position likely has some validity in the context of industrial animal production environments, often referred to as Concentrated Animal Feeding Operations (CAFOs). Animal crowding typical of CAFOs favors the spread of disease and reduces growth rate performance through stressors such as poor ventilation, inadequate temperature regulation, poor hygiene and interference with natural behaviors. Excessive volumes of untreated wastes generated by large numbers of animals can trigger respiratory distress in microbially-rich environments. These production environments have led to a dependence on low-dose antimicrobials to compensate for suboptimal husbandry practices.

Production animal operations in Denmark have been cited by the AVMA as demonstrating the need for continuous administration of antimicrobials at low doses in feed and water since bans on growth promoters were followed in some cases by an increase in disease levels and mortalities, particularly in weaner pigs. However, a more comprehensive examination of the

data from Scandinavian countries, including Denmark, Sweden, Finland and Norway, reveals that these disease spikes did not always occur, and when they did, could be controlled by evidence-based management protocols, while reducing antimicrobial resistance. With feed formulations that lowered protein content, strict sanitation protocols, more humane treatment of production animals and the use of antimicrobials by prescription as needed for sick animals, animal production did not suffer following the bans, nor was there increased mortality.

While fearing that animal health and welfare will be threatened by bans on low-dose antimicrobial use in feed and water, the AVMA nevertheless acknowledges that the Denmark data do "show that swine production, average annual number of piglets per sow, and weaned and finishing (just prior to slaughter) pig average daily weight gains have increased and weaned pig mortality (death rate) has drastically decreased in recent years". By encouraging industry toward more sophisticated, time-tested husbandry practices, combined with the use of antimicrobials as needed by veterinarians to treat sick animals, the animal production industry can operate efficiently while addressing root causes of disease and microbial resistance that will simultaneously eliminate the need for antimicrobials as growth promoters or as deterrents to subclinical disease, while reducing public health risks.

Currently there is a House bill, the Preservation of Antibiotics for Medical Treatment Act (PAMTA, H.R. 1549) that can begin to transition industry and veterinarians toward a more controlled use of antimicrobials as supported by the best science over the past 20 years. I believe this bill holds promise for the nation, and I strongly hope that all professionals in the health field will endorse it with enthusiasm. Since the first objective of medicine is to do no harm, this bill is reasonable in that it requires industry to prove the safety of its practices, rather than have the public first prove itself to be harmed.

Antimicrobials are critical for contemporary human and veterinary medicine, and all interventions should be considered that protect and conserve their value. If the use of low-dose antimicrobials for growth promotion can be safely discontinued by adopting improved strategies for disease prevention, not only will the expense of these antimicrobials be recovered by the producer, but the levels of resistant organisms escaping from the farm environment will be mitigated. By making antimicrobials available for farm use only through veterinary prescription, prudent and transparent application of these valuable pharmaceuticals will be better assured, while the reduction of resistant bacteria achieved by withdrawing their low-dose use will help preserve their efficacy.