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## Time to Deal with Antibiotics

ANTIBIOTIC DRUGS—PENICILLIN, TETRACYCLINE, AND THEIR MORE MODERN SUCCESSORS—HAVE been critical elements in the world's efforts to sustain health and deal with human diseases. Unfortunately, the vital role of these drugs has been critically compromised by the prevalence of dangerous infections that antibiotics can no longer control, because bacteria are resistant to them. Even nations with strong health care systems, respected medical centers, and fine hospitals are experiencing a growing epidemic of infections that they now simply cannot cure. Here **in the United States, such infections kill nearly 23,000 people each year, according to the Centers for Disease Control and Prevention's** (CDC's) report *Antibiotic Resistance Threats in the United States, 2013*. Farming practices are largely to blame for the rise of antibiotic-resistant strains, and at last there is hope for reform.

The story is an old one. Back in 1977–1978, the U.S. Food and Drug Administration (FDA) proposed a regulation to deny the feeding of three antibiotics (penicillin, tetracycline, and chlortetracycline) to cattle to promote their growth rather than to respond to disease. As FDA commissioner at the time, I argued that the vulnerability of infectious agents to antibiotics constituted a “kind of Commons”—that is, a future health benefit shared by all members of the public. Our effort, hard fought by the livestock industry, failed to get congressional support, as the industry blamed the practice of human medicine for the resistance problem. Of course a physician may write a prescription for the wrong indication, or a patient will use more antibiotic in hope of subduing a virus. But **antibiotic resistance will be solved only when we end the use (or rather, the abuse) of these agents in veterinary medicine.**

Many groups interested in health issues have since pushed for more regulatory action, and in 2008 the Pew Charitable Trusts issued a report calling for an end to the use of antibiotics for nontherapeutic indications. The report made special note of the conditions under which cattle, pigs, and chickens were kept in preparation for market. These often involved crowding the animals in confined spaces with unhealthy environments, thus encouraging their keepers to guard against possible epidemics by prophylactic applications of antibiotics. That report elicited a strong reaction from the agricultural community, making its familiar claim that antibiotic resistance is all about physicians and their prescription habits. But those concerned with health policy know from the 2013 CDC report that at least 73% of the antibiotics sold in the United States are destined for veterinary use. As the Pew study emphasized, that's where the challenge of antibiotic resistance has to be met.

Now, fortunately, a new opportunity for resolution has arrived. Last month, a distinguished panel of experts assembled by the Johns Hopkins University's Center for a Livable Future concluded that **the use of antibiotics in managing animal health and production has become a major public health problem.** Moreover, new analyses show that there are **links between antibiotic use in animals and antibiotic-resistant pathogens in humans who live near, or care for, the animals.** Accordingly, the FDA issued in April 2012 a preliminary regulatory proposal to finalize “Food and Drug Administration Guidance #213.” The guidance would end antibiotic use for growth promotion and “unnecessary disease prevention”: i.e., prophylactic administration to animals whose health is threatened by crowding. It also would require veterinary oversight of antibiotics introduced into animal feed. Taken together, the provisions of this guidance offer a serious chance for ending the abuses that have brought about today's medical disaster of widespread antibiotic resistance. Guidance #213 makes clear the distinction between the use of antibiotics for treating sick animals and uses that are actually aimed at increasing production. It should be finalized as soon as possible.

— Donald Kennedy

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