

For the Record

Straight talk about antibiotic use in food-animal production
Volume 3, Issue 2

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INSIGHTS ON THE ISSUE

Protecting public health— conflicting approaches, lost opportunities

Quick quiz: Which of the following is believed to kill the most Americans per year?

- A) Automobile accidents
- B) Food poisoning caused by antibiotic-resistant bacteria
- C) AIDS
- D) Mistakes by doctors, nurses and hospital workers.

If you guessed D, you're half right. Medical mistakes actually kill more than A, B and C combined. Now the eighth leading cause of death, according to the government's Institute of Medicine, the errors that kill as many as 98,000 people yearly have been called "... simply unacceptable" by the chairman of the committee that issued the damning 1999 report.

One estimate suggests more than half of those cases are attributable to accidental cross-infection of patients while they're in the hospital—most commonly because a doctor or hospital worker doesn't wash his hands when going from one patient to the next. Half of those infections are resistant to one or more common antibiotics.

No wonder, then, that even the most strident opponents of using antibiotics



The focus on controlling drug resistance in human medicine relies entirely on voluntary efforts and educating doctors and patients. Then why do some in Congress propose to regulate the animal use of antibiotics?

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Also in this issue:

- **Livestock producers and veterinarians have made great progress, voluntarily.**
- **Results from wholly voluntary controls in human medicine still have a way to go.**

Case in point: Regulating farmers

Ohio Representative Sherrod Brown and Massachusetts Senator Edward Kennedy have led the charge in Congress to outlaw the 50-year-old, safe practice of using antibiotics in agriculture. Yet this legislation to combat the vastly wider

problem of resistance caused by poor hospital sanitation and errors has taken a purposely hands-off approach. It's the most obvious example of today's double standard being applied to medical doctors vs. veterinarians.

	HUMAN USE	ANIMAL USE
The scope of the problem	Hospital-acquired infections affect about 2 million U.S. hospital patients annually, killing more than 90,000. The estimated direct patient-care cost is \$3.5 billion. Of those hospital-related infections, over half are antibiotic-resistant, and the six most common kinds of resistant infections cost an estimated \$1.7 billion per year.	CDC estimates all food poisoning cases hospitalize 325,000 per year; kill 5,000. The portion attributable to antibiotic resistance is not well defined; the best estimate says about 5 percent.
Strategy for monitoring and tracking (Brown/Kennedy strategy)	Fund and encourage "voluntary data gathering systems" to create a "learning environment, where providers will feel safe to report health care errors, in order to improve patient safety." No calls for mandatory reporting of human antimicrobial use or sales statistics.	Manufacturers of food-animal drugs must report their sales figures for any "critical" antibiotic every year. That information will be made public, although it can be aggregated to protect confidential business information.
Strategy for control (Brown/Kennedy strategy)	"...[Encourage] the continuation and acceleration of private sector efforts to... improve patient safety" with public-sector action only when it complements these efforts. "...[we do] not seek to ban the use of any antibiotics," Brown says.	Allow animal drug manufacturers two years to prove a "reasonable certainty" there's no human health risk due to resistance that is attributable in any way to using a drug non-therapeutically in food animals. After, ban its use.

Source: CDC; Department of Health and Human Services; Journal of Antimicrobial Chemotherapy, Oct. 2000; House Resolution 663, Feb. 11, 2003; House Resolution 2932, July 25, 2003; House Resolution 1771, May 9, 2001.

For the record

To safeguard public health, physicians and veterinarians make better allies than foes. Yet some are driving a wedge between them by imposing a double standard to control antibiotic resistance.

For the record

Animal agriculture has already made great progress in helping the medical community ensure antibiotic resistance doesn't arise from foodborne sources... without benefit of legislation.

What voluntary efforts have achieved...

Recognizing the animal producer's role in helping prevent any spread of antibiotic resistance — no matter how theoretical — and without the benefit of legislation, the industry has made these strides in the last few years to address the problem:

■ The American Veterinary Medical Association, the Centers for Disease Control, the Food and Drug Administration, and other organizations issued a comprehensive set of voluntary "prudent use guidelines" to ensure producers use their antibiotics wisely. Now widely adopted in the industry, the guidelines encourage herd-management plans to prevent disease and thus avoid need for antibiotics, recommend veterinary involvement, and provide guidance on storage, administration, label instructions, record keeping, residue monitoring and other safety-enhancing practices.

■ FDA has introduced new requirements that will make

science-based assessment of the risk that an animal drug will contribute to resistance a part of all approvals animal drug sponsors must submit.

■ USDA also has initiated a new program to produce meaningful data on the relationship between antibiotic use and antibiotic-resistant bacteria on raw meat.

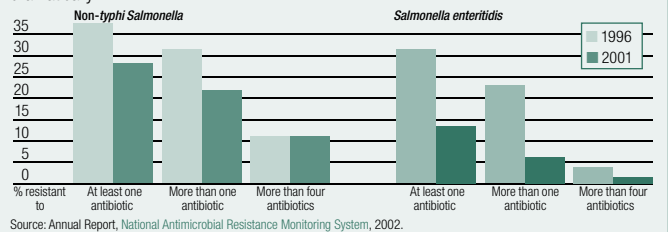
■ The incidence of important causes of foodborne disease continues to decline, according to CDC. For 2002 — the most recent figures available — the estimated incidence of *Campylobacter*-related

illnesses dropped 24 percent; *Listeria*, 38 percent; and *Yersinia*, 43 percent, compared to the average from 1996 to 2001. Although *Salmonella* and *E. coli* infections have been more stubborn to control, the estimated incidence of the important strain *S. typhimurium* decreased 31 percent, while the strain *S. enteritidis* did not increase.

CDC credits efforts by USDA to improve packing-plant sanitation and consumer education, along with FDA efforts to do likewise with fresh produce, eggs, seafood, juice and imported food.

FOOD SAFETY RESULTS

Antibiotic resistance in non-typhi *Salmonella* isolates is not increasing, and the resistance rate in *S. enteritidis*, the strain most often transmitted by egg consumption, has declined dramatically.



...and where voluntary efforts have yet to hit the mark

Since 1995, when it first identified that 40 percent of prescriptions issued by doctors' offices were being inappropriately written, the CDC has pushed an active campaign of education to advise physicians and their patients in the human medicine practices that contribute to resistance.

Common-sense wisdom — supported by science-based evidence — says that the most effective tool for curbing over-prescribing is to simply close the pharmacy to unchecked prescribing. In some hospitals, that takes the form of policies requiring doctors to submit all their prescriptions to computerized oversight and pre-approval. Other systems discourage over-

prescribing by making patients or the doctor pay for unapproved prescriptions.

Still, virtually no one suggests physicians submit to mandatory limits on their prescription pad through legislation, similar to that being forced on veterinarians. How has the voluntary approach worked?

■ Several recent studies have documented declines in antibiotic prescribing from doctors' offices, suggesting the public awareness campaigns may be working. One study showed that, comparing 1989-1990 to 1999-2000, antibiotic prescriptions for children — the most antibiotically medicated patients — declined 47 percent. Another showed that between 1991-1992 and 1998-1999, the

percentage of children that left a doctor's visit with an antibiotic prescription dropped from 33 to 22 percent; adults, from 13 to 10 percent. And an April 2003 CDC study showed similar results.

That's the good news.

The bad news? The authors of the same studies found that although overall antibiotic prescribing may be dropping, broad-spectrum antibiotics are still overused. In the previous study, prescriptions calling for broad-spectrum antibiotics increased from 23 to 40 percent in children and from 24 to 48 percent in adults. All three studies suggest doctors may simply be swapping older, narrow-spectrum antibiotics for newer, more expensive, broad-spectrum ones. That means they're now using the antibiotics of last resort first, and



Of the deaths attributed by the CDC to medical error, it's estimated more than half are caused by accidental infection spread in large part by hospital workers who forget to wash their hands between patient care visits.

in the process beginning to cause resistance against those.

In addition, the 2003 CDC study raises some suspicious questions about the real trend at work. It found prescription rates dropped for clinics but not for emergency rooms or hospital outpatient wards—where they, in fact, rose. The authors suggest the only real change may be the setting where antibiotics are being dispensed.

■ In spite of similar educational campaigns to improve hospital hygiene, U.S. hospitals continue to be an important reservoir of antibiotic-resistant bacteria.

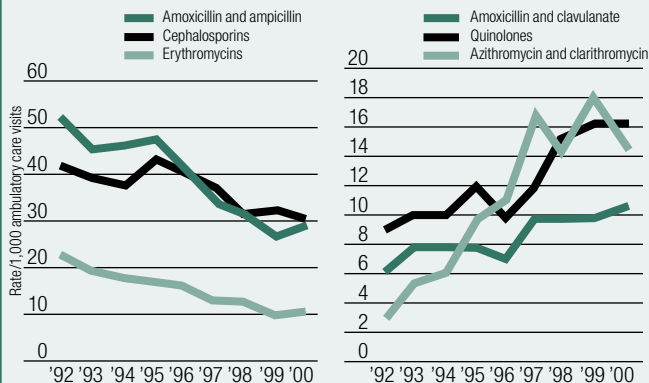
The latest annual CDC report shows virtually all important bacterial causes of hospital-acquired infections continue to increase their level of resistance to key antibiotics.

Hospitals are an important source of antibiotic resistance because high levels of antibiotic use encourage resistance in human pathogens, and because it's relatively easy to spread a resistant population and thus keep it established. Research just published from Sweden, for instance, used genetic typing of resistant bacteria to show that fully 70 percent of the intensive-care patients studied were colonized with bacteria that could only have come from other patients in the unit.

In spite of ongoing educational campaigns to convince hospital workers to wash or disinfect their hands between patients, surveys show they comply with hand-washing recommendations only 25 to 50 percent of the time. Studies that permit use of alcohol hand rubs in place of washing increase compliance to 60 to 80 percent. However, another study found that when 30 to 50 percent of patients are colonized with the common vancomycin-resistant *enterococci*, even those high compliance rates can't prevent cross-contamination.

DOCTORS' CAMPAIGN SHOWING MIXED RESULTS

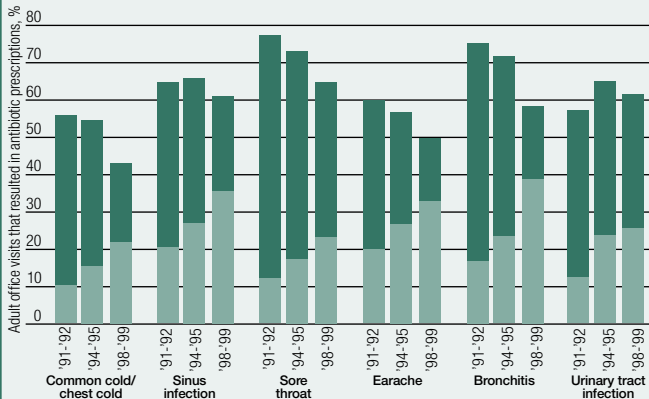
Research shows that although physicians may be reacting to educational campaigns by reducing their prescribing rates for old-line, narrow-spectrum antibiotics (left), they're simultaneously increasing the number of prescriptions they write for newer, broad-spectrum ones (right).



Source: McCaig L.F., Besser R.E., Hughes J.M. Antimicrobial Drug Prescriptions in Ambulatory Care Settings, United States, 1992–2000. Emerging Infectious Diseases, April 2003.

MISUSING BROAD-SPECTRUM ANTIBIOTICS?

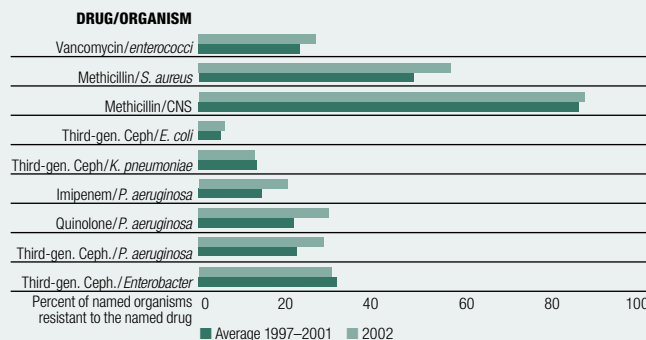
Despite education campaigns, physicians are contributing to antibiotic resistance in the newer, broad-spectrum "last-resort" antibiotics by prescribing them at an increasing rate, often for conditions like colds and earaches, which do not respond to antibiotics at all.



Source: Steinman M.A., et. al. Annals of Internal Medicine, April 1, 2003.

RESISTANCE SPREAD BY HOSPITALS CONTINUES RISING

CDC's 30-year-old surveillance system shows that an infection caught while in the hospital is increasingly likely to be an antibiotic-resistant one.



Source: National Nosocomial Infections Surveillance System Report, National Center for Infectious Diseases, August 2003.

For the record

Strictly voluntary efforts to control antibiotic overuse and misuse in human medicine have shown mixed results.

Coming in the next issue of For the Record

The giant myth of organic production as a viable, cost-effective alternative to today's meat-production technology.

For the Record

For the Record, sponsored by a grant from ALPHARMA, is designed to help unite the industry and provide a unified, rational message on behalf of producers whose freedom to use safe, effective, economical production methods is at stake. Working together, we can set the record straight on antibiotics.

Questions or comments? Contact Steve Kopperud, at skopperud@poldir.com.

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REAL-WORLD PERSPECTIVE ON THE ISSUE

Quality is up to us, first

One of the comments you're inclined to hear coming particularly from the animal-rights



Paul Engler
Chairman of the Board
Cactus Feeders
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people is the cattle-feeding industry uses antibiotics to cover up poor management. I would invite anybody to visit any of our 10 feedyards and see how far from the truth that is.

I've always said you can tell an awful lot about a feedyard by looking at the way they treat the cattle and how the employees take care of the place. At Cactus we spend a lot of time and money taking care of the pens, the facilities and the equipment. Caring for cattle is a 24 hour, 7 day a week job. For us, the cattle come first. Even if it means working long hours or weekends or holidays, our people know the cattle come first.

And still, quite honestly, our

industry could not survive without the ability to use the antibiotics we have today—where and when we consider it an appropriate tool. We couldn't economically run our business, and just as importantly, we couldn't care for these animals as humanely as we are able to without using antibiotics and ionophores.

In our separate division called Cactus Research, we keep a minimum of 10,000 head on feed in feeding trials at all times, doing contractual research for companies, as well as research on some of our own in-house production questions. Nobody forces us to do that. We do it because we're sensitive to questions like how, where and when antibiotic usage is appropriate. It is a production quality issue, and just like cleaning water tanks, maintaining good pen conditions, or controlling dust, no one had to come in and tell us it needs to be done. We understand food safety and quality is up to us, first. That's our job.

Physician, heal thyself?

The governing body of the 250,000-member American Medical Association voted in 2001 to support mandatory bans on the veterinarian's and farmer's ability to use approved antibiotics as they deem necessary in their professional opinion. The resolution was widely reported in the press as credible testimony of the need for legislation. Meanwhile, little note has been paid to AMA's other efforts to prevent similar restrictions on its own members' ability to practice their profession, including (in AMA's own words):

- **Opposition** to any "... unnecessary intrusion of the government and other regulatory bodies into the doctor-patient relationship, especially as it concerns the prescription of medication."
- **Encouragement** that FDA decisions to approve or withdraw human drugs be "based on sound scientific and medical evidence derived from controlled trials... [and] that social and economic concerns and disputes... not be permitted to play a significant part in the FDA's decision-making process."
- **Opposition** to any proposal that would classify "... drugs of choice for any specific clinical entity through governmental regulation."
- **Support** for "the physician's right to dispense drugs and devices when it is in the best interest of the patient..."

Source: American Medical Association.

Continued from page 1

in food-animal production will recognize the role of the human medical community—including overuse of antibiotics there—as an important piece of the resistance puzzle.

Yet, a Congress that has introduced legislation—again—to ban the safe and effective practice of using antibiotics in food production has carefully avoided putting similar teeth into controlling human misuse of antibiotics.

In the continuing task of improving public health—whether through better medicine or through better diet—physicians and veterinarians make better allies than foes. Imposing a double standard is both unfair and unproductive.

Still a tough sell

Doctors apparently don't have it easy in educating their patients on the proper use of antibiotics to avoid resistance. The CDC's Foodborne Diseases Active Surveillance Network randomly surveyed people during 1998 and 1999 about their knowledge of antibiotics.

The study showed these mistaken beliefs:

- "Taking an antibiotic for a cold made me better:" 27 percent.
- "Taking antibiotics for a cold prevents more serious illness:" 32 percent.
- "I expect my doctor to write a prescription if I'm sick enough from a cold to seek medical attention:" 48 percent.

Source: Vanden Eng J, et al. Consumer Attitudes and Use of Antibiotics. Emerging Infectious Diseases, September 2003.