

Germ Warfare

The ANA and nurses work to prevent the misuse of antimicrobials in agriculture.

In the famous H. G. Wells book, *The War of the Worlds*, human beings are powerless against space aliens who invade Earth and promptly destroy everything in their path. The human race ultimately is saved because, as it turns out, the Martians have no resistance to common bacteria found on our planet.

Nurses don't have to look to the world of science fiction to know how tough bacteria can be—particularly when they increasingly see patients infected with vancomycin-resistant enterococci or methicillin-resistant *Staphylococcus aureus*.

Like their counterparts in other health care fields, nurses know that the growing trend of antibiotic resistance is due, in part, to the misuse of antibiotics in patient care. For example, health care professionals have been known to acquiesce to patient demands for antibiotics—even when the source of infection is most likely viral. And for years, many patients haven't followed the prescribed regimen for taking antibiotics, often stopping short of the full course once they begin to feel better.

Nurse leaders contend, however, that many RNs and other health care professionals are unaware of another major contributor to antibiotic resistance: the misuse of antimicrobials in the agricultural industry. They also believe that nurses can play a crucial role in stopping this misuse, which can reduce the effectiveness of common antibiotics now being used to treat patients.

THE ISSUE

Denise Moore, MS, APRN, BC, president of the Maryland Nurses Association (MNA), initially questioned introducing a proposal on the misuse of antibiotics in agriculture at the ANA's House of Delegates. (The house consists of nurses from ANA-affiliated state nurses organizations who meet annually to take action on issues important to the profession and patient care.)

“My gut reaction was that there are so many other important issues to focus on in nursing right now,” Moore says. “But the more I thought about it, and spoke with other nurses about it, I realized how very important this issue is to nurses and to the public's health.

In preparing to vote on the proposal, submitted by the MNA with the ANA board of directors and the Florida Nurses Association (FNA) as cosponsors, delegates examined a report that detailed the extent of the inappropriate use of antimicrobials in agriculture.

According to the MNA-written report, an estimated 70% of all antibiotics and other antimicrobials in the United States are used as agricultural feed additives for nontherapeutic purposes, including using antibiotics to boost the growth of farm animals and to prevent illness in healthy animals.

Furthermore, roughly half of these drugs belong to classes used in human medications, such as penicillins, tetracyclines, streptogramins, and sulfonamides. Prescriptions or supervision by a veterinarian generally are not required for nontherapeutic use.

“We have a relatively small number of antibiotics, and health care professionals have found that some antibiotics are just not touching some organisms,” says Lygia Holcomb, DSN, ARNP, C-FNP, who helped gain FNA's sponsorship of the house resolution and has published research on antibiotic resistance. “Say you're treating strep throat. Penicillin has been the drug of choice. But now there's so much resistance to that drug.

“And what's going to happen when there's no drug for a deadly disease? The time between onset of a bacterial infection and death can be a very short time, and these infections are highly communicable. Entire populations can be wiped out.”

Moore provides another example of this growing problem, noting that one of three cases of illness related to a particular strain of *Salmonella* is resistant to more than five different antibiotics so far. *Salmonella* contamination accounts for 1.4 million illnesses and 580 U.S. deaths annually.

The house report also noted that few new antibiotics are being developed, and those that do reach the market likely will be more expensive.

“A lot of people think that a new ‘super’ drug can be developed at any time,” Holcomb says. “But really we're just barely staying ahead of the curve of resistance. [Bacterial] organisms have been mutating for hundreds of thousands of years. We've only been able to eradicate them for maybe about 100 years.”

The nonprofit Alliance for the Prudent Use of Antibiotics (APUA) contends that not

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only are people at risk when they consume food products that may harbor resistant bacteria, but they also may be exposed through certain environmental sources.

“As much as 75% of an antibiotic may pass through animals undigested, and the waste will contain antibiotics, as well as resistant bacteria,” says MNA member Novella Jackson, MS, RN, CNA, BC, environmental health specialist with the Environmental Health Education Center at the University of Maryland School of Nursing in Baltimore.

“Antibiotics and resistant genes have been found in the soil and groundwater where farmers use nontherapeutic antibiotics. Some farmers collect the waste in lagoons and then spray it on their fields as fertilizer.”

The World Health Organization (WHO) in 2000 called for an end to the nontherapeutic use of medically important antibiotics unless they are shown to be safe. Three years later, a WHO expert panel concluded that there was “clear evidence” that nonhuman use of antimicrobials breeds resistant organisms that affect human health.

TAKING ACTION

At the ANA’s House of Delegates, nurse leaders ultimately passed a resolution that asked the ANA to

- urge Congress, meat and poultry producers, and purchasers of bulk meat to promptly phase out the nontherapeutic use of medically important antibiotics and the use of fluoroquinolones in poultry. (Delegates wanted to ensure that their actions wouldn’t prevent sick animals from being treated promptly and effectively.)
- educate registered nurses on the nontherapeutic use of

antibiotics and fluoroquinolones by meat and poultry producers and ways in which they can advocate the change of this practice.

- support full disclosure by meat and poultry producers regarding pharmaceutical use.

“As professionals, nurses must take the lead role in safeguarding the health of the public and ensure the continued preservation and effectiveness of antibiotics for therapeutic uses,” Moore says about the importance of passing the measure.

In another effort, Jackson has participated in educational campaigns where she’s discussed with nursing groups the ramifications of using antibiotics in agriculture. She also is developing a letter that nurses can send to their members of Congress, asking them to support the bipartisan Preservation of Antibiotics for Medical Treatment Act of 2003 (HR 2932, S 1460) that addresses the misuse of antimicrobials in agriculture.

Jackson would like to see nurse educators—at both health care facilities and nursing schools—address environmental health issues such as the agricultural use of antimicrobials, as well as teach nurses how to take a solid environmental health history of their patients.

She further encourages nurses to participate in drafting procurement policies at their facilities that address purchasing meat that comes from animals that have not received prophylactic or growth-promoting antibiotics.

Kathryn Hall, MS, RN, CNA, BC, the MNA’s executive director, believes there needs to be a two-tiered approach in tackling the broad issue of antibiotic resistance.

“Nurses need to educate themselves and then begin to educate the public on the varying factors

that lead to antibiotic resistance,” Hall says. “We need to be getting out the literature, speaking to community groups, and supporting the farmers who are doing the right thing by not using these medications indiscriminately.”

Hall says that MNA nurses have worked hard to develop a strong environmental agenda. “It’s a perfect place to put some energy around one of our major focuses, patient safety and advocacy,” Hall says.

Jackson adds that nurses can effectively communicate to consumers the importance of the appropriate use of antibiotics because they can put a “human face” on the issue by telling stories of patients affected by an antibiotic-resistant infection.

Other nurses agree it’s an extremely important issue for all nurses to rally around, for the sake of their patients and themselves.

“In my mind, it’s a crisis,” says Holcomb, who reported that the FNA spoke with the Florida Department of Agriculture about the merits of the house proposal before signing on as a cosponsor. The department had no official position on the antibiotic use in livestock, but staff viewed it as a valid human health concern.

“Nursing can be at the forefront of promoting the appropriate use of antibiotics because, as nurses, we see the bigger public health picture,” Holcomb says.

The ANA and several of its constituent member associations are members of Health Care Without Harm (HCWH), an international coalition that tackles a range of environmental health issues, including antibiotic resistance. For more information, go to the HCWH Web site at www.noharm.org or visit the APUA’s Web site at www.apua.org. ▼