

An Influential Voice in a Toxic Debate

Toxicologist Deborah Rice '77M (PhD) earns national recognition for her work to identify potential toxins.

By Karen McCally '02 (PhD)

Deborah Rice '77M (PhD) recognizes that harmful chemicals “have really captured the imagination of the general public in the last few years.” And she says that while the media may have fed that interest, the concern reflects sound science. Exposure to toxins, at potentially harmful levels, is not only the curse of certain occupations or regions. Increasingly, it's part of everyday life.

“We're exposed not only through the environment, through lakes and rivers and the air,” she says, “but through the products that we're actually bringing into our homes and using every day.” Those products include things from cosmetics to the lining of aluminum cans—“things that even five years ago, no one was thinking about.”

A former risk assessor for the Environmental Protection Agency, Rice is now a toxicologist with the Maine Center for Disease Control and Prevention. Last fall, she was one of 10 people nationwide selected by the Heinz Family Foundation to receive the annual Heinz award.

Established in 1993 in memory of the late Pennsylvania senator John Heinz, the awards recognize individuals who demonstrate a combination of vision, creativity, and “gritty determination” in work that has led to enduring improvements for humankind. Rice is the second Rochester alumna to receive the award in the past three years.

Susan Seacrest '78W (Mas) was recognized in 2007 for spearheading a national campaign for safe drinking water. While the awards usually honor individuals across fields, this year the foundation focused on champions of environmental protection.

Rice made her initial mark researching the effects of PCBs, lead, and modest levels of methylmercury—a toxin that forms when mercury released into the air combines with organic compounds—on the developing fetus. Her research, which linked even small amounts of methylmercury to cognitive, sensory, and developmental impairments, is used by many states to establish guidelines for the consumption of fish, in which methylmercury accumulates.

From there, Rice began researching

synthetic chemicals. About 80,000 new chemicals have been developed since the end of World War II. And most, she says, “have undergone no testing whatsoever.”

Unlike new drugs, which undergo rigorous testing by the Food and Drug Administration before they can be made available to the public, “there's absolutely no requirement to test a non-pesticide chemical before it goes out into the environment or into household products,” says Rice.



Chemicals are regulated under the 1976 Toxic Substances Control Act, which places the onus on the federal government to determine which chemicals already in use are potentially harmful. States can regulate chemicals according to stricter standards, and several have.

In 2007, the Maine legislature banned the use of the chemical decaBDE—a flame retardant used in furniture and electronics—a decision based in part on Rice's research demonstrating that the chemical is a toxic agent that accumulates in the environment, wildlife, and in human tissues.

▲ **STANDARD BEARER:** Rice's research on methylmercury and other toxins is used by many states to set standards for exposure to potential health hazards.

Later that year, Rice was dismissed from an EPA panel that was reviewing the safety of deca. While industry groups, such as the American Chemistry Council, question many of the scientific claims against small doses of deca and similar chemicals, Rice has a long list of supporters, such as Herbert Needleman, a professor of pediatrics at the University of Pittsburgh who pioneered research into the toxic effects of low doses of lead. In May 2008, he published “The Case of Deborah Rice: Who Is the Environmental Protection Agency Protecting?” in *PLOS Biology*, a peer-reviewed journal of the Public Library of Science.

“Deborah's not afraid of controversy,” says Bernard Weiss, a professor of environmental medicine and pediatrics at Rochester, with whom Rice worked when she was a doctoral candidate. And “grit” is a quality Rice has in abundance, he says, adding that although a horseback riding accident left her partially paralyzed in a wheelchair nearly 25 years ago, “ever since she gets around the world, to conferences, giving talks, and just being as active as you possibly can be.”

Rice's dismissal did spur a congressional inquiry. And she says, “it put the focus on the way the agency chooses these panels.”

Today, she says, the process “is not perfect, but it's improved. And to the extent that that was triggered by my experience, I'm very happy.”