

themselves from specific votes, they are permitted to participate in discussions, and thus influence the decisions, critics say.

"Vaccines are the only substances that a government agency mandates a United States citizen receive," said Burton during a hearing of his committee on June 15. "Families need to have confidence that the vaccines that their children take are safe, effective and truly necessary. Doctors need to feel confident that when the FDA licenses a drug, that it is really safe and that the pharmaceutical industry has not influenced the decision-making process. Has that trust been violated?"

Burton's committee staff investigated how the two advisory panels had approved the ill-fated rotavirus vaccine.

The investigation found that in clinical trials five children out of 10,000 developed bowel obstructions after taking the vaccine, Burton said. "There were also concerns about children failing to thrive and developing high fevers, which, as we know, can lead to brain injury," he added. Despite these concerns, and others, both advisory committees unanimously approved the vaccine, he said.

Burton's staff also examined the finances of advisory committee members and found that:

- The chairmen and members of both advisory committees own stock in vaccine-manufacturing companies, and some members of both advisory committees own patents for vaccines affected by decisions of the committee.

- Three out of five of the members of the FDA's advisory committee who voted for the rotavirus vaccine had conflicts of interest that were waived.

Burton also noted several specific examples of potential conflicts of interest, including:

- John Modlin, chairman of the rotavirus working group of the CDC ad-

visory group, owned \$26,000 worth of stock in Merck, one of the largest manufacturers of vaccines, and serves on Merck's Immunization Advisory Board.

- Children's Hospital's Offit, a member of the CDC advisory committee who voted to recommend adding the rotavirus vaccine to the Vaccines for Children program, holds a patent on a rotavirus vaccine and receives grant money from Merck to develop it.

- Harry Greenberg, chairman of the FDA committee, owns \$120,000 worth of stock in Aviron, a vaccine manufacturer. He is also a paid member of the board of advisers of another vaccine manufacturer and owns \$40,000 worth of its stock. This stock ownership was deemed not to be a conflict and a waiver was granted. To the FDA's credit, Burton noted, Greenberg was excluded from the rotavirus discussion because he holds the patent on the rotashield vaccine.

If panel decisions on all vaccines on the national immunization schedule had as many conflicts as those discovered for the rotavirus vaccine, Burton said, "then the entire process has been polluted and the public trust has been violated."

Linda A. Suydam, senior associate commissioner for the FDA, responded that the agency has given high priority to selecting the most qualified clinical and scientific experts for its advisory committees and to "rigorously complying with the statutes and regulations governing these advisory committees." They are often pre-eminent scientists in their field, she said, and since academic biomedical research in the United States today is increasingly financed by industry, "most active researchers in the private sector have some ongoing or past relationship with regulated industry."

If the FDA were to exclude any scientist with a relationship with industry from its advisory committees, "We would not get the top scientists

in the field, and the recommendations of the advisory committees would not be of the highest scientific nature, with a likely impact on public health," she said.

Dixie Snider, the CDC's associate director for science, said each committee member is required to report stock ownership, honoraria, employment, general partnership interests, contracts and receipt of grant funds that they — or their spouse or minor children — have had within the past 12 months. If members do have a potential or actual financial conflict, she says, they may be granted a limited waiver to participate in committee discussions but must publicly disclose relevant interests at the beginning of each meeting and abstain from votes involving those interests.

Offit says his relationships with pharmaceutical companies don't cloud his judgment. "When pharmaceutical companies pay me to speak about vaccines, they do it via unrestricted educational grants," he says. "They have no input in what I say, nor would I ever allow that to happen. If I think a vaccine has certain weaknesses, I say it. Never have they said, 'Wait a minute, this is not what we want people to hear.'"

Duke University pediatrics Professor Katz, who has served on immunization committees of the CDC, WHO, IOM and FDA, says, "Government doesn't fund clinical studies of vaccines. Industry does. And nearly everyone who has ever been involved in developing a vaccine has been involved in a clinical study funded by industry."

Nevertheless, he says, "People are much more sensitive to this issue now than they were 10 years ago. In the past, a lot of us did take consultation fees."

But Katz says now he does not take any honoraria, "and I make sure neither I nor any members of my family have financial interests in vaccine companies."