The University of Amsterdam's Goudsmit argues that this "'50s technology" is "the first thing that should have been done." (Therion is, to a limited degree, pursuing a live, attenuated HIV vaccine, and Immuno recently has begun developing a whole, killed one.)

Not only are most experimental vaccines taking the same genetically engineered approach, they are focusing on a single strain of the virus: the B subtype, which predominates in Europe and the United States, but not in the developing world. This focus may result in vaccines with little relevance to many of the poor countries where HIV is spreading rapidly. Although one immune response might protect against different genetic subtypes of HIV, Bellagio participants felt that vaccines would be more likely to work if they were based on the viruses found in the population where they are being tested. But until now, companies have been reluctant to make different vaccines for different populations. Their strategy is to prove they could protect against the B subtype and then, if necessary, make vaccines from other subtypes. Epidemiologist John McNeil of the Walter Reed Army Institute of Research says that when he and his colleagues gave several companies HIV strains from Thailand hoping someone would make a vaccine, "for the first 18 months to 2 years, we basically didn't have anyone who was willing to do anything."

### The real race

As story after story like McNeil's piles up, those in the field are discovering that the race for an AIDS vaccine is really a crawl. The Rockefeller Foundation's Seth Berkley, an internist and epidemiologist who organized the Bellagio meeting, says that not long ago, he thought the AIDS vaccine search was on track. "I had assumed—and I feel like a fool to say this—that the vaccine effort was taken care of and that everything was going great. But as I began to look at it closely, I saw that the vaccine effort was in trouble. And the situation was getting worse, not better, in terms of incentives for industry and the attention paid to the developing world."

To address those problems, the Bellagio report calls for a global HIV vaccine initiative. Though the report doesn't detail what the initiative would look like, it floats several ideas, including a task force, a consortium, or a nonprofit institute. Berkley says his next steps are to develop a scientific plan laying out specific gaps and a business plan with estimated costs. "More has to be done," says José Esparza, who heads AIDS vaccine development at WHO. "If we maintain the present level of effort, we're not going to have a vaccine in a reasonable amount of time." And that could be a disaster, because the one thing AIDS vaccine developers are truly racing against is time.

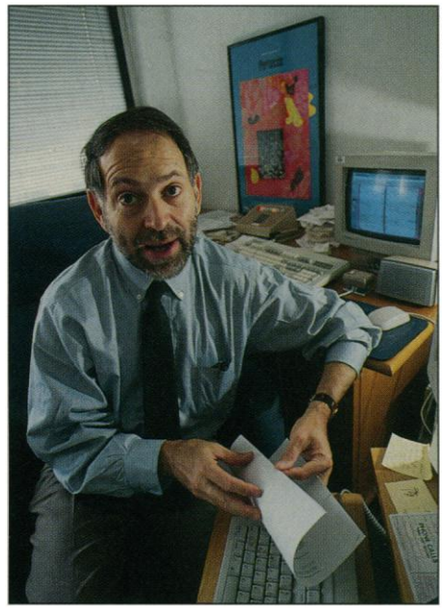
**–Jon Cohen**

VACCINE POLICY

# U.S. National Program Is Going Nowhere Fast

Vaccination seems like simplicity itself: a jab in the arm that offers a lifetime of protection. Yet the political mechanisms underlying the creation of these remarkable elixirs are nothing if not complex. Developing a new vaccine requires cooperation among a multitude of groups whose interests often conflict, including researchers in academia and industry, regulatory agencies such as the U.S. Food and Drug Administration (FDA), drug manufacturers and distributors, public health officials, medics, educators, and epidemiologists.

Traditionally, coordination of these diverse interests has been a hit-or-miss affair, dependent as much on market forces as on the clear and present needs of the public's health. But market forces are poor cultivators of vaccines, because these preparations are rarely big moneymakers. As a result, only about 20 vaccines have ever reached the clinic. In an attempt to get vaccine development to hit its public health targets more often, Congress created the National Vaccine Program (NVP) in 1986 and charged it with choreographing the vaccine-related activities of federal agencies and industry, as well as defining what vaccines are needed and how to provide them. NVP is currently a 35-person unit, with half of its staff in the Office of the Assistant Secretary for Health (OASH) in the Department of Health and Human Services (HHS) and half in other agencies.



RICK KOZAK

**Shot out from under him?** Anthony Robbins thinks Congress wants to put his vaccine office out of business.

But NVP, like an unvaccinated youngster, has led a sickly existence. And now it may be in its death throes—a victim, say insiders, of underfunding, poor leadership, and turf wars involving the very federal agencies NVP was supposed to coordinate. Congress is on the verge of gutting the program by transferring almost all of its staff to the Centers for Disease Control and Prevention (CDC). And many vaccine experts, while insisting there's a dire need for a body to coordinate vaccine development in the United States, think NVP isn't up to the job.

"NVP was a very good idea, but I don't think it seized the opportunity it had," says R. Gordon Douglas, president of the vaccine division at the pharmaceutical giant Merck & Co. and a member of NVP's advisory committee. Douglas blames NVP leadership for failing to "raise NVP's accomplishments to a level at which it gets recognition." Indeed, one of the few tangible proofs of NVP's 8-year existence is a handful of reports—one of which, the U.S. National Vaccine Plan, was issued after a pachydermal gestation period of more than 7 years. Even Anthony Robbins, the full-time consultant who effectively heads the National Vaccine Program Office (NVPO) and is its director-designate, admits NVP has not reached its full potential. Part of the problem, he says, is that NVP got off to a slow start because the "the [Reagan] Administration did not eagerly embrace the program."

Congress was also less than enthusiastic. Authorization for the program slipped into law as a 1986 amendment to the Public Health Service Act. The lack of political interest in the program is reflected in the status of its directors. The NVPO has had a full-time director for only 3 of its 8 years; Robbins has been waiting more than a year for OASH to appoint him to full status.

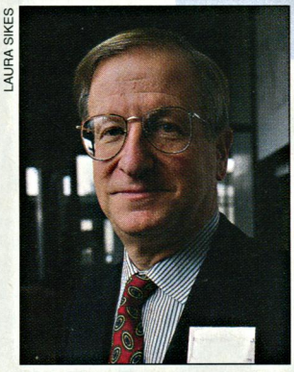
In addition, it wasn't until fiscal year 1989 that Congress actually appropriated funds—a measly $0.5 million, increased to $5.9 million the following year. With this small budget, the agency set about its mission: coordinating vaccine activities at FDA, CDC, the National Institutes of Health (NIH), the Department of Defense (DOD), the U.S. Agency for International Development (USAID), and industry; providing discretionary funds for urgent vaccine projects that did not fall under the jurisdiction of any one

agency; and developing a National Vaccine Plan to establish priorities for vaccine research, distribution, and use.

The National Vaccine Plan, finally released this March, has underwhelmed vaccine researchers. Even those who helped draw up the plan concede its limitations. "It's not earth-shattering. It's obvious. But at least we have a plan. We know, for instance, that by 1996, we want more than 90% of our kids to be vaccinated. We've anticipated the problems, and we know some of the ways around them," says Barry Bloom of the Albert Einstein College of Medicine in New York City, a member of the NVP advisory committee that helped develop the plan.

The problems of the NVP, however, go deeper than the indifferent reception its plan is receiving. Robbins points out that NVP has "very little authority" over the agencies it is supposed to coordinate. As an HHS office, NVP has no jurisdiction over DOD or USAID; the agencies that are within HHS are loath to surrender turf. Walter Orenstein, director of the National Immunization Program for CDC, expresses his agency's attitude: "NVP should not be playing a true program implementation role; that should be at the agency level."

With little money and less clout, all NVP has to offer is a neutral arena in which government agencies and industry can discuss vaccine issues. "Providing a forum for discussion, as innocuous as it sounds, has been quite useful," says John La Montagne, director of the division of microbiology and infectious diseases at the National Institute of Allergy and Infectious Diseases. He cites NVP's report on the 1989–90 measles epidemic as an example of consensus reached through NVP. That report identified several factors behind the measles outbreak, including a low vaccination rate among children under 2 years of age and a 5% failure rate among those who did receive the vaccine; the report recommended immediate measures to improve the effectiveness of measles vaccination. Despite some successes, La Montagne says, it may be "time for NVP to fade out."



LAURA SIKES

And fade it could. For the past 2 years, Congress has put NVP's discretionary fund of about $6 million in the hands of CDC. So far, CDC has had to consult NVP on how to spend the money. This year, however, Congress may change that consultative relationship and allow CDC to swallow up NVP. On 19 July, an amendment to the U.S. Senate Labor, Health and Human Services, and Education appropriations bill proposing transfer of 30 of NVP's 35 staff to CDC was passed by the appropriations committee. The committee clearly intends NVP "to be put out of business," says Robbins.

Even if NVP hasn't been the answer to problems in national vaccine policy, most experts say a coordinating body is needed. "If the U.S. is going to have a really good immunization program, without gaps in it, it needs such a group," insists Douglas. In 1993, an Institute of Medicine (IOM) committee on the Children's Vaccine Initiative, the international drive to improve childhood immunizations (see story on this page), recommended forming a meatier organization: a "National Vaccine Authority," or NVA, with a budget of $55 million to $75 million per year. Besides coordinating academic, government, and industrial vaccine efforts, NVA would conduct vaccine research, development, and pilot production. The IOM, however, failed to say how NVA would be funded or where in the federal hierarchy it might be located. The proposal has gone nowhere.

Roy Widdus, a full-time consultant to NVP, says that if what is wanted is a truly national program to "meet international and domestic public health needs, the only place it could sit is in the White House." But that powerful location also poses problems, says Widdus, because "it is too far removed from implementation of programs at the agency level." Vaccine expert Bloom suggests another possibility: transforming NVP's advisory committee into a National Vaccine Commission (see Policy Forum on p. 1378). Such a move, he argues, has the advantage of creating a body independent of government, while including experts from the major federal agencies, as well as industry researchers, health-care providers, and health economists.

**"NVP was a very good idea, but I don't think it seized the opportunity it had."**

**—R. Gordon Douglas**

These widely varying ideas about what form national policy leadership on vaccine research and distribution should take belie consensus on one point: Almost everyone in the field agrees that until there is a robust body responsible for setting U.S. national vaccine policy, one of the best creations of medical research—the vaccine—will continue to be underutilized.

**–Rachel Nowak**

DEVELOPING COUNTRIES

# Childrens' Vaccine Initiative Stumbles

Vaccine researchers call it the Holy Grail of childrens' health. The quest for the Grail began 4 years ago when the biggest international agencies in the vaccine field set out to develop a "supervaccine" that could protect the world's children against all major childhood diseases in a single dose. "The fundamental idea was so good" that most vaccine researchers rallied to the cause immediately, says Philip Russell, a Johns Hopkins University vaccinologist. The Children's Vaccine Initiative (CVI) was launched in 1990 to great fanfare from world leaders, donors, and eminent scientists at the World Summit for Children in New York.

Underlying the fanfare was the hope of resolving one of the most serious problems in public health: the deaths, every year, of more than 2 million children from measles, *Haemophilus influenzae*, and other diseases that could be prevented by vaccination. The reason for the toll is that at least one child in five—including many U.S. children under age 2—is not fully vaccinated. That was plenty of motivation to begin the quest for the vaccinologists' Holy Grail. Yet 4 years later, the CVI has produced little in the way of tangible results.

So far, CVI has raised less than $10 million of the estimated $300 million needed by the year 2000 to catalyze research and development for new and improved childrens' vaccines, with the ultimate goal of producing a supervaccine. Since its inception, insiders say, CVI has lacked a strong leader; sponsors and donor agencies have squabbled over how much should be spent on research and over who should be in charge. Muddling the picture further, the U.S. government, which should be a key player, has provided little leadership. Supporters of the initiative are hopeful, however, that the infighting is dying down, and CVI may soon gather momentum.

The initiative was launched to combat the fundamental problem that prevents vaccines from reaching millions of children around the world. To provide protection against measles, tetanus, pertussis, diphtheria, tuberculosis, and polio, health-care workers must vaccinate a child at least six times during the first 2 years of life, which is impossible in most developing countries. To make matters worse, many vaccines require refrigeration and must be administered by injec-