AIDS

The Media's Love Affair With AIDS Research: Hope vs. Hype

A casual browser of recent newsstands might conclude that AIDS is now all but cured. Last fall, the *New York Times Magazine* featured a cover story headlined "When AIDS Ends." *Newsweek*'s cover wondered about "The End of AIDS?," and a *Time* cover toasted AIDS researcher David Ho as its "Man of the Year" (see sidebar). As these magazines attest, AIDS research had a banner year in 1996, making dramatic strides with potent new drug combinations. Indeed, *Science* featured the new weapons against HIV as "Breakthrough of the Year" for 1996 (*Science*, 20 December, p. 1988). But as delighted as AIDS researchers are about the progress, a growing number are concerned that many popular media stories cross the line that separates hope from hype.

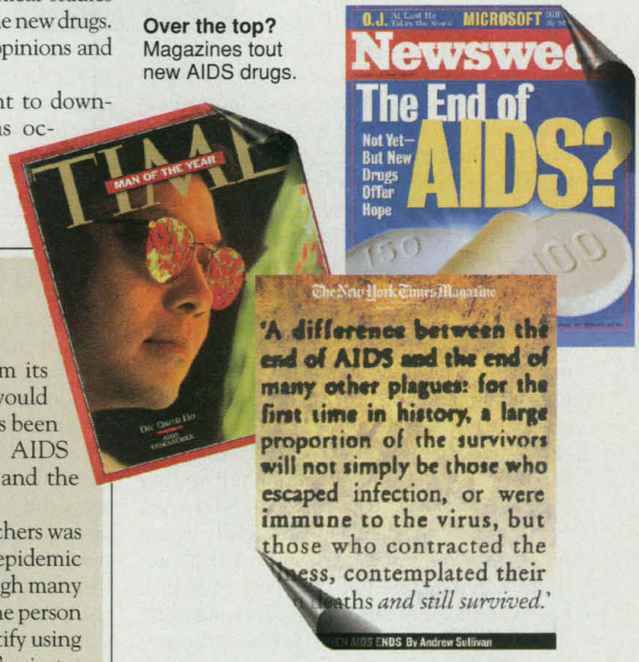
Many stories do point out the drugs' shortcomings, but researchers worry that strong packaging (the subhead to the *Times Magazine* story was "Notes on the Twilight of an Epidemic") often overpowers the caveats. Lost in the fine print, for example, is the fact that the new drugs don't work on every patient and can have serious toxicities. And if treatments don't live up to unrealistic expectations, researchers fear a public backlash against medical science. "The hype has affected everyone—patients, physicians who know a lot about HIV, and even institutional review boards that review clinical trials," says Roy "Trip" Gulick of New York University, who headed clinical studies that first revealed the potency of the new drugs. "A lot of people are basing their opinions and hope on sound-bite medicine."

Even so, few researchers want to downplay the real progress that has occurred. "It's such a tightwire one walks on," says Jay Levy, a retrovirologist at the University of California, San Francisco. "I certainly don't want to be accused down the road that the scientific community contributed to this hoopla. ... At the same time, when you say this you sound like a naysayer."

The dramatic clinical progress—for people who can afford the drugs—that has grabbed the media spotlight stems from tests of a two-pronged attack on HIV: a new class of drugs that inhibit HIV's protease enzyme, plus existing drugs such as AZT that attack the virus's reverse transcriptase enzyme. Studies showed that this "combo therapy" could often reduce the amount of HIV in people's blood to below detectable levels, and the health of some sicker patients has rebounded remarkably.

But from the moment researchers first reported these data at a conference a year ago (*Science*, 9 February 1996, p. 755), they have raised red flags. Not only are these studies small and ongoing, other experiments have shown that people with "undetectable" virus in their blood can harbor masses of HIV in sites such as the lymph nodes. Also, drug-resistant strains of HIV already have taken over in some patients and may eventually spoil the gains seen in most—especially given the trouble many patients have in keeping to the regimen of taking dozens of pills every day. "There's a lot of excitement, but unfortunately I believe the situation [regarding drug resistance] is going to get worse," says Giuseppe Pantaleo, who treats HIV-infected people at the Centre Hospitalier Universitaire Vaudois in Lausanne, Switzerland.

One tricky distinction the media frequently oversimplifies is that the drugs tend to work best in people who have been infected only a short time and haven't been previously treated.



Over the top? Magazines tout new AIDS drugs.

The Reluctant Man of the Year

When David Ho learned that *Time* magazine was considering naming him its "Man of the Year," he prayed that one of the other candidates for the honor would win out. "Where most people would think of this as a cause for celebration, it's been a great source of anxiety for me," says Ho, head of the Aaron Diamond AIDS Research Center in New York City. "I'm very concerned about the hype and the publicity. One could bake in the spotlight [instead of] basking in it."

Ho, the first scientist to be chosen for the *Time* honor since a group of researchers was celebrated in 1960, didn't want to reinforce the misperception "that the AIDS epidemic was over." And he worries mightily about the reaction of his colleagues. Although many researchers think the publicity is good for their field, others say honoring only one person is unavoidably misleading—which led the editors at *Time* to do backflips to justify using Ho to represent all AIDS researchers in an introduction to their package. "I'm just a poster boy for AIDS research, and in some sense for all of science," says Ho, who played a key role recently in describing how quickly HIV copies itself.

Many of Ho's colleagues say they see him as a fine representative. "The *Time* 'Man of the Year' was a wonderful thing to happen," says Robert Schooley of the University of Colorado Health Sciences Center in Denver, who did postdoctoral work with Ho. William Paul, head of the Office of AIDS Research at the National Institutes of Health, thinks the honor can only help the overall effort by reinforcing the notion that the billions of public dollars poured into AIDS research have been well spent.

Yet, Paul and others acknowledge that spotlighting one person for the achievements of many can be distorting. "I think people will feel awkward about it," says Roy Gulick of New York University. In particular, Gulick and others say the *Time* honorific sells short the recent discoveries of many other labs, such as findings concerning HIV's abundance in lymph nodes and critical discoveries about how HIV enters cells. Perhaps most misleading of all is the possible impression that Ho is responsible for the success of today's drug cocktails: The new drugs were developed by industry, and the cocktails were tested by several clinical groups, including Ho's.

Given the collective nature of these research achievements, some of Ho's colleagues have criticized him for seeking publicity, but he says nothing could be further from the truth: "I could cure AIDS before I could engineer a story like this." –J.C.

Researchers say the most confusing media stories have been about ongoing experiments aimed at clearing the virus completely in people who start treatment within weeks of infection. But such patients, who have only flulike symptoms, are notoriously difficult to spot. "In the big picture of HIV infection and disease, you're talking about a fraction of a percent of people," says Anthony Fauci, head of the National Institute of Allergy and Infectious Diseases (NIAID). Yet, such studies have won headlines worldwide because researchers have discussed the possibility of "curing" these individuals—a hypothesis that will only be tested if they stop taking their drugs.

Many leading researchers already are worried about the media cacophony that inevitably will follow if these experiments succeed. They fear the coverage will gloss over the fact that established infections are much harder to eradicate. "If you poll people—even people in the field—they're going to be totally confused [about] whether data show eradication of virus in primary infection versus established infections," says Fauci.

Confusing the matter even further, says Luc Perrin of University Hospital in Geneva, is that it's hard to assess if a person is clear of HIV. Perrin's team now has five of 11 such patients with undetectable levels of HIV in blood and lymph-node samples. But he has little faith that they have eradicated the virus. He'd ideally like to analyze more lymph-node samples from each patient, and even then there still might be HIV in "sanctuary" sites that can't be tested, such as the brain.

Another sobering reality is that anti-HIV drugs can have serious toxicities—and more are certain to surface. Just this week, the National Institutes of Health held a daylong meeting to discuss a study done at the National Cancer Institute that showed an increase in cancer in the offspring of pregnant mice treated with high doses of AZT. Although there's no evidence that AZT has caused cancer in humans, the study underscores how many unknowns still exist.

Next week, the media once again will wrestle with how to spin this story when a major scientific AIDS meeting is held in Washington, D.C. Jack Killen, head of NIAID's Division of AIDS, has some advice. "People seem to have a need for certainty when certainty doesn't exist," he says. "Just pretend you're reading a long Russian novel and you're in the middle of it."

–Jon Cohen

TROPICAL MEDICINE

African Malaria Studies Draw Attention

After a decade of disappointment, malaria researchers received two shots of good news last week—one from policy-makers and the other from the clinic.

On the policy front, about 100 scientists and public health experts from around the world gathered in Dakar, Senegal, to kick off what could become a new, coordinated program to attack the disease in Africa. Several government and nonprofit groups funded the meeting, but the big push came from two scientific chiefs who have developed an interest in this field: Harold Varmus, director of the U.S. National Institutes of Health (NIH), and Maxime Schwartz, director of France's Institut Pasteur. Varmus and Schwartz both attended the 3-day event and are planning to help organize later this year a smaller session that will nail down funding commitments.

Reached by phone in Dakar, Varmus said the focus of the new initiative would be on building up research capabilities in Africa. "We hope to publish a notice" inviting researchers in Africa to submit "letters of interest" to be considered for funding infrastructure support. "We want to see what the response is," and then "meet again in about 6 months, in a much smaller group," probably in Europe in July, to get down to brass tacks.

So far, Varmus acknowledged, "no one has said, 'Here's my 10 [million]; here's my five; here's my seven.' Nobody's talking specific dollars at this point." Varmus says the scientific organizers of the Dakar meeting—which was funded chiefly by the Commission of the European Communities, Britain's Medical Research Council, the World Health Organization, and Britain's Wellcome Trust, in addition to NIH and Pasteur—are writing up a report on the session.

If followed up with cash, the effort could give the malaria field a desperately needed boost. According to the World Health Organization, more than 500 million people are infected with the disease each year and more than 2 million—mostly children living in sub-Saharan Africa—die of it. Meanwhile, drug-resistant strains of the parasite are spreading to new territories, and there's been little to cheer about on the vaccine front. That's where the second shot of good news comes in, however.

Last week brought a glimmer of hope when a paper in the *New England Journal of Medicine* reported that an experimental vaccine devised by the U.S. Army and the SmithKline Beecham company worked well in a preliminary test at the Walter Reed Army Institute of Research in Washington, D.C. A synthetic concoction based on a protein that appears on the surface of the lethal malaria parasite *Plasmodium falciparum* protected six of seven people against infection after they had been bitten repeatedly by mosquitoes carrying live parasites. Many vaccine projects have failed after a promising start, however, and this one is still in the earliest stages.

VISUALS UNLIMITED

Target. Vaccine against *Plasmodium falciparum*, shown here inside blood cells, gives glimmer of hope.

Indeed, malaria researchers say prospects for a workable vaccine are still a long way off, and the malaria problem is so urgent that new initiatives are needed now. Both Schwartz and Varmus think the same two priorities require immediate attention in Africa: Outside agencies need to help remove barriers to scientific communication and establish agreed-upon standard definitions for epidemiological and immunological research. The clinical details vary too much from one study to the next, says Schwartz: "Everybody needs to speak the same language." African scientists cannot travel easily; journals are hard to come by; and electronic links are minimal. Building up the communications infrastructure should be one of the first goals of any effort to help scientists in Africa, according to both Varmus and Schwartz.

It may be difficult to sell the U.S. Congress on the idea that additional funds should be spent on a disease that has little direct impact on Americans, however. At present, NIH spends about $20 million on all forms of malaria research, about one-quarter of the world total. But Varmus says, "I believe that we have a responsibility" to support more concentrated efforts in Africa. "Malaria is so damn important" that it is "the obvious thing to focus on" if one wants to make an impact in Africa, he says.

Varmus says he personally likes the idea of giving this effort a new name, something like "the alliance against malaria," and possibly a "little pot of money" to call its own. But Schwartz acknowledges that "several people are hesitant about creating a new administrative structure" to run the effort. Wellcome Trust, which has made the disease a high priority, already has an administrative group devoted to malaria. "We may achieve the same goals by getting better coordination of what exists already," says Schwartz. Varmus says it's not clear which course the project will take, but "either way is OK with me."

–Eliot Marshall