



unfinished business

**AIDS, bioterrorism
and the evolving legacy
of Anthony Fauci**

>>

BY BILL SNYDER

The ghosts of 11 West haunt Anthony Fauci, M.D.

He can see the patients from the late 1960s, dying from an inflammatory disease that is now curable. He can feel the despair of the early 1980s, when the 11th-floor unit in the National Institutes of Health Clinical Center filled again — this time with patients in the final stages of AIDS.

The unit is nearly empty now. Most people infected with HIV live at home these days, thanks to advances in drug therapy. But at 63, the longtime director of the National Institute of Allergy and Infectious Diseases

(NIAID) worries that something else is right around the corner.

“Last year we had SARS,” Fauci says. “And then we had little blips on the radar screen ... monkeypox ... West Nile ... Sooner or later, and likely in my lifetime, the next big one is going to come.

“We’re much more ready than we were,” he adds, his speech flecked with the accent of his Brooklyn upbringing, “but the way emerging and re-emerging diseases occur, you will almost never be totally ready, because it’s a constant tension between emerging microbes and human civilization.”

This PDF is courtesy of LENS Magazine. These photos are copyrighted by Paul Feters. Contact Paul Feters at paul@paulfeters.com for copyright permission.

Pictured here:

At top, Anthony Fauci, M.D., stands next to Mother Teresa, winner of the 1997 Nobel Peace Prize for her work with the poor of Calcutta.

Middle photo, Fauci, class of 1958 and captain of the Regis High School basketball team, dribbles in for a basket against Brooklyn archrival St. Francis Xavier High.

Bottom, Fauci with his wife Christine Grady, R.N., Ph.D., and their daughters (from left) Alison, 11, Megan, 14, and Jennifer, 17.

Photos courtesy of the Fauci family.



For more than 20 years, ever since the first handful of cases of a strange pneumonia-like condition in gay men was reported by federal health officials, Fauci has been leading much of the government's fight against AIDS.

Along the way, he has advised presidents, been condemned – then applauded – by AIDS activists lobbying for lifesaving therapies, and become one of the world's most widely cited scientists for the important contributions he has made in immunology and HIV disease.

But he's not done. After Sept. 11, 2001, he launched an effort to develop countermeasures against a bioterrorist attack. He helped craft President Bush's \$15 billion, five-year plan to combat AIDS throughout the globe. And he's dedicated to finding an effective HIV vaccine.

"He's a visionary. He knows where we ought to be," says Deputy NIAID Director John La Montagne, Ph.D., who has worked with Fauci since 1976.

Much of Fauci's success is due to his ability to communicate, adds his wife, Christine Grady, R.N., Ph.D., who heads human subject research in the NIH Department of Clinical Bioethics.

"He can take complicated issues and make them understandable to most anybody," Grady says. "He does it ... in a clear and respectful way, and also with a lot of enthusiasm ... He can do that for members of Congress, he can do it for the fourth-grade science class, and he does both, or for an audience of virologists. That's perhaps his most enduring gift to society."

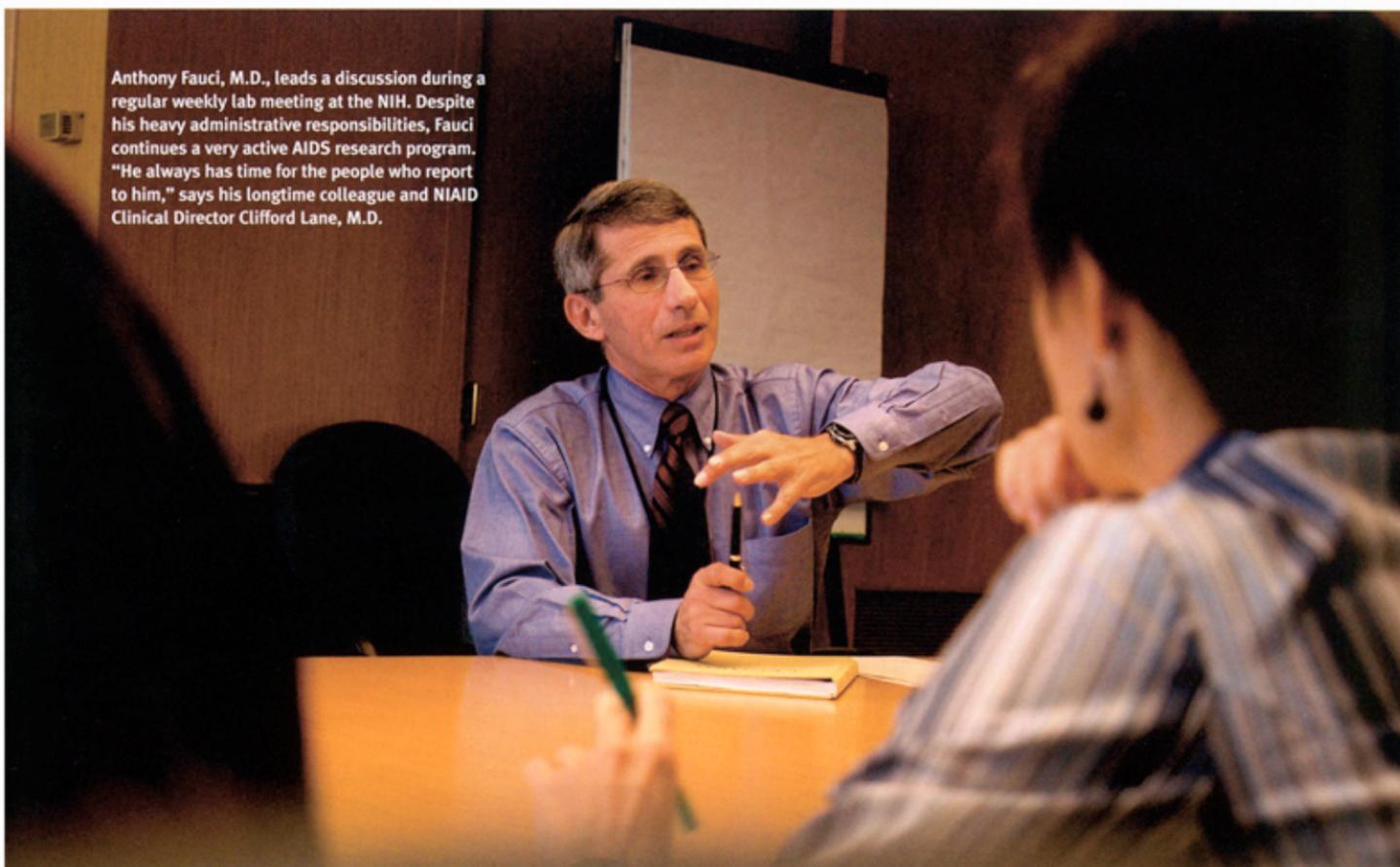
In his journey from the rough-and-tumble immigrant neighborhood of his youth to the top echelon of American science, Fauci has exhibited a remarkably unwavering sense of purpose and self-confidence. All along, he's been guided by a strong desire to discover new things, and to devote himself to public service.

>> Precision of thought

The grandson of Sicilian immigrants, Fauci grew up in the Bensonhurst section of Brooklyn. He credits his father, a pharmacist, and particularly his mother, who died when he was in medical school, for encouraging him to strive for excellence. The thirst for intellectual achievement was fueled by his Jesuit teachers at Regis High School, where he was captain of the basketball team, and later at Holy Cross College, where he learned – as he puts it – "precision of thought and economy of expression."

The Jesuit order of the Roman Catholic Church "is driven by intellectual curiosity – rigorous academic pursuits, openness and

PAUL FETTERS



Anthony Fauci, M.D., leads a discussion during a regular weekly lab meeting at the NIH. Despite his heavy administrative responsibilities, Fauci continues a very active AIDS research program. "He always has time for the people who report to him," says his longtime colleague and NIAID Clinical Director Clifford Lane, M.D.

honesty without having any intellectual constraints put on you," Fauci explains. The training prepared him well for life in Washington, where "you only have a very short time to express what it is that you need to express (and) to make it very, very clear," he says.

Medicine was a natural career path for Fauci, as it balanced his love of science with his need to be involved with people. He attended Cornell University Medical College (now the Weill Medical College of Cornell University), and as a young resident there, already was displaying strong leadership skills.

"He seemed to always have the ability to cut to the most important issue and describe a plan of action in a very direct way," recalls Steven Gabbe, M.D., dean of the Vanderbilt University School of Medicine, who was a medical student at Cornell when Fauci was a resident. "We'd have very, very sick patients. Tony would say, 'Here's the problem. Here's what we need to do, and this is how we need to do it.'"

"He was a great teacher," Gabbe says. "I wanted to teach the way Tony taught."

In order to satisfy his Vietnam-era military obligations, Fauci joined the U.S. Public Health Service and after two years

of residency was accepted as a research fellow into the lab of Sheldon Wolff, M.D., at the National Institutes of Health in Bethesda, Md. For Fauci, the NIH was the "hub of academic advancement and academic leadership."

Wolff, who directed the Laboratory of Clinical Investigation at the NIAID, was studying the molecular underpinnings of fever. Some of his patients with persistent or chronic, intermittent fevers had immune deficiencies, while others had vasculitis – blood vessel inflammation caused by a misguided attack by the body's immune system. Wolff encouraged his fellows to study a group of patients and find a way to treat them.

Fauci chose Wegener's granulomatosis, a severe form of vasculitis that was nearly always fatal. He recalls Wolff's reaction: "Let's sit down and try to figure out a protocol."

Upstairs, on the 12th floor of the Clinical Center, Vincent DeVita, M.D., who later became director of the National Cancer Institute, was testing drugs such as prednisone and cyclophosphamide – which suppress the immune system – to treat lymphomas and leukemias.

"We looked at the literature and came up with the idea: What happens if you

treat these lethal inflammatory vasculitides with a low dose of these immunosuppressive drugs, not enough to wipe out the bone marrow but enough to suppress the aberrant immune response?" Fauci recalls. "And we did it in the first few patients and, lo and behold, they had a totally dramatic remission in their disease, which was just absolutely extraordinary."

"So then we started admitting a lot more patients, and a lot more, and ... we ended up curing a very, very lethal, albeit uncommon disease." Fauci went back to Cornell to complete his chief residency in medicine in 1971-72, and after returning to Wolff's lab the next year, they reported their findings in 18 patients in the journal *Medicine*.

Wolff, who later became chairman of medicine at Tufts University before his death in 1994, put Fauci in charge of the lab's vasculitis program. "He launched me in my career," Fauci says. "I could not possibly have gotten to where I am right now had I not been put into an environment on this campus through the vision of people like Shelly Wolff who used the formula: 'Give me some smart people who are well trained and cut 'em loose.'"



Pictured right: Demonstrators demand quicker access to experimental AIDS drugs during the Reagan administration. Fauci, at the time the government's primary spokesperson on AIDS, didn't take the taunts personally. "I was seeing a bunch of sick people who were really scared," he recalls. "What they said made absolute, perfect sense."

Courtesy of Anthony Fauci, M.D.

>> Diabolical paradox

Fauci rose quickly through the ranks. He was appointed deputy clinical director of the NIAID in 1977 and chief of the Laboratory of Immunoregulation – a position he still holds – in 1980.

In the summer of 1981 came the first reports of unusual illnesses – pneumocystis pneumonia and Kaposi's sarcoma – in previously healthy gay men in Los Angeles and New York City. "I had a very sinking feeling," Fauci recalls. "I realized that these first few cases may really be something that is going to lead to a public health catastrophe."

Some of his colleagues were skeptical, but Fauci went right to work, changing the direction of his laboratory, and assembling a team to investigate what was beginning to be called acquired immune deficiency syndrome.

By 1983, Fauci and his colleagues had reported that the B cells of AIDS patients – the cells that normally produce infection-fighting antibodies – were inappropriately "hyperactive."

The causative agent, human immunodeficiency virus, would not be discovered until the next year, but the NIH group had described what Fauci calls the "diabolical paradox" of HIV – instead of being

destroyed as most other microbes are by the immune system, the virus thrives on the attack.

"Since the immune system is the target, the very activation of the immune system makes it infinitely more vulnerable to being attacked because the virus more efficiently attacks an activated cell than it does a resting cell," he says. "It's a totally revolutionary concept, because you always think of the activation of the immune system as a good thing. Here it's like stepping on your own land mine."

Once the virus was described, and its sequence of nine genes determined, the NIH team – like thousands of researchers around the world – went to work to figure out how it wreaked such havoc, and what could be done to stop it.

In 1993, Fauci and his colleagues reported that even during the so-called "latent" phase of HIV infection, when little virus could be found in patients' blood, "the virus is continually replicating in their lymphoid tissue like a time bomb," he says. "Sooner or later it breaks down the immune system." The findings, published in the journal *Nature*, meant that physicians could not let up in their efforts to combat the virus – even when their patients seemed to be well.

Fauci "is someone who is really trusted by all . . . people surrounding the AIDS challenge. I don't know of anyone as broadly accepted . . ." >> Louis Sullivan, M.D., former HHS secretary

Currently Fauci and his colleagues are exploring ways to boost the immune system in patients through the use of natural chemical signals such as interleukin-2.

In 1984, Fauci agreed to take on additional responsibility as NIAID director. "My goal was to have a broader impact on the field, not only of AIDS, but of all the infectious diseases and immunology," he told the NIH Historical Office in 1989. Impact it, he did. In the past 20 years, the NIAID has grown from the eighth largest at NIH, with a budget of \$300 million, to the second largest, after the National Cancer Institute, with a budget of nearly \$5 billion.

>> Including the activists

Fauci's new position also put him in the cross hairs of public attention. AIDS activists accused the government of ignoring those who were dying of the disease, and branded Fauci – the point man on AIDS for the Reagan administration – as an "incompetent idiot" and a "murderer."

In 1988, a group of demonstrators stormed the NIH campus, demanding quicker access to experimental drugs. Surveying the protesters, Fauci says he only saw "sick people who were really scared." Instead of calling in the security guards, he invited the leaders of the group up to his office. "I listened to them, and what they said made absolute, perfect sense," he says. "And that started a dialogue that led to the inclusion of the activists into many phases of our planning and advisory councils."

About the same time, Martin Delaney, founding director of Project Inform, an AIDS advocacy organization, invited Fauci to San Francisco to see firsthand the plight of AIDS patients. Some were going blind because they did not meet the strict criteria to be included in clinical studies of an experimental drug that could save their sight. The experience convinced Fauci of the need to allow patients who wouldn't qualify for a clinical trial because of advanced disease to receive experimental drugs.

The U.S. Food and Drug Administration at first opposed the concept, called "parallel track," because of concerns it would make it more difficult to determine whether the drugs were safe and effective. But those fears were not realized; parallel track is now the model for testing new treatments for other diseases. "I give the activists a lot of credit for coming up with the concept," Fauci says.

"He is someone who is really trusted by all the different organizations and people surrounding the AIDS challenge, ranging from the scientific community, the academic community and the activist community," says Louis Sullivan, M.D., secretary of Health and Human Services during the first Bush administration and president emeritus of Morehouse School of Medicine in Atlanta. "I don't know of anyone as broadly accepted by all those disparate groups."

Since 1989, Fauci has been asked by a succession of presidents to become NIH director. He has declined every request, even when asked by President George H.W. Bush in the Oval Office. "If I took the NIH job, it would take me still one step further removed from what I really felt was the mission of what I wanted to accomplish," he explains, "namely HIV/AIDS, get a vaccine, get better drugs and then most recently, prepare the country with developing countermeasures for biodefense."

And at that job, he is seemingly indefatigable – regularly logging 80-hour weeks. "Dr. Fauci is absolutely reliable," says his longtime colleague and NIAID Clinical Director Clifford Lane, M.D. "If there is something that needs to get done, he will be sure it gets done, even if he has to do it himself."

"He always has time for the people who report to him," Lane adds. "If it's reviewing a manuscript for a younger person in his lab, something not many people at his level will do, . . . he will spend the time it takes to do it, which at times can be considerable."

What gives him such energy? "It is an indescribable experience," he told the NIH Historical Office, "knowing that what you are doing will have an impact on the lives of tens, if not hundreds, of millions of people." Yet he makes time to run every day, and to share a late dinner at least five nights a week with his wife and their three daughters, ages 17, 14 and 11.

In the midst of juggling his administrative duties and numerous speaking engagements, Fauci continues to do research and see patients on that historic 11th-floor unit. He is the quintessential physician-scientist. "If it were not for the basic research observations that are made," he explains, "the drugs that we have for HIV, the things we're doing with vaccines would never have happened."

And he continues to worry – about the next emerging infection, and about the vagaries of world politics that make it difficult to keep up the fight against AIDS.

"I think the United States has shown an incredible amount of leadership," Fauci says. "My concern is that the rest of the world doesn't step to the plate, and we miss a golden opportunity to have a major impact on HIV/AIDS. Because we have the tools now. We've got drugs. We know how to prevent it. We can do it. But we can't do it alone." **LENS**

"It is an indescribable experience, knowing that what you are doing will have an impact on the lives of tens, if not hundreds, of millions of people." >> Anthony Fauci, M.D.



PAUL FETERS