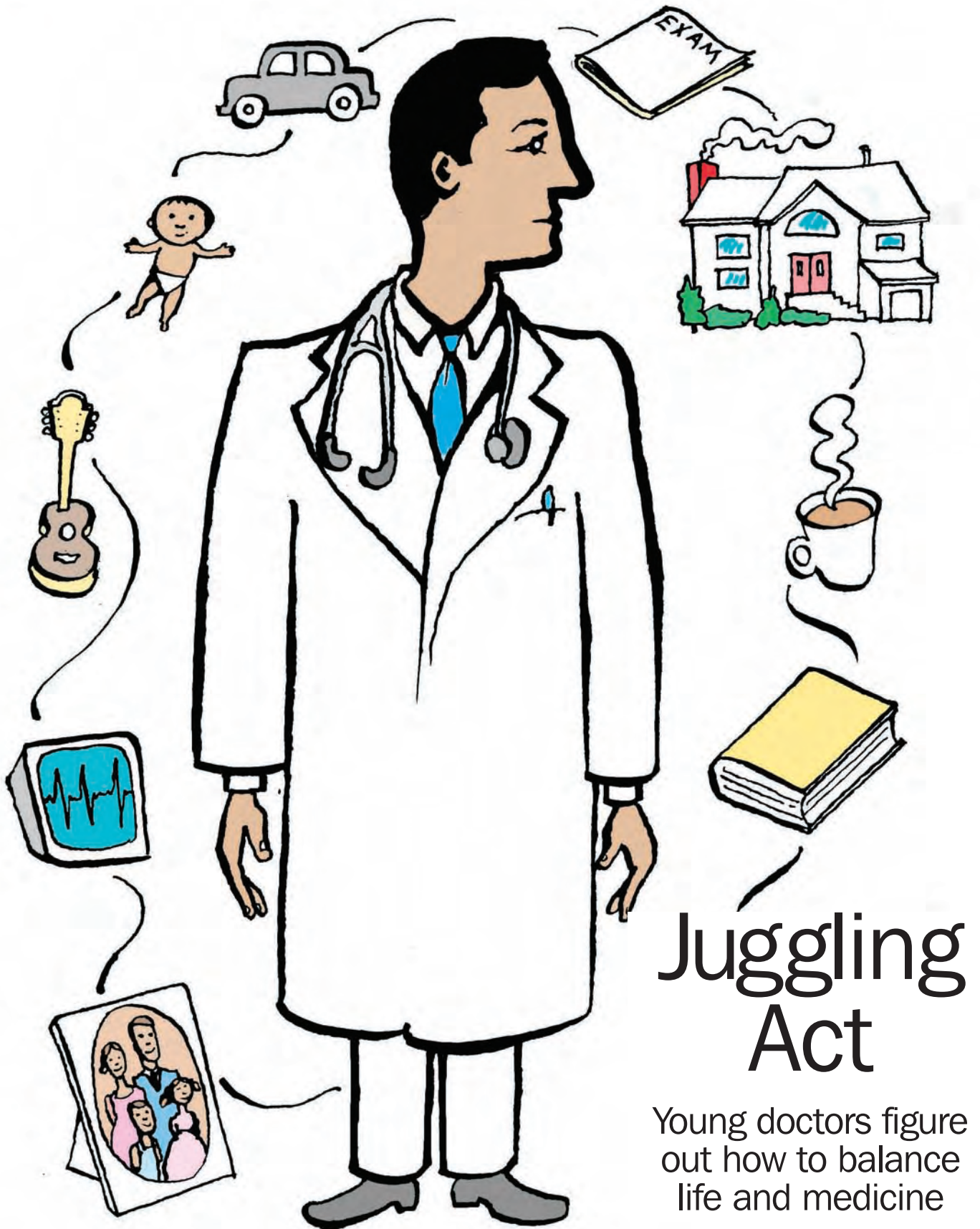


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Anthony S. Fauci, MD '66

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the greater good

As director of the NIH's National Institute of Allergy and Infectious Diseases, immunologist Anthony S. Fauci, MD '66, has become the public face of AIDS research and efforts to combat bioterror. Fauci spoke to *Weill Cornell Medicine* about the earliest days of the epidemic, his motorcycle tour of the Ugandan bush—and whipping up dinner for Bono.

By Beth Saulnier

Weill Cornell Medicine: How have attitudes toward HIV changed since the epidemic began?

Anthony Fauci: There is a much greater openness and tolerance of infected individuals, less stigma than in the early years. But we have to be careful that we are not victims of our own success—namely, as we get better drugs that allow people to live relatively normal lives, that the perception of HIV being a serious problem is dampened and people might be less vigilant. In fact, there are indications that certain subsets of our society—particularly young gay men who do not have the history of seeing so many friends and loved ones deathly ill—may perceive that getting infected is not a serious problem. That is a dangerous situation. So we have to be vigilant against complacency.

WCM: What have been the greatest gains in AIDS research?

AF: Since recognition of AIDS as a new disease—and then after the discovery of HIV as the causative agent in 1983–84—the most important advances have been in the area of understanding pathogenesis and the development of drugs that have transformed the lives of HIV-infected individuals. When you talk about the relationship between investment and research, that is probably one of the most impressive success stories in biomedical research. We now have between twenty and twenty-five FDA-approved drugs for HIV. They have completely transformed the lives of infected individuals, resulting in millions of years of life saved—not only in this country but also in the developing world.

WCM: What are the most promising fronts in combating the virus?

AF: Just in the last year we have learned that circumcision is playing a major role in preventing HIV infection. We have challenges, particularly the development of topical microbicides to empower women to prevent infection themselves without having to rely on the permission of a

male partner who may or may not want to use a condom. Probably the greatest challenge is the development of a safe and effective HIV vaccine. That has been quite problematic and will continue to be for a number of reasons that are peculiar and specific for HIV—namely the body's inability to develop a protective immune response against the virus. So the promising areas are the ones where we have already had success: understanding pathogenesis, developing a continual pipeline of new and better drugs, and implementing prevention modalities such as behavioral change, needle exchange, circumcision, and pre- and post-exposure prophylaxis.

WCM: Could you describe your earliest inklings of the epidemic?

AF: I was at the NIH as an infectious disease specialist, as well as doing studies on the immune system. I remember very clearly, in the summer of 1981, the first five cases of what turned out to be AIDS were reported in the *Morbidity and Mortality Weekly Report*: five gay men in Los Angeles with pneumocystis pneumonia. And then a month later there were more than twenty additional cases, not only of pneumocystis but also of Kaposi's sarcoma in Los Angeles, San Francisco, and New York. I had no idea what was going on after the first report, but after the second I became anxious, realizing it was likely that we were dealing with a new disease. I was skeptical that it would remain restricted to the gay population, and as it turned out I was unfortunately correct. Twenty-six years later, this has turned out to be one of the most devastating pandemics in the history of our civilization.

WCM: What was that period like for you as a physician?

AF: Those early years were difficult, because we were operating in the dark. We knew it probably was an infectious agent that we had not yet identified, and even when we

did identify it, we did not have any treatment for it. We were in the difficult situation of having patients come to us when they were advanced in their disease, and it was frustrating to see the vast majority get critically ill or die before we could do anything about it. It was not until 1996, when the triple combinations of drugs became available, that we finally saw a dramatic turnaround.

WCM: How had your training prepared you to cope with the epidemic?

AF: Retrospectively, it almost seems as if by an accident of the career path that I chose, everything I was doing since I

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got out of medical school—including my internship and residency at New York Hospital—was inadvertently geared toward my entering the arena of HIV/AIDS, because I was a board-certified infectious disease specialist and a board-certified clinical immunologist.

WCM: You have said that one of the best things you have done in your career was agreeing to meet with activist groups like ACT-UP.

AF: This was a disease that was, in reality and in perception, virtually a death sentence. There was no therapy, there were very few clinical trials of experimental agents, and there was a rigidity to the approach to testing that the gay community felt needed to be loosened up. So they tried to get the attention of public officials, and they did it in theatrical ways—and that turned off most of the scientific establishment. But I began to listen to some of the things that they said, and in many respects they made perfect sense. So when they did a massive demonstration at the NIH, I told the police not to arrest everybody but instead to bring the leaders of the demonstration to my conference room. We spent a couple of hours talking, and I vowed that I would go to bat for them, that I would try to get them incorporated into the planning process so that their concerns could be heard.

WCM: How did the development of a “parallel

track” for HIV drug testing come about?

AF: The classical way of doing a clinical trial, particularly when you are testing initial safety and efficacy, is to stringently restrict the number of people as well as the criteria that allow them to enter. Some HIV-infected people could not participate in the trials because they lived hundreds of miles away from the nearest medical center that was conducting a trial, or they were not the right age or had some disqualifying laboratory abnormality. So they said, “We do not want to interfere with the integrity of the trial process, but why not develop a parallel track? You have the trial that enrolls people who fit the strict criteria, but once the trial is fully accrued, you should also allow people into the trial who understand the risk of toxicity but are willing to receive the drug.” The activists were pushing to allow that to happen through the FDA, which was resistant. I went out to San Francisco in the late Eighties and made a major speech to a rally of activists and publicly endorsed the parallel track, which created quite a stir back in Washington, because the FDA was taken by surprise. I took the position that it is better to ask for forgiveness than permission. And as soon as I endorsed it, everybody started to endorse it, and it turned out to be a success.

WCM: At a time when the conventional wisdom said it was impossible to offer drug therapy to HIV

HIV virus: The organism that causes AIDS was first identified in the mid-1980s, several years after the first cases emerged.





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Acting up: In March 1990, more than 1,000 AIDS activists demonstrated at the New York State Capitol in Albany, staging a sit-in in a bid to make officials increase funding for AIDS research and treatment. At a similar protest at the National Institutes of Health, Fauci requested to meet with the group's leaders rather than have them arrested.

patients in developing countries, you went to bat for it. Why?

AF: The two major excuses for not getting drugs to developing nations such as those in sub-Saharan Africa were that the drugs were too expensive and you could not logistically get them to people in rural areas—it just was not practical. I rejected both of those hypotheses. Drug prices were starting to come down, particularly with the use of generics; instead of a regimen for a year of three drugs being \$15,000–\$18,000, you could do it for as little as several hundred dollars. The other thing is that people were prejudging what could be done in developing countries. So at the request of President George W. Bush, I went to Africa; I came back and said, “It can be done.” I put together the \$15 billion, five-year program that is now called PEPFAR, for the President’s Emergency Plan for AIDS Relief, which the president announced in his State of the Union address in January 2003.

WCM: Did you really cruise around rural Uganda on a motorcycle?

AF: That was part of my trying to test whether you could actually get drugs to people in the bush. I joined a group of young volunteers and we went out in jeeps and motorcycles, and I saw first-hand that with rather low-tech infrastructure you could get drugs delivered deep in rural areas.

WCM: Presumably, when you were in medical school you never imagined your scientific pursuits would have you meeting rock stars. Is there an element of surrealism to, say, making dinner for Bono?

AF: Yes, there is. I tell students who want to know how my career evolved that a lot of things are out of your control. You have to be open to the opportunities that present themselves. I had classical training at Cornell in internal medicine and at the NIH in infectious diseases, and then HIV came along. My interests got me involved in the plight of people in the developing world with infectious diseases—malaria, TB, and particularly HIV—and I was lucky enough to have access to people in the White House. Then I started running into people like Bono, who heard that I was working on a program with President Bush. He



DOUG MILLS/THE NEW YORK TIMES/REDUX

Kudos: President George W. Bush greets Fauci after a presidential address in February 2003 in which he unveiled a bioterror defense plan that included boosting the resources of the NIH. In the speech, Bush thanked Fauci for his dedication and commitment to his job.

‘Bono flew to Washington on his private jet, got into his limo, brought a couple of bottles of wine over to my house, and said, “Let’s talk.” And I figured, as long as we were going to talk, we might as well eat.’

called me up and said, “I want to see if there is any way I can help you by talking this up, by getting support from the rest of the world.” He flew to Washington on his pri-

vate jet, got into his limo, brought a couple of bottles of wine over to my house, and said, “Let’s talk.” And I figured, as long as we were going to talk we might as well eat, so I put together a pasta dinner with some Italian bread, and we spent hours and hours into the night talking about how we can make this program work.

WCM: How have you been involved with efforts to combat bioterrorism?

AF: After 9/11 and the anthrax attacks in the fall of 2001, the White House called upon me to help put together a program that would use scientific and medical expertise to develop countermeasures against the commonly associated threats—for example, things that we knew the Soviet Union had been working on during the Cold War: anthrax, smallpox, Ebola, and other weaponized microbes. I was tasked with putting together a research and development program to provide diagnostics, therapeutics, and vaccines against the category-A agents, the agents that intelligence told us were the high-

est risk of being used in an attack, and that is what we did.

WCM: What naturally occurring infectious diseases are you most concerned about?

AF: There are several. Extensively drug-resistant TB is one. Methicillin-resistant *Staphylococcus aureus* is another. There is a persistent threat of the evolution of a pandemic influenza. I just wrote an article for the *Journal of the American Medical Association* on the threat of dengue fever in the United States. It generally is a disease that is considered to be restricted to tropical climates, but now there is evidence to indicate that it is a growing threat in the Caribbean and the southeastern part of the U.S.

WCM: You have been in public service through both Republican and Democratic administrations. How do you talk science to politicians?

AF: You have got to make science understandable to them. You have got to be consistent in your principles of what needs to be done. You have got to be honest. You cannot inject any political agenda, because administrations change, Congresses change. You have got to be perceived as an honest broker for the science, and that is what I have been able to do. I do not have a political agenda. I am purely involved in what is best for the country vis-à-vis science and public health.

WCM: Have you ever felt under political pressure to make a particular call?

AF: Not really. I have always resisted it. Sometimes there were situations where there were some subtle pressures, but I have a reputation that I do not bend to political pressure, so now people do not even try.

WCM: You often appear on TV. What's your strategy for explaining science to laypeople?

AF: Know your audience—that is my motto. Do not talk to an audience that wants general concepts by speaking to them in gibberish about specific details of science that they have no interest in. Make it simple and understandable. Do not talk down to people. Pretend you are talking to your sister or brother, who is not a scientist; do not act like you are talking to a bunch of hardcore scientists, because you might sound smart, but no one will have any idea of what the heck you are talking about. Then, you will have defeated the purpose of the conversation.

WCM: Do you still spend time with patients?

AF: I make rounds at our hospital on the NIH campus

every Wednesday and Friday. My primary identity, despite all I have done over the years, is still as a physician. I would never veer away from that.

WCM: You're known for your legendary work hours.

What's a typical workday?

AF: I get up around five, get to work around a quarter to seven, and I usually work till seven-thirty or eight on a reg-

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ular night. When things get tight, when we have crises, it might go to ten or eleven. I work Saturdays, and I work at home on Sundays.

WCM: You attended a Jesuit high school and college. How do you think that influenced you?

AF: There is a certain intellectual discipline associated with Jesuit training. I often use the terminology "precision of thought, economy of expression," which means you have got to precisely know what you are talking about, get it clear in your own mind, and express it in a succinct manner. If your thoughts and concepts are not clear in your own mind, you will never be able to explain them to anybody else, because you are probably confused.

WCM: You have described yourself as an unapologetic perfectionist.

AF: When you are dealing with problems that are as important as people's lives and the health of the nation and the world, you have got to pay attention to the big picture as well as to the details. I am a perfectionist, and I am rarely satisfied with what I do. I hold myself to a high standard, and sometimes it gets uncomfortable because you never get the feeling that you have done enough—but I have learned to live with that. I think it pushes me to always try to do better. ■