

# Association of American Physicians Presidential Address

## THE AIDS MODEL: SCIENTIFIC AND POLICY LESSONS FOR THE 21ST CENTURY

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Ladies and gentlemen, friends and colleagues. Let me first say how much of a pleasure and honor it has been to be an officer of the Association of American Physicians over the past 12 years and how much I have enjoyed the interactions with my fellow officers and so many other members of this Association. After much reflection over the past few months as to the topic of my Presidential Address, I have decided that I would like to provide you with a perspective that is somewhat unique to the position in which I have been fortunate enough to be over the past 15 years as Director of the National Institute of Allergy and Infectious Diseases and as someone who has been engrossed in the government's AIDS efforts for the past 19 years. In this regard, I would like to share with you some reflections on the AIDS epidemic from a very personal and historical perspective and, importantly, to discuss with you how we might use this specific experience in a more universal context as we address the future challenges of sustained support for biomedical research.

It is an understatement to say that my experience in the evolution of this epidemic has gone beyond anything that I could have imagined. Indeed, I found myself caught up in the cataclysm of the AIDS epidemic literally from the very first day of its recognition, and 19 years later, after much wear and tear, I realize how much it has transformed how I view science, public health, patient advocacy, and, of particular relevance to members of this Association, what I have learned about the complex elements that determine the allocation of public monies to the support of biomedical research. It is in this context that I address you this morning.

### The early years

I remember very clearly that day in June, 1981, as I was opening my mail in my cramped office in the NIH Clinical Cen-

ter and came upon that fateful issue of the MMWR that reported the first cases of *Pneumocystis carinii* pneumonia in five previously healthy homosexual men in Los Angeles (Figure 1). It was clear that these individuals were markedly immunosuppressed. My first thought was that they had taken some recreational drug that had compromised their immune systems. I just did not believe at the time that this was an infection; otherwise, why had we not seen it before now? A few weeks later when another issue of MMWR reported Kaposi's sarcoma in 26 previously healthy homosexual men in New York and Los Angeles, I remember getting a sinking feeling. Maybe this was a microbe. For the next several weeks, I had a nagging feeling of discomfort that I should be doing something about

this. But, I was not even sure that the problem fell within my area of expertise. Then things rapidly unfolded; within weeks the disease was reported in both male and female I.V. drug users. I can still remember the goose bumps that I felt when I heard about that. It was an infectious disease and it was acting like hepatitis B. I called up my friend Jim Curran who was at the CDC at the time and was their point man on this new disease, which was being called GRID for "Gay-Related Immune Deficiency." Without hesitation he told me, "Tony, there is no way that this is not an infectious agent." The as-yet unpublished reports that he was receiving at CDC every day absolutely point to this from an epidemiological standpoint. It was then that I decided to change directions in my own career and convert my

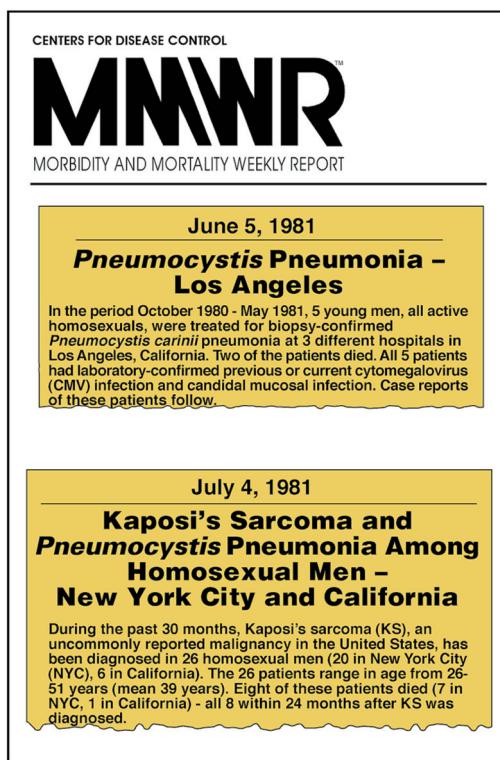
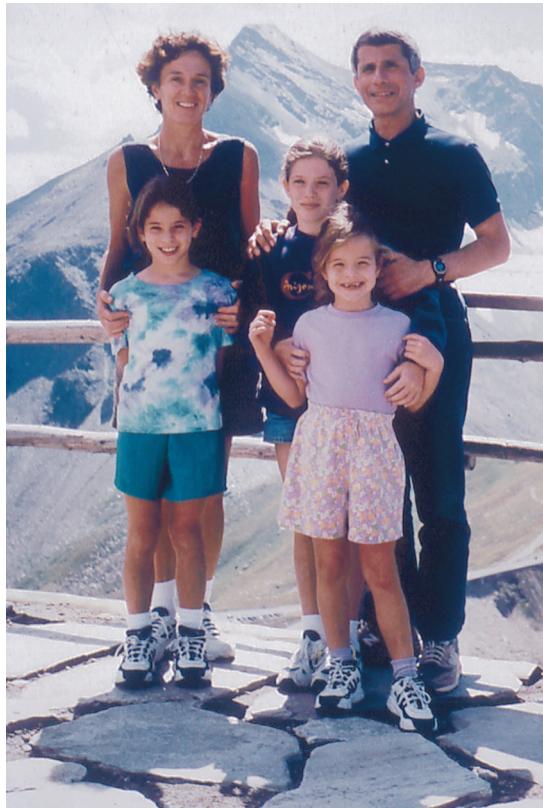


Figure 1

The original MMWR reports of the first recognized AIDS cases in the summer of 1981.

**Figure 2**

The Fauci family in the Austrian Alps in the summer of 1998 – Christine Grady, Anthony S. Fauci, and their 3 children: Megan (age 9), Jennifer (age 12), and Alison (age 6).



laboratory into an AIDS lab much to the consternation of my colleagues and mentors. My first paper on the disease was an editorial I wrote in early 1982, before it was even called AIDS. I called up my closest friend and mentor Sheldon Wolff for his advice. In typical Shelly Wolff fashion, he paused for a moment and then said, "I have never tried to stop you from doing something that you really wanted to do, and this may turn out to be really big. So go ahead and pursue it if you want to; but, Tony, don't give up your day job just yet." With that mixed endorsement from my mentor, we forged ahead.

Cliff Lane, Henry Masur, and I worked frantically over the next three years. However, virtually every patient that we admitted to the NIH Clinical Center died. Needless to say, that is a very bad scorecard for an Infectious Diseases physician. Can you imagine working on an infectious disease in which you did not know what the microorganism was, much less had a treatment for it? With notable exceptions, such as Bob Gallo, Max Essex, Luc Montagnier, Jay Levy, and a few others, there was very little interest on the part of other immunologists and virologists in pursuing this disease. This had to change; we needed to get

investigators interested in the problem. It was a dark and somewhat depressing time during those early years.

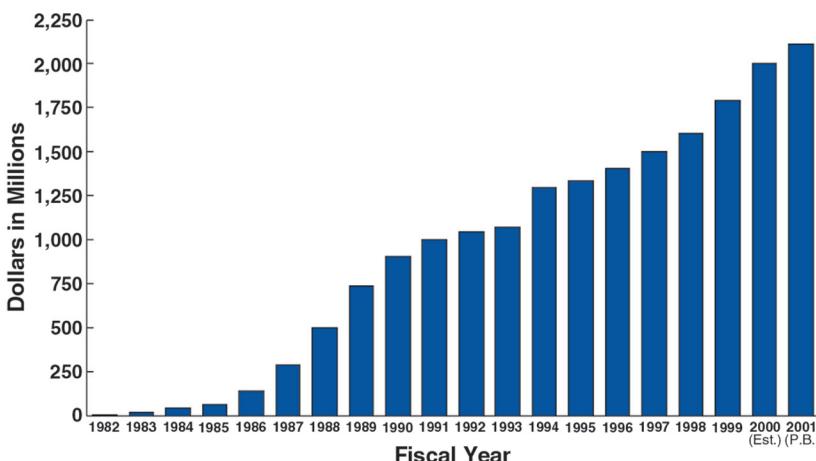
However, on a personal note, there was a major bright spot amid the bleakness in the fall of 1983 that I cannot resist telling you about. Amid the intensity of taking care of so many desperately ill AIDS patients and trying to do bench research when we did not yet even have a microbe to work with, on Ward rounds one day I met and fell in love with a beautiful nurse who was in charge of taking care of our AIDS patients at the NIH Clinical Center. Her name is Christine Grady and we married about 1 year later and now there are five of us (Figure 2). She has moved on to become a Medical Ethicist at the NIH Clinical Center. I still go to her for advice about how to handle certain delicate clinical, social, and ethical problems in patients. Her love and support of me was and is critical to everything that I am talking about today.

When the virus was identified in 1983, virologists started to become interested. However, resources were not plentiful and there was no inducement for investigators to leave fields in which they were successful to pursue something with no guarantee of support or success. More importantly,

young investigators followed the lead of their mentors and stayed away. I remember clearly the first meeting called in the early 1980s by Assistant Secretary for Health, Ed Brandt, of all the investigators that we could find who were working on the disease. There were 11 of us and the meeting took place in the conference room on the 7th floor of the Humphrey Building on Capitol Hill. At the last International Conference on AIDS in Geneva in 1998, there were over 10,000 attendees, and even more are expected at the upcoming International Conference this July in Durban, South Africa.

**Massive infusions of resources**

In 1984 Dick Krause retired as Director of NIAID to become Dean at Emory. NIH Director Jim Wyngaarden asked me to replace him as Director of the Institute. HIV had just been identified by Gallo and Montagnier; still very few established or even young investigators were entering the field. The budget for AIDS was paltry, measured in a few million dollars. In the formulation of my first budget for NIAID I was caught in the dilemma of whether to ask for what I really felt was needed to jump-start the field. A potential pitfall was that they would give us the money, but that they would take it away from other areas, particularly other infectious diseases. This is a dilemma that we still face in pursuing new initiatives with NIH funding. The "classical" infectious diseases staff at NIAID were dead set against their new young Director asking for a very large amount of money because of that fear. I decided to do it anyway. The next challenge was to convince Jim Wyngaarden to allow me to send the budget through to OMB for approval. To his lasting credit, he made the correct decision and we went ahead with it. He allowed me to ask for an additional \$60 million. What evolved over the next few years was an interesting and, in my professional lifetime, unprecedented example of how large infusions of resources up front in essence gave birth to an entirely new field of medicine. To a greater or lesser degree, every administration from President Reagan, who actually did more than the public realized, through President Bush, who became a good friend and gave substantial support to the effort, through President Clinton and First Lady Hillary Clinton, who have been extraordinary allies, as well as every Congress of both Parties have been



**Figure 3**

History of HIV/AIDS funding for the National Institutes of Health from FY 1982 through FY 2001. PB, President's budget.

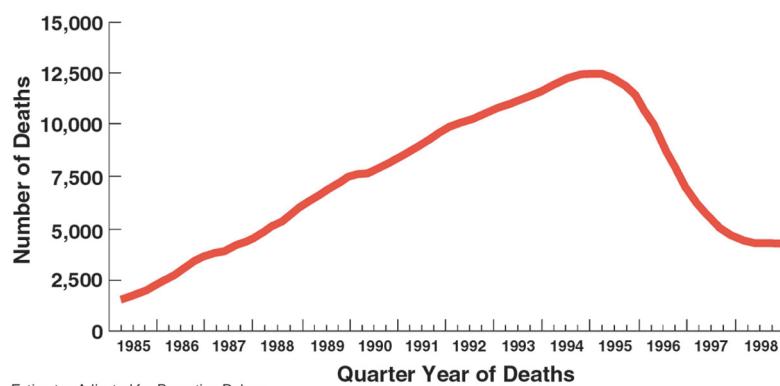
extremely supportive of AIDS research, such that the President's NIH budget for AIDS in FY 2001 is over \$2 billion (Figure 3). The NIAID budget is now approximately \$1.9 billion, greater than a sixfold increase since I became Director in 1984 and asked for that additional \$60 million for AIDS. Importantly, the non-AIDS component of the Institute has grown at a comparable rate or better than the mean of the other NIH Institutes. In other words, and this is a critical point, the fears of my colleagues back in 1984 that asking for money for an emerging field would damage other fields has not at all materialized. This is important to keep in mind as we face future scientific and public health challenges in the 21st century. Significant investments of resources in an emerging field of science will clearly jump-start that field. The AIDS paradigm has proven this. Furthermore, the positive spin-offs from AIDS research into other areas of biomedical research have been nothing short of remarkable. I point this out to you since today we are again at an extraordinarily important point in the history of biomedical research funding and the lessons of AIDS should be heeded.

#### Activism and biomedical research

One of the most important spin-offs of the AIDS epidemic was a sociological rather than a scientific one, namely, the birth of an entirely new form of constituency advocacy and activism, a phenomenon that clearly will be carried forth with other diseases in the 21st century. It actually had its routes before the recognition of the AIDS epidemic with

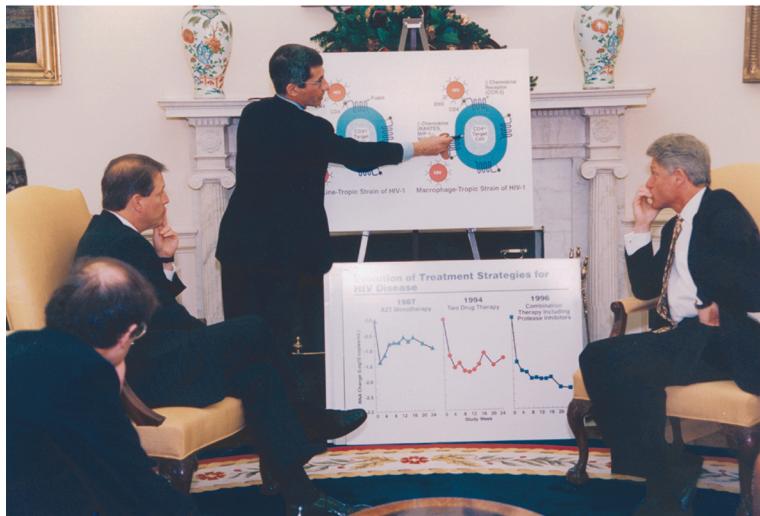
Larry Kramer's controversial and prize-winning semi-autobiographic novel entitled *Faggots*. In that book, Larry, who used to be my arch-nemesis and now is a dear and close friend, chastised his own gay community for their reckless behavior in acting out their newly won public sexual liberation that originated with the Stonewall Inn riot in Greenwich Village several years earlier. Uninhibited bathhouse-type sex, he argued, was a prescription for self-destruction and could even lead to a public health disaster. Indeed, Larry was virtually predicting the AIDS epidemic. Once the first few cases trickled in, Larry became strident, first against the gay community for their complacency and for worrying more about sexual liberation than about the impending plague, as he called it. He cofounded Gay Men's Health Crisis and then ACT-UP. He used theater tactics to gain attention. Indeed,

he is an Obie-winning playwright who also had been nominated for an Academy Award years earlier for writing the screenplay for the movie *Women in Love*. The theater tactics then turned against the Reagan administration and anyone connected with it, the FDA, the NIH, or whatever. We were all "government." Official Government was hesitant to speak out on the disease early on for a number of political and other reasons with which you are all familiar, and so I, as a scientist and not a politician, was encouraged by administration officials to articulate publicly the science and public health issues. Soon, I became the target of the theater tactics. In a particularly low point for me during that period, Larry Kramer wrote an antigovernment article in the Sunday magazine section of the San Francisco Examiner with the big, bold headlines, "I call you murderer: an open letter to an incompetent idiot, Dr. Anthony Fauci." He definitely got my attention! In order to keep my sanity and concentrate on my science and running the institute, I turned to one of the great reference books of human psychology, Mario Puzo's *The Godfather*, to read the words over and over again, "It's nothing personal; it's strictly business." Once I understood that, I was prepared to deal with the activists. Indeed, it was one of my most important decisions. When hundreds of activists stormed the NIH in an antigovernment protest, I asked the NIH and Montgomery County police and the FBI not to arrest them, but to invite a group of their leaders to come up to my office to talk about their concerns. They were shocked; this was the first time that any government official even recognized their existence. Thus began the dialogue



**Figure 4**

AIDS deaths in the United States from January 1985 through December 1998.



**Figure 5**

Discussion of the NIH AIDS research plan in the Oval Office of the White House on December 3, 1996. From left to right: Harold Varmus (NIH Director), Vice President Al Gore, Anthony S. Fauci, and President Bill Clinton.

that has been extraordinarily productive over the years. Some of the people throwing the smoke bombs on the NIH campus are now serious and committed members of a variety of advisory committees, ad hoc groups, and councils. The ways that we design and conduct clinical trials are now more realistic, user friendly, and the science has not at all been compromised.

#### Recent breakthroughs

Another observation to carry with us in this early part of the 21st century is that the investment in AIDS research has clearly paid off. The extraordinary collaboration between industry, government, and academia has resulted in the development of an impressive armamentarium of antiretroviral drugs that has revolutionized the treatment of HIV-infected individuals and that has important future implications for therapeutic strategies against a wide array of microbes of which we are aware and newly recognized ones that we will surely encounter in this new millennium. This therapeutic advance is clearly historic in its impact with a dramatic decrease in deaths due to AIDS (Figure 4). It could not have been possible had the NIH not infused large amounts of money into the field during those early years and partnered with our industrial colleagues. This is another lesson that we should carry with us into the 21st century.

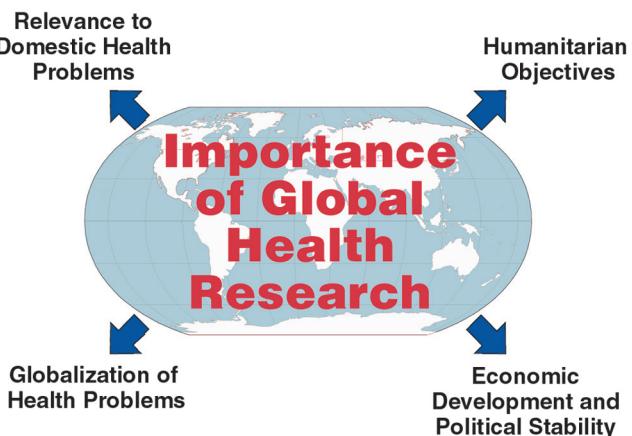
#### Prospects for a vaccine

The last major obstacle in AIDS research is the development of an HIV vaccine. The area of AIDS vaccinology has proven to be an instructive example of getting the right people interested in your problem. Here again is another lesson that AIDS has taught us. On December 3, 1996, President Clinton and Vice President Gore asked Secretary Shalala to bring then NIH Director Harold Varmus and me together with a few others from CDC to the Oval office to update him on progress in AIDS research (Figure 5). We had a most extraordinary opportunity of spending one hour with the President and Vice President. During that time, I touched on the impor-

tance of developing an AIDS vaccine. Both men listened intently and asked what they could do to help. From that meeting came the extra money, again without taking it from other areas, to accelerate AIDS vaccine research, including permission and money to actually build a new building on the NIH campus to create a Vaccine Research Center not only for AIDS, but for other vaccines after we develop one for AIDS. For those of you who know something about NIH, it is almost impossible to get permission for putting up a building on the NIH campus unless you plead and bargain literally for decades. Indeed, the building will be completed within a few months and the budget is substantial. More importantly, that visit to the White House set the stage for a continually heightening awareness at the highest levels of government of the extraordinary potential of biomedical research to accomplish important global health goals that transcend HIV and AIDS.

#### Biomedical research and global health

With regard to global health, it is very clear that we live in a global community, and the health of other nations is critical not only in human terms, but also to our economy and even our national and global security (Figure 6). This theme was underscored by Vice President Gore's historic presentation to the United Nations Security Council last January 10, regarding the impact of AIDS in Africa on the political and economic stability of that region, as well as by President Clinton's final State of the



**Figure 6**

Multiple factors underscoring the importance of global health research.

Union Address. Indeed, just a couple of months ago on March 2, I had the privilege of being a participant in a most extraordinary meeting at the White House. President Clinton gathered together in the Cabinet room a group of government officials including Secretary of HHS Donna Shalala, Secretary of the Treasury Larry Summers, Surgeon General David Satcher, most of the White House staff including Chief of Staff John Podesta, Sandy Berger for Foreign Policy, Gene Sperling for economic affairs, Bruce Jennings for domestic affairs and the CEOs of the major pharmaceutical companies and private philanthropic foundations, together with Jim Wolfensohn of the World Bank and Gro Brundtland, the Secretary General of the WHO. The purpose of the meeting was to galvanize all of these diverse leaders to address the global problem of vaccines for AIDS, tuberculosis, and malaria in a manner that would not have been thought imaginable ten years ago. Never before have adminis-

tration officials been as engaged in the concept and agenda for global health. A subtext of the discussions was that if enormous investments in biomedical research could accomplish what it is doing for AIDS, then why can the same not be done for malaria that kills 2.7 million people each year, or tuberculosis that kills 3 million people a year? I take this further and submit to you — why not for diabetes, breast cancer, or prostate cancer? Indeed, why not for all important diseases? Indeed, these are questions that are now seriously being considered in Washington.

In closing, we are currently in an unprecedented era of support for biomedical research that will even surpass the legendary golden years of the acceleration of NIH funding in the 1960s when many of us were walking the Boardwalk in Atlantic City during these meetings. The enormous investment in AIDS research has clearly paid off, not only with regard to the disease itself, but also with regard to the many spin-offs from AIDS research that have benefited

other diseases. With AIDS, we have an extraordinary track record and a striking example of a successful return on a major research investment. We certainly can accomplish with other diseases what we have accomplished with AIDS. The administration, the Congress, and the public are counting on us for that. There is major momentum in the Congress to double the NIH budget over five years starting from 1999. We are well on our way towards this goal, with extremely generous increases in NIH funding over the past two years and with commitments to continue these increases. Thus, they are willing to make an unprecedented investment in biomedical research. With AIDS, we have clearly demonstrated to our supporters as well as to our skeptics that biomedical research is indeed a sound investment. To me, that is *the* major lesson of AIDS and we physician/scientists should heed this lesson as we lead our profession into these early years of the third millennium in all areas of biomedical research. Thank you.