

***Is Biomedical Research the Right Road to Healthy Aging?***

Phillip Longman, New America Foundation  
Patrick White, Association of American Universities  
Morton Kondracke, Moderator

Broadcast Tuesday, May 18, 2004, 3 – 4 p.m. EDT

**PERRY:** SAGECrossroads is an interactive, Web-based program in which we present news, opinion, and discussions about aging and society. I'm Dan Perry, and I am the executive director of the Alliance for Aging Research here in Washington, D.C.

In SAGECrossroads the Alliance is pleased to be partnered with the American Association for the Advancement of Science, the publishers of *Science* magazine.

Each month on this site, [www.SAGECrossroads.net](http://www.SAGECrossroads.net), we present the live interview, often in the format of a one-on-one debate, featuring thought leaders and provocative thinkers that are looking at the impact that science and aging will have on our future.

Today we will look at alternating visions of how population changes and science policy may help us address the unprecedented phenomenon of larger aging populations.

We will hear from Phillip Longman and Patrick White, who will be our discussants today. You will hear more of an introduction from them in just a moment.

I would like to take just a second to thank the sponsors of SAGECrossroads. They are the Retirement Research Foundation of Chicago, the Archstone Foundation of Long Beach, California, and the Atlantic Philanthropies, based in New York City.

I also want to thank, and welcome once again to SAGECrossroads, our moderator, Morton Kondracke, prominent journalist of both newspaper, magazine and television. Mr. Kondracke is the executive editor of *Roll Call*, the feisty newspaper on Capitol Hill, and is the co-host of FOX News Channel's "The Beltway Boys." Mort? I think it is time to move on into the Crossroads.

**KONDRACKE:** Thank you very much.

Well, the issue is everybody agrees that we want our population to be healthier and we want it to—well, maybe we do and maybe we don't want it to live longer. Some people don't.

But generally speaking, people think that longer life, longer and healthier lives, is a good thing. And the question is, how do we get there? Do we get there by medical research that will, perhaps conquer the issue—the diseases of aging, or perhaps even cure the "disease" of aging itself? Or do we get there by improving people's life styles? Or is there some combination of the two that we should be looking toward? And how do we spend our resources is the main question in order to achieve a healthier America.

Our two discussants today are Phillip Longman, who is a senior fellow at the New America Foundation, and is the author of a just-published book called *The Empty Cradle*, about the birth dearth throughout the West and what the implications of that are.

On the opposite side—or maybe not on the opposite side, we'll see how it works out—is Patrick White, who is director of federal relations at the Association of American Universities, which represents the sixty-two biggest public and private research universities in the country, and who used to be the director of legislative relations at the Federation of American Societies for Experimental Biology.

Now, what the format here is going to be that I am going to let Phil basically state his case for five to seven minutes or so, and then let Patrick respond. Then I will do some questions and answers. I invite throughout our Web audience to e-mail in questions, which I will put to the two sides, and then we will have, at the end, a three-minute wrapping up by each one of them.

So, Phil, proceed.

**LONGMAN:** Thank you. Well, the thesis I would like to defend, in advance, today is essentially that we are putting too many resources into high tech medical interventions and research, and not enough into population level interventions that would raise the health of the population as a whole.

To get into the subject, I ask you to contemplate a thought experiment—let's imagine that in 1985, say, some irascible Congress and president had gotten together and simply defunded the National Institutes of Health. Where would we be today in terms of our life expectancy at age sixty-five, general population health?

I would submit to you that really, we wouldn't much notice in that realm. One of the ways I can defend that assertion is that although most of us are under the impression that we are living in the midst of a so-called longevity boom, actually no such thing has happened or is happening.

The general pattern for life expectancy is sixty-five, going back to the 1940s, is that it generally increased by about a year every decade. And that persisted up until the 1990s, when all of a sudden it stopped improving.

In fact, by some measures, life expectancy at sixty-five for American women is lower today than it was in 1992.

That's sort of a strange result to have come from our massive investment—a doubling of the NIH budget that occurred in that period—and the massive amounts of other resources we have put into high-tech medicine.

But it's really not all that surprising, when you consider certain other facts. What are the determinants of life expectancy? Well, more and more we are finding out that they are overwhelmingly environmental and behavioral. Probably one of the reasons why life expectancy among women in that generation is not improving, or slightly is declining, is that that's a generation of women that smoked a lot more than their mothers did.

We see a disparity with men. Men's life expectancy has, in that generation, improved a little bit. How do you explain the difference? Is it that our high-tech interventions only apply to women or are more effective with women than with men? I mean, I don't think so.

It's differences in social circumstance, life style, behavior.

So that's essentially my thesis.

**KONDRACKE:** You want to stop there? OK. OK. Patrick?

**WHITE:** Well, thank you. I need to begin by thanking Mort and Dan Perry for this opportunity.

Also, I am very pleased to be asked to participate in a discussion sponsored by two distinguished organizations—the American Association for the Advancement of Science and the Alliance for Aging Research. Through education advocacy and events such as these, our society is immeasurably enriched, and I'm privileged to be associated with this event.

I should also make it clear that I speak today as a biomedical research advocate, not as someone who represents the views of AAU or its member institutions. I want to begin in perhaps an odd place by acknowledging right off the bat that there is some common sense in what Phillip is saying.

I had the opportunity to review some of his writings over the weekend and I found myself agreeing with several of his arguments.

I think any disinterested, or for that matter passionate observer, would have to agree that our health care system is a mess. For a host of historical, economical, and political reasons the ways in which we provide and pay for health care in our society are arguably irrational. They are probably too expensive, and they are probably not as effective as they could be.

Also, I am relieved to report that I don't have any answers for that problem but, clearly, we do have some serious problems in our society.

Secondly, I have to agree with Phillip's assertion today and in previous writings, that personal behavior—in other words, the things that we do to ourselves, whether it is diet or smoking or abuse of alcohol and drugs, sedentary lifestyles and so on, are indeed a serious problem and something that we have got to face as a society, and as individuals, if we are going to wrestle successfully with the challenges that are posed by the demographic waves that we can see coming.

I do look at the questions he raises, however, and have to ask myself if there is, in fact, a valid argument for essentially defunding the NIH, as he suggested in his thought experiment, or redistributing resources out of biomedical research and into public health research or public health per se.

I find myself—I guess I would prefer not to accept that proposition. I would like to argue that the answer is a stronger investment and a stronger national dialogue encompassing all of these issues.

NIH Director Elias Zerhouni has eloquently testified, and Phillip, this is coincidence, but about the health care revolution that we have seen in the last twenty years, so back to your 1985. Our national investment in medical research has transformed formerly lethal diseases into manageable afflictions that have given patients and their families more years of life.

As a society, for those who are able to get health care, the paradigm has shifted from acute to chronic care. In the past twenty years, some of mankind's greatest scourges—take childhood cancers, as one example—have not been cured, but we are in a position to ameliorate, and if we can catch them early often we can cure them.

Deaths from heart attack and stroke have been cut by hundreds of thousands per year. HIV/AIDS, which was a death sentence ten years ago, has become a burden, but a manageable one, for those fortunate enough to receive triple drug therapies.

I have looked at these successes over the last twenty years, and I look at the challenges that we face, and I think to myself that so much more can and must be done. Today's biomedical research enterprise offers the hope of cures that add not just years, but quality of life to those years.

The transformation of yesterday's therapies into tomorrow's cures will dramatically improve the quality of life for patients and their families.

I believe that cures for juvenile diabetes, heart disease, osteoporosis, stroke and multiple cancers may be within our grasp. If we can accelerate promising new research and apply basic clinical behavioral and public health research to prevent these diseases, I think that would be perhaps the smartest way to go.

If you look at the demographics of aging in our society, I would further argue that we have no choice but to increase our effort in all of these areas.

Within twenty years 25 percent of our society will be age sixty-five years or older. As human beings age, their risk of developing diseases such as diabetes and Parkinson's doubles.

If we, as a society, for example, are able to delay the onset of Alzheimer's disease by five years, we reduce the incidence of the disease by 50 percent. It has been estimated that we can save \$5 billion a year in medical and care costs.

In a sense, the discussion we are having today is a vindication of the success of biomedical research thus far. I am not suggesting that every single dollar that is done in the biomedical research has been translated directly into a cure.

I also am not suggesting that we do not need—let me put it another way. I am suggesting that we should increase our investments in behavioral and public health research and in the public health infrastructure of our country.

I actually think that, in conclusion, NIH is, as the cliché says, one of the best hopes of mankind in dealing with these scourges. I also believe very strongly that some of the questions that Phillip has raised can be best addressed by additional resources for public health and behavioral research.

Thank you.

**KONDRACKE:** OK. Phil, would you respond to the assertion that medical research has accomplished a lot over the last twenty years, as Patrick says, on childhood cancer, heart disease, AIDS and so on.

I mean, that is a direct outgrowth and I guess the most famous example of all, which is fifty years old or more than that now, is polio.

But a lot of progress has been made in autoimmune diseases and so on. Are you dismissing all that?

**LONGMAN:** Well, I would argue that the rate of progress has dramatically declined in the last—since the 1960s, essentially. There has been progress.

**KONDRACKE:** But that's not research's fault, right? It's the fact that women started smoking. But research didn't make them start smoking.

**LONGMAN:** Well, even if you think of something equivalent to a polio vaccine, where is it in our generation? We haven't had—the age of great breakthroughs was the first half of the twentieth century. The second half is, you know—because there is no top-of-mind thing that comes that makes the point.

**KONDRACKE:** Well, what about AIDS, now? I mean-

**LONGMAN:** The war on cancer was declared by Richard Nixon in 1970. More Americans are—the age-adjusted cancer rate deaths are higher than they were in 1970. Survival rates, you know, for some kinds of cancer, are a little bit better here and there.

But you know, it's really not a very impressive record if you look at it on a population level.

Many diseases that we thought were conquered in the 1960s have come back with a vengeance, like tuberculosis, come back in forms that are more virulent precisely because of the biomedical interventions we made—the problem of resistant bacteria.

You know, the surgeon general in the mid-1960s declared the war on infectious disease over. That sounds pretty quaint to hear it today.

So by many measures we have gone backwards. There is no cure for AIDS. We are probably doing to the AIDS virus what we have done to tuberculosis. So I'm amazingly underwhelmed.

This isn't for lack of effort, I think, or sincerity or lack of purpose, but it may be because the paradigm is wrong. We are looking for solutions at the level of molecules, when we should be

looking at the level of human beings—of whole bodies. The overwhelming determinants of health aren't at the molecular level. They are at the human social level, and so it is not surprising to me that this paradigm has been such a disappointment.

**KONDRACKE:** Patrick?

**WHITE:** Well, I could—let me state a few things that I have come to understand about biomedical research.

The first thing is that the frustrating thing about science is not that it gives you miracle cures, but that it puts you in a position to ask additional questions. That's very frustrating, certainly to a lay person such as myself, but it is also frustrating to Members of Congress and the taxpayers who have made tremendous investments in NIH and in biomedical research, and then come to understand that the time horizons for the results are far longer than they had realized.

If the war on cancer was, just for the sake of argument, declared thirty years ago, what we have learned now is that cancer is actually dozens, if not hundreds of different sorts of diseases. The complexity, the genetic, environmental, personal behavior factors that all contribute to the development of cancer make it extraordinarily difficult to come up with a silver bullet.

It certainly does sound quaint these days to think about the notion of a silver bullet that will cure cancer.

I should emphasize, too, that in the near term, we can point to very tangible, quite tangible, results of the recent NIH doubling. To take just one example, we started out talking about the polio vaccine. Vaccinology, until very recently, was actually a sort of a technical—an inventor's or a tinkerer's art. In fact, many basic scientists or immunologists were less than interested in it.

But because of the new technologies and the new ways that biomedical research has mustering teams and technology we have a new vaccine research center at NIH that is making extraordinary gains. Let me give you just one example.

If it took fifteen years to develop a vaccine twenty years ago, consider that in 1999 West Nile Virus first came to our shores. Within four years, by 2003, NIH had not one but two vaccine candidates in clinical trials.

SARS was a virus that we did not know about two years ago. We did not know it existed. Eighteen months ago it reached North America. NIH-supported researchers were able to do the sequencing to identify the bug or the virus that causes it and about a month ago, Dr. Zerhouni announced that two candidate vaccines are actually in clinical trials.

So a virus that we didn't know existed eighteen months ago—we are already using new medical technology. We are already testing vaccines against it.

The final thing I would say about tuberculosis, and I certainly take what Phillip says very seriously, because I have had physicians and scientists and public health workers explain this to me—TB and

drug resistance to tuberculosis is not actually caused by biomedical research or biomedical research interventions. It's actually a public health problem, because people don't follow the antibiotic regimen as prescribed. What happens is people are given very powerful antibiotics. They do not complete the round of treatment because they begin to feel better and they don't like taking the pills.

What happens, literally, is that the organism mutates away from the antibiotic and becomes resistant to the antibiotic.

You can blame that on research. I think it is more of a public health issue. The concern now, from both the scientific perspective and a public health perspective, is that we have to do the research, unfortunately, to try and fight off these new strains of TB, but we also have other problems.

If we are succeeding at keeping people who are HIV-infected from developing full-blown AIDS and dying, we also are enabling them to come down with other afflictions, which, again, can mutate, in the case of tuberculosis, and be passed on to people in—healthy individuals, or at least uninfected individuals, in our society.

The complexity of the challenge that we face—some would argue that perhaps we have opened a Pandora's box. I would argue that we have no choice but to continue to fund the research that may enable us to fight some of these things off.

**KONDRACKE:** I'll let you respond, but I wanted to get to what is your bottom line? I mean, the NIH—National Institutes of Health budget is now \$27 billion, roughly, and an estimated \$100 billion gets spent every year by pharmaceutical companies and biotech companies.

Now, what would you do as a public policy matter? Would you flatten the NIH budget, as in fact, the Bush administration is getting ready to do? Or encourage pharmaceutical companies to do something else? Or what is your proposal here?

**LONGMAN:** Well, I am not arguing, other than this thought experiment, that we actually zero out NIH. I would agree with Pat that many good things come out of it, and the performance on SARS was impressive.

But I would put to you that \$27 billion is really only the tip of the iceberg on what we are spending on NIH, because what we are really spending on NIH is that, plus the spin-off technology that goes into the greater health care system, and makes ours the most high-tech driven health care system in the world.

That would be a wonderful thing if you could look at that and see that it is bringing a great return to public health.

But I will just throw out the anomalous fact, for example, that life expectancy in the United States is exactly equal to the life expectancy in Costa Rica. Costa Rica spends \$216 per person on health care. We spend coming up to almost \$5,000 per person.

The United States—most people are under the illusion that we have the best health care system in the world, even if it's not the most equitable, but that just turns out not to be true.

I mean, if you want a liver transplant, if you want a kidney transplant, you are better off in England or Denmark. Our infant mortality—any measure that you want to take of life and health is very weak in the United States.

Then we see, even within the United States, the number of operations that are performed for one incident—one problem or another—can vary from as much as 30 percent in one part of the country versus another part of the country, but the outcomes are exactly the same.

That tells us we have a tremendous amount of waste, and most of that waste is in the form of high tech interventions.

We have, sad to say, more people being killed by adverse medical reactions and medical errors and doctors' offices, than die from AIDS, than die from car accidents. So the health care system itself, as it deals with these evermore lethal and complicated technologies and compounds, is killing a tremendous number of our people.

So you ask me what my bottom line is? My bottom line is refocus. Refocus. The problems that we have with medical errors are problems of human organization—how hospitals are run, how we keep our medical records. Problems of chronic disease are problems of lifestyle and sometimes social inequality. That's where we have to refocus.

The other way that NIH inflates health care spending is by inflating expectations. I mean, I think a lot of us walk around thinking, "Well, I've got this bad habit or that bad habit. But I just read that Dr. So-and-So at NIH says we are on the threshold of some great new breakthrough thing. So I'll just wait around for that to happen." I know I am personally guilty of that in some instances.

*(Laughter)*

So—

**KONDRACKE:** I confess that I eat more cheese now that I am on Lipitor than I would have before that. I—go ahead.

**LONGMAN:** And probably your cholesterol would be much more improved by exercising more with fewer—

**KONDRACKE:** I did all that—

**LONGMAN:** —first the action and then the side effects. So it's a question of vision.

I think, you know, the American people are laboring under two enormous misconceptions. One, that we are in the midst of a longevity boom and the other that we have the best health care system

in the world. Neither is true. Part of communicating that message is to point out the diminishing returns in the public health that we are getting through these biomedical (inaudible).

**KONDRACKE:** Just as a thought experiment, if you were taken down with a severe illness would you go to Costa Rica to be treated?

**LONGMAN:** I might, actually. You know, I just got back yesterday from talking with Don Berwick, who is at the Harvard Medical School and one of the great gurus of quality control in health care. He has a bum knee. He's put out a request for proposals for people to work on his knee!

*(Laughter)*

I mean, this is a man who is intimately familiar with the failures and the dangers of the health care system. And he put out all of these quality control measures, and he's had two hospitals approach him saying, "Yeah, we can do it."

But he's not yet persuaded. So he's been walking with a limp for two or three years. And you know, I would take note of that, you know?

**KONDRACKE:** But on the other hand, I mean, millions of people have had arthroscopic surgery, and they are walking fine. People have had hip replacements, and they are walking around fine. They'd be disabled.

You know, you can get knee replacements now. It—all that stuff presumably would not be happening and improving people's lives if we just said, you know, "We are going to spend the money on antismoking campaigns."

**LONGMAN:** Oh, you—it's somewhat counter-intuitive, but back surgery for example. There's a new study out last month showing at a population level there is no benefit to back surgery. You know, it's self-resolving in some cases. In other cases, you're left with palliative care. But when you look at the population-wide evidence how well people recover, there is no recovery.

Knee surgery—whenever there is a discussion of unnecessary surgery in the United States, knee surgery is always way up there. We've got lots and lots of people dying from things as innocuous as knee surgery and more often for things like heart surgery, where we—over and over again. We just see one part of the country, there's, you know, this level per thousand of heart surgeons—or heart surgeries going on and another it's a fourth of that. Yet life expectancy among people with heart diseases is exactly the same.

**WHITE:** Well, I don't want to get into my cheese consumption. My goal actually is to live long enough for knee transplants to become a cinch.

I can't really speak to the issue of medical errors or medical mistakes and their cost in human lives in economic terms. I also think, if I understood what I've read, Phillip, of what you've written, it's

not so much that Costa Rica's health care system is good; it's that the way Costa Rican's live is qualitatively more conducive to good health.

So, for example, there are far fewer automobiles. People walk a lot. Their diets are probably—well, almost certainly, more varied than are many Americans'. So it's not so much that you might want to go to Costa Rica because of the world class health care you would receive there. You might want to go to Costa Rica because they, again perhaps counter-intuitively, somehow have a higher quality of life.

So I guess, while I am certainly sympathetic and I am aware that—oh, the other thing I wanted to mention was, I'd be interested to see if Costa Rica has managed care, and what their tort system is like. Because these are the sorts of exogenous factors that really drive up health care or pressures, I should say, that affect delivery of health care in this country.

I can't, as I say, in a sense, I can't really engage on the question of medical malpractice because it really is not NIH's lookout. The critical thing, I think, is that with research comes understanding and with understanding we are able to intervene in people's lives in a way that adds to their health and adds to their longevity.

**KONDRACKE:** So, you would, I take it, take money that is now being given to NIH and spend it on preventive care?

**LONGMAN:** I would do some of that. I would refocus, to the extent that we are going to have molecular level investigations. I think they should be targeted at questions like the biological foundations of addiction. Boy, if we could crack that one, that would be huge!

But I also, you know, it's nice to say, "Let's do it all, right? We are a rich country. Let's do it all." But you know, as Pat alluded to, we are an aging society. We have costs coming in the future that are just staggering. We know that we can't provide an entitlement to all the high tech interventions that NIH and the rest of the biomedical establishment can come up with.

So what's one way to deal with that? Well, we could just go along our course and then at some day in the future we are going to have to say, "You know what? We can't afford this any more. We are going to have rationing and we are going to call it rationing." And that will be really ugly, and that will be really unfortunate, you know?

Or we can do it another way—a kind of soft rationing, where we don't put our first dollars in health care into pursuing technology agendas that, even if they worked, result in technologies that we can't afford to deliver to the population over time. We say to everyone, we are going to do as much as we can to help you be well now, and even if we have to pay you to exercise, we can do that.

I would submit that if the United States created an entitlement of \$2,000 a year, a voucher for every American to join a gym, that the results to public health would be nine times, ten times what we are getting out of the NIH, just from that one thing.

**WHITE:** That's an interesting idea. I was going to ask, actually, and again I think, although I am—I don't know this for a fact—my sense is that today's high tech and highly expensive medical technology over time does become something that becomes cheaper and more accessible. I think that's a fairly accurate assumption.

The second thing I would say is that the whole question of rationing is implied in much of what you have written, and I was sort of interested in how you would wrestle with—and the statistics escape me—but this notion or problem, if you will, that so much of the intensive health care spending is actually spent at the end of life.

The question I am asking, to put it into personal terms, is how would we—or how would you—wrestle with the family that wants to spare no expense and in a sense take no short cut in trying to preserve the life of a loved one, even though that person is visibly, demonstrably near the end? How do you wrestle with that?

I mean, I am sympathetic, but sort of at an ethical level, but also from a policy perspective. I don't know how you could—I can't imagine Members of Congress or a majority of Members of Congress allowing government or some other entity to have the sort of power to say no. How do we wrestle with that?

**LONGMAN:** It's tough. But part of the way you do it, and in further answer to your question of where the new resources should go, is in the development of true evidence-based medicine.

It's just stunning the amount of procedures and prescriptions that we are using today for which there is no science behind it, in terms of what is its effectiveness, as opposed to some other thing.

You know, there's just little baby steps that people are taking around the world now to try and collate that. One big step in getting real evidence-based medicine would be to have electronic medical records which would have great value to people at the individual level. You could arrive at the hospital unconscious. You know, they could tell that you are allergic to this or that. But also at the population level again, it would allow researchers to look at results of different interventions and see—compare.

So we might find that this \$50,000 that Medicare spends on the last six months of life, a lot of it as we know intuitively, is for procedures that really, there is no science to suggest that we ought to be spending any money on.

Once people get that information, then that will be helpful in overcoming those kinds of dilemmas, not that it will solve them.

So that's one thing. Another thing is, you know, it's sometimes said that wellness doesn't pay for itself. The real hard-core health care economists sometimes will say this, and it's true that if an HMO, for example, puts a lot of money into my smoking cessation, well, chances are I will have moved on to a new HMO before I ever give them any savings.

But imagine this. Imagine that if you die at fifty-five you consume \$50,000 of heroic health care in the last six months of life. That's one way to do it. The other way is you do it is you die when you are eighty-five. You consume the same amount.

Well, you know, I would suggest that—and you do that because you've cleaned up your act. The government has helped you to overcome your addictions and to reduce auto deaths and pollution and other things like that.

I would say there is a tremendous gain. For one thing, we've got twenty extra years of GDP to pay for my \$50,000 in terminal care. And meanwhile, I may have been incredibly productive between fifty-five and eighty-five.

**KONDRACKE:** What is an adequate budget for the kind of life style? I am interested in what steps besides paying for people's health clubs. I mean, for example, the problem of obesity or alcohol abuse or tobacco usage and so on.

I mean, what exactly—what's the form that you would spend this federal money on? How?

**LONGMAN:** Well, I think there's just a million and one things that come to mind once you get this paradigm of approaching disease at a population level. Sprawl is a good example.

I mean, most people don't know that your chances of dying in the next year are much higher if you live in the outer suburbs of most metropolitan regions than if you live in the inner city. Why is that? Well, if you live in the inner city you are more likely to be murdered, but you are so much more likely to die in an automobile accident if you live in the outer suburbs that it turns out it's way more dangerous to live out there.

Other things go with sprawl. Social isolation goes with sprawl. Social isolation, we are coming to know more and more, particularly for the elderly, is an incredible cause of death and poor health. You know, Robert Putnam, professor at Harvard, has even quantified it to the point that joining a single group, if you are an isolated person, has this, I think it's five-year life expectancy gain just by having that human contact.

You know the architecture of suburbia is very hard on the elderly and it's a significant source of poor health. Why not pay people to exercise? And why not have reverse tolls on bike paths? Why not regulate fast food the way we regulate liquor? You know, why not have the same zoning requirements for McDonald's that you would have for a bar?

I mean, sin taxes can only be taken so far, but there's a lot we can still do.

**KONDRACKE:** I have one question along that line. Why don't insurance companies charge higher premiums for fat people than they do for—the way they do for smokers?

**LONGMAN:** I think that's an excellent—why doesn't Medicare?

**WHITE:** That may be coming.

**LONGMAN:** You know...or put it differently. Say it's not that we penalize you for being fat. It's we reward you for losing weight, right? We could easily have a Medicare premium system that said if you are obese and you bring it down your premium goes down. I think that's fair.

I think it's fair that smokers would pay a higher premium for Medicare.

**KONDRACKE:** Now suppose for the sake of a thought experiment, I mean, there are—this has come up again and again and again in our various discussions—some scientists think that aging itself is a disease and that somehow we can figure out what the cause of it is, what the factors are, and change it so that you wouldn't necessarily be treating the diseases of aging; you would be treating aging by itself.

Now, is that something that you would advocate putting money into or not?

**LONGMAN:** I think it's a fool's errand. If I buy a brand new car and I put it out in my back yard and come back seventy years later, it's aged. It didn't age because it had a disease. It aged because of this thing the physicists call entropy. I mean, the universe is aging. Everything has a tendency toward losing its form.

So that's what we are up against.

Now are there things that we could do short of nearly starving ourselves and lowering our metabolisms to the point that, you know, we move around like turtles? I don't know. But I do know that at the end of the day we are mortal and I don't believe that is ever going to change.

I think we are up against this thing called entropy which is much more powerful than any kind of compound we can come up with, I guess.

**KONDRACKE:** Have you done a statistical analysis of, for example, correcting, in the case of Costa Rica, for a mile's walk, and that sort of thing, and tried to compare the health care system there with those factors eliminated?

In other words, this is to say, does our technology—if you took our technology and gave it to the Costa Ricans, wouldn't they have a much longer life span than we do? In other words you would overlay on top of the fact that they have a healthier lifestyle, do more walking and such like that, when they get into trouble they can get stints in their arteries. They can—if they come down with you name it. If they are schizophrenic they have ready access to the kind of new drugs that we would have.

**LONGMAN:** Right. Well, clearly some individuals in Costa Rica would be helped if they had our technology, but at a population level, again, it would make very little difference. Here's how you know that.

Let's imagine that our investment in NIH had succeeded spectacularly and so we did have a cure for cancer. Gone! Cancer! Not only that, but we cured cardiovascular disease. Done with it. It was something our grandparents had to deal with.

The epidemiologists tell us that the increase to life expectancy of Americans if those two things happened would be about two to four years. That's it. Why? Well, it's because of this phenomenon they call competing risk. When I save you from your cancer, I have given you an increased chance of getting Alzheimer's disease.

All right? And so on and so on. So every time we succeed in eliminating one disease, we set people up to get a new one. And so on and so on. For every single human being at some point those competing risks add up to death. Since most of our diseases now are chronic diseases of old age, eliminating them makes very little difference to population age.

**KONDRACKE:** Patrick?

**WHITE:** Well, NIH has been a spectacular success... These are very intriguing ideas. All I can tell you is that I don't think anyone suggests that the purpose of biomedical research is to make us immortal. I do know from talking to scientists that there are a series of interesting questions that some of them would like to answer, and that I think again, aren't going to make us immortal but might extend life and improve the quality of it.

Just to give you an example of a line of research that I only feebly grasp—there's an enzyme called telomeres, which governs the way DNA is processed in cellular growth. What happens, basically, every time a cell divides is the telomeres on the end of your DNA get shorter.

Interestingly enough, this observation was made almost serendipitously because it was thought that it might provide an answer for how cancer cells, essentially, go wild. But the interesting question is if by understanding telomeres in the ends of people's strands of DNA, if through cellular division you were able to prevent the shortening of these strands of DNA, you might indeed be able to extend life.

I mean, that's far fetched, and certainly on a hot Tuesday afternoon, it sounds almost science fiction, but these are the kinds of questions that we are in a position to answer.

The other thing I would say is that, first of all, something that Phil said earlier that I have to acknowledge, which is that the hope and the hyperbole that is attendant to the advocacy for biomedical research—there is no question that it's there. I have to acknowledge that. We in the advocacy community, I think, do have to acknowledge that.

On the other hand, though, what we are talking about here is an aspect of human nature, which is to hope, which is to strive, which is to attempt to extend life for oneself and one's loved ones and to increase the quality of that life.

I do return to my original assertion, which is that investing in biomedical research, whether it is the statins which many of us are now taking and they are beginning to learn now, may actually forestall

the onset of Alzheimer's disease, or Parkinson's disease, whether its ace inhibitors that, either by themselves or in combination with other drugs, seem to be making real progress in terms of ameliorating high blood pressure and the incidence of stroke—we are saving lives. We have saved lives with biomedical research.

In the final analysis it may be that—I would close where I began, which is by saying that what we are about here is hope. We have had great successes. They—it's not an un (inaudible) success, and certainly there are things, certainly given Phillip's analysis, that we ought to reconsider.

But when you look at the challenges that we face, when you look at how we do want to live, I think that not only is the case compelling, but we actually have no choice but to pursue research.

**KONDRACKE:** There is an ethical question here. If you theoretically can conquer a disease and you begin to understand it, you begin to understand what the pathways are, and you know that it leads to suffering, aren't you sort of morally obligated to try to conquer it?

Isn't it kind of inhumane not to pursue that possibility?

**LONGMAN:** It depends on what the opportunity cost is. If there is no opportunity cost, of course. But if you got down to brass tacks, you might find that those—let's say it is 5,000 people that you save with your \$10 million investment comes at the cost of saving, you know, twenty or thirty times that number if you use the money in a different way.

You'd have to get to specifics to—

**KONDRACKE:** Well, actually, somebody did offer a specific—asserting that Alzheimer's disease now costs about \$100 billion a year, in health costs. Which is likely to reduce that cost? Biomedical research or some sort of public health and lifestyle changes, do you think?

**LONGMAN:** Well, that's a hard example. But diabetes would be a better—because Alzheimer's really is a product of the success of more people living to advanced old age. But diabetes would be a better example. You know, you've got an epidemic of diabetes. Twenty percent of all Medicare spending is now on diabetic-related problems.

Do you approach that by putting your first dollar into molecular level investigations? How exactly does diabetes work? What's the mechanism? How is DNA involved? Or, do you do what we already know works, which is exercise more, better diet—

**KONDRACKE:** That's the case in one kind of diabetes, but in the case of juvenile diabetes, it doesn't apply at all.

**LONGMAN:** True, true.

**WHITE:** Actually, let me hasten to add here, first of all, NIH research has confirmed precisely what Phillip is saying. There is a study that came out, I believe in the last eighteen months, and the clinical—it was a large longitudinal study, whose results were so compelling, if I remember

correctly, they actually stopped the study so that they could get the people who weren't exercising the information they needed to start so doing.

**KONDRACKE:** Right.

**WHITE:** But the second thing is that there actually—well, I mean, first of all let's not overlook NIH research, the biotech industry, and the manufacture of insulin, which was impossible thirty-five years ago, and has enabled people who suffer from this disease to lead somewhat more normal and happy lives.

But there are other things that NIH research has turned up that actually may address Type II diabetes. I interrupted you. You were about to talk about juvenile diabetes.

**KONDRACKE:** I was about to—yeah, you know, that is the case where lifestyle changes don't matter, and, in fact the only opportunity to deal with juvenile diabetes is through research.

**LONGMAN:** Right. That's right as far as I know. But if you are talking about the big killers, heart disease, cancer, they are overwhelmingly driven by social and behavioral factors.

You know there is a genetic component in the same sense as there is a genetic component to being able to speak French, you know? I mean, yeah, you have to have a certain genome to be able to speak French, but you realize it is a necessary but not sufficient condition.

**WHITE:** Well, actually, it's fascinating because one of the questions with juvenile diabetes is that there is, indeed, a strong genetic component. But the question is—where the challenge I think I determined if and what the environmental insult is that triggers it.

Because what happens is the immune system attacks the islet cells and essentially kills them off and these children come down with this terrible, terrible disease.

So again, though research, it might be possible for us to realize, you know, that Phillip's concern about second-hand cigarette smoke, for example, is further justified because it contributes to juvenile diabetes. I am not suggesting it does. What I am saying is that the research question and the answers that might arise from trying to answer those questions I think are compelling.

You know, your genome is necessary but it is not sufficient. So what is it in the environment, what is it in people's daily experience that triggers this awful affliction?

**KONDRACKE:** This would call for epidemiological research.

**LONGMAN:** That's right.

**KONDRACKE:** And outcomes research and—all of which we're in favor of.

**LONGMAN:** But you don't look through a microscope to find the answer. You look at society, populations, aggregate statistics.

**WHITE:** It took a lot of microscope work to understand that it actually was the immune system that was attacking islets. There was no understanding or explanation of that, I'm pretty sure, twenty years ago.

**KONDRACKE:** Let me ask you a specific policy question. The Bush administration is flattening out the NIH budget. Is it paying attention to public health?

**LONGMAN:** Well, you probably know the inside story on that better than I do. I assume that they are driven by budgetary concerns more. I mean, Bush came in promising a medical moon shot and I think that's a telling phrase, because it's very much like the space program in the way we look and feel about this program.

It's all about hope and new frontiers, and it's driven by emotion.

I don't know whether they are getting religion because they are getting religion or because they are just trying to save money. I just don't know.

**WHITE:** Actually, if I am not mistaken, all public health funding is basically pretty much flattening out.

It should be emphasized that public health, although I certainly would assert public health funding has not been high enough—it's not true for last year, but say over the five years before that, had done pretty well. Not as well as NIH, certainly, but you know, the CDC, for example, at a time when NIH was growing at 15 percent a year, it was growing at 18 percent.

**KONDRACKE:** It's war on terrorism money.

**WHITE:** Yes, although it's other stuff as well. That is true. And by the way, terrorism is another argument for medical research. I mean, I think when you look at the bioterror weapons that even unsophisticated folks can put together, you know, when something like that is unleashed on our society, we are going to have to call on scientists. They are going to be our only hope.

**KONDRACKE:** Good point. OK. What are we doing wrong in this society that makes it better either in other industrialized countries or even developing countries—that they do right, that we do wrong with our health care system, the quality of medicine and so on. I mean, is Britain or—I mean, you don't have the Sheikhs in Saudi Arabia, if they get in trouble with a bad disease, tend not to go to Costa Rica. They tend to go to the Cleveland Clinic.

So maybe it's something they don't know but the reputation that we have in the world is that we do have the best medicine in the world, but what is it that you think these other countries are doing better than we are?

**LONGMAN:** Well, almost in all cases they have health care and unified budget, so when people make decisions about whether to employ some new technology device or not, they have to look at it's cost effectiveness.

When they improve the quality of health care, they get to keep the resulting savings.

**KONDRACKE:** So you would be in favor of a national health insurance plan single payer or something like that?

**LONGMAN:** You know, we tried this whole thing with managed care. I think with managed care, you know, there were a lot of terrible examples that came to light in the press of shoddy HMOs and the like.

But if we can't make that system work, then, yeah. One way or another you've got to get on a unified budget, because today nobody has an incentive to provide wellness, to improve the quality of health care, to actually evidence-based medicine. We don't pay doctors to cure people. We pay them to treat people.

Until you have an incentive system where cure is actually—or prevention is actually financially rewarded, I don't see any hope.

So there is a much deeper question.

**KONDRACKE:** Go ahead.

**WHITE:** I was just going to say I am not an expert on health care or how the system should be redone. I will offer a personal perspective.

I used to work for a Member of Congress from Michigan and, you know, we were always being told about how great Canada's health care system was. That fascinating thing is that when people needed open-heart surgery in Canada, they—it effectively was rationed. What we found was that the hospitals that we had in our district, just over the border, were filled with Canadians who wanted to get care right away.

So there's an element of rationing in there, or there is a syndrome or a tendency toward rationing that I think in this society, given our expectations as consumers, unreasonable though they may be, I think would be a very, very hard sell.

**KONDRACKE:** OK. I'm going to throw a whole bunch of questions at you. You've got to do your three-minute wrap up and try to answer the questions at the same time, OK? These questions came in kind of late, Ron.

OK. All right. Take the case of Tagamet: Ninety thousand ulcer surgeries per year in the 1970s; less than 14,000 today. Secondly, why not develop a pill to fix the damage I've done through my lifestyle?

**LONGMAN:** That's what we all—

*(Laughter)*

**KONDRACKE:** Right. And isn't a 50 percent drop in heart attack and stroke in the last twenty-five years evidence of the value of medical research?

Then, there's one more. Entropy exists in a closed system. I think this is too philosophical for us. OK. Just do your wrap up.

**LONGMAN:** OK. Well, in some sense we've been arguing past each other because we agree on more things that we disagree. It's just a question of emphasis.

You know, obviously there's a lot that we should be grateful for that's come out of NIH and the biomedical industrial establishment generally. But Americans are going down a path that leads to some place that is very unpleasant and that is, you know, we are overdosing on high-tech health care. We are spending close to double on health care what most of our industrial competitors do as a percent of GDP and we don't have any better health to show for it. In fact, by many measures, we have worse health.

I suggest that in the broad strokes we're taking the wrong path because we are so much fixated on our individual entitlement to everything we think we need in health care and not paying attention enough to what we, as a people, need to maximize our health, that we are getting ourselves in trouble. So that's my summation.

**WHITE:** I would agree that we are all headed down a path toward something terrible. I think it's called death.

I think that biomedical research raises the prospect that we can put that off perhaps if only by a few years, but that we can also raise the quality of those final years of life. I think that most people almost instinctively consider that to be a worth and noble goal.

The second thing I would say, whether we are talking about entropy or heart disease, the things that have come out of NIH research, I think, have more than justified the investment and the support that the American people have given it. Heart disease, if I remember correctly, if you extend the projections out from 1970, which is when the dramatic drop started to come in terms of death from heart attack, we should have had 1.3 million people die of heart attacks in this country in the year 2000. We had 500,000. That's a swing of .8 million, or 800,000.

I think biomedical research is worth it.

**KONDRACKE:** OK. Listen, this has been fantastic. Phil Longman, Pat White, I am deeply grateful to you. This has been stimulating in the extreme.

**PERRY:** I want to thank Mort Kondracke, our esteemed moderator, for another excellent program on SAGECrossroads. Please keep coming to the site: [www.sagecrossroads.net](http://www.sagecrossroads.net). All during the next several weeks we have new articles posted weekly and we will have another live Webcast event in a month or two. Thank you very much.