

# Tobacco addiction: Accomplishments and challenges in science, health, and policy

## C. Everett Koop

It is an unusual pleasure to have the opportunity to speak to so many of the world's leaders in the science of tobacco and nicotine. As members of the Society for Research on Nicotine and Tobacco, you must be very proud of how your organization has evolved so quickly. After fewer than 10 years in existence, you are now the world's leading scientific organization dedicated to exploring the science of tobacco and nicotine with a focus on understanding the dependence process. Through this research, you contribute to the reduction of tobacco-caused disease and you provide valuable guidance for policy.

Your membership represents many disciplines and more than 30 countries. As individuals and as a scientific society you have contributed significantly to public health, to scientific truth, and to justice in the broadest sense of the word. Take pleasure in remembering that as individuals and as a society you have only just begun. The road ahead may be long: But with the great opportunities you have, there is grave responsibility. I would like to spend a few minutes reflecting on what I see as some of your opportunities as scientists and contributors to the welfare of global society.

### Perspectives on the concept of tobacco addiction

As individuals, many of you contributed to one of the reports I did as surgeon general, the one of which I am most proud: The *Nicotine Addiction* report of 1988. To some of you that must seem like a long time ago, and you may find it hard to remember and believe that, at the time, the prevailing view of smoking was not as a true form of drug addiction but rather as a largely voluntary behavior contributed to, in part, by nicotine.

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C. Everett Koop, M.D., Sc.D., Keynote address to ninth annual meeting of the Society for Research on Nicotine and Tobacco.

The more recent understanding of nicotine as an addicting drug and of cigarettes as highly toxic delivery devices designed to maximize the addictive effects of nicotine has had profound implications for the prevention and treatment of tobacco addiction.

It has had equally profound implications for efforts to regulate tobacco products and for the administration of justice to the purveyors of those products. Of course, you have much yet to discover, and policy makers have a long way to go to implement even the knowledge that we presently have, but we have come a long way in a relatively few years.

### Tobacco industry goals and influence

Never forget that the keystone of the world of addiction is addiction to the legal substance, tobacco, because of its addictive ingredient, nicotine. Tobacco is a major risk factor in adolescence for getting drunk and using marijuana. The goal of the tobacco industry is to addict as many people as early as possible. Everything else Big Tobacco does is "theater." Because of the annual number of deaths worldwide, because of the economic implications of addiction, disease, disability, and death worldwide, and because the primary target is children worldwide, the entire enterprise of Big Tobacco is the largest concentration of evil masquerading as a legitimate business on this planet.

There is no court of appeal because the law makers who could change the situation will not act because they are too heavily supported by the tobacco industry.

And also please remember that in spite of all protestations and supposed demonstrations to the contrary, the goal of Big Tobacco has not changed. Although it aspires to be recognized as a legitimate member of the business community, it never can be. They are diametrically opposed to your goal of scientific truth and the well-being of society and will go to any deception, gross to subtle, to cast doubt on

your progress, including buying scientists and paying for false results. It would be a safe rule to be against anything they are for and for anything they are against.

Because of you, compilation of scientific evidence was sufficient to influence policy, which enables effective tobacco dependence treatment. In reference to tobacco cessation, you have altered medical practice at every level of the health care system.

### Global challenge to independent researchers

But here is the challenge: As extensive and as important as your accomplishments have been, both as individuals and as a research society, you are only at the beginning of a struggle in which the role of science will become increasingly important. The importance of independent researchers will accelerate as the tobacco industry launches what may be its own biggest research effort yet in a last desperate move to save itself and to legitimize new products to hook new generations.

Your research will be ever more vital to the lives of many millions of people. In the United States, approximately 50 million adults smoke cigarettes and several tens of millions more use other forms of tobacco. Globally, more than a billion people smoke cigarettes and hundreds of millions more use other tobacco products. The World Health Organization, using statisticians of impeccable expertise and reputation, estimates that 500 million of today's living people will die prematurely of tobacco-caused disease.

I presume you scientists can fully absorb numbers that large. For me, it makes a more lasting impression when I think that over a 25-year period that means the number of deaths in the entire Vietnam War occurring every day; the Titanic sinking every 47 minutes for 25 years. The only thing that can alter that is a change of course.

Science can provide the necessary foundation for that change in course. Science is critical to guide decision making as you move forward, because in the absence of science-supported change, the deadly status quo will continue for decades at the expense of millions of lives. That is unacceptable.

### Scientific advances, needs, and opportunities

Think of where we might be a few years from now. Think of where we need to be. How will your science evolve? What will your students be focused on? What about their students? What will be the primary interests and sense of mission of the members of this society 10 years from now and, yes, at mid-century?

I predict that your membership will include Nobel Prize winners who will be recognized for their contributions to furthering the understanding of human behavior, physiology, and disease as well as to the eradication of disease.

I hope that within a few decades, the "T" in your society's acronym will no longer stand for a primary interest in understanding tobacco dependence and other disease but rather will be an historic tribute to the origins of your society. I hope that by then, SRNT will have moved on to furthering the understanding of the labyrinth of nicotinic systems, the layering of human diversity on those systems, and the application of this knowledge to further improve human health and the potential of all people to live to their maximum potential and full life expectancy.

The middle of this century, I hope, will be a time when students of public health look back, with historical interest only, on a time in which tobacco was responsible for the progression from addiction to disease, disability, and death.

It is telling to look at how the important questions and the techniques of addressing them have evolved in just the past 15 years since the *Nicotine Addiction* report. You are beginning to unravel how a tobacco product itself functions to maximize the addictive potential of nicotine and how alternative nicotine delivery systems might be used more effectively to treat nicotine dependence.

Your ranks now include molecular biologists whose efforts may contribute to understanding the diversity across individuals and cultures in their use of tobacco as well as its effects. Ten years ago, could such scientists have suspected how important their work would be to the Food and Drug Administration in establishing that nicotine is a drug because of the changes it induces in the body?

Your ranks now include representatives of a discipline which did not even exist 5 years ago—document researchers dedicated to the discovery of scientific truths from among the treasure troves of information kept under wraps for so many decades by the tobacco industry, and their devilishly clever modus operandi, which kept vital information from the public behind the travesty of the lawyer-client privilege.

Your studies have moved on from relatively simplistic notions of nicotine dependence to the systematic study of the diverse potential trajectories of adolescents following their exposure to tobacco. These studies will contribute to public health policies that will attempt to shift those trajectories from their all too familiar quartet—of addiction, disease, disability, death—to a course of tobacco abstinence and health.

### Science-based public health policy and regulation

You are being challenged by the World Health Organization and a recent report from the Institute of Medicine to develop the science foundation for regulating tobacco products so as to reduce their potential to cause disease and addiction. You are being asked to assist regulators in the United States, and globally, in providing guidance in changing the process of labeling and testing of tobacco products. As you know, and have helped to document, the current FTC/ISO testing system is enabling the tobacco companies to perpetuate their *lite* cigarette fraud with the appearance of government endorsement. This must end. You have made a difference, but your continued efforts are needed to resolve this issue.

Perhaps I am most pleased to see that SRNT has emerged as a society that emphasizes both the pursuit of truth and service of health. While the pure intellectual unraveling of nature's secrets and the pursuit of scientific truth is commendable, to combine that with the intent to serve humanity by improving public health is noble.

The John Slade Award is your most recent symbol of that commitment, and I was pleased to be invited to serve on the John Slade Award selection panel, along with Richard Doll, David Kessler, and Judith Wilkenfeld.

Many of you knew John Slade personally. All of you have been influenced by his efforts to fight for science-based policy to contribute to public health. The award in his name is a fitting tribute to the man and should be an inspiration to your members.

I *believe* that John would be most pleased with this year's candidates, understanding that our decision to choose the winner was not an easy one. I *know* John would be pleased by our selection of Nancy Kaufman as the first recipient of the John Slade Award.

One of my messages to you is to keep this dual goal—the pursuit and the service of health—as an indestructible core of your mission.

### Truth, justice, and service to public health

Especially, be proud of your role in the discovery of truth. It will be a critical factor in bringing about improvement in public health. Scientific truths and advancement of public health, in both a moral and legal sense, eventually contribute to justice.

Truth, justice, and service to public health—as I said before, a truly noble endeavor.

Winston Churchill said, “What is the use of living, if it be not to strive for noble causes and to make this muddled world a better place for those who will live in it after we are gone.”

And he was right!

Now this doesn't mean you need go about your daily business, constantly thinking about policy, public health, and potential legal and regulatory applications of your findings, but when such applications occur, I hope you will bask in the light of your efforts.

As surgeon general, never was I more aware of the need for science-guided policy than when that policy ran in opposition to the interests to the tobacco industry. This was because, until a few decades ago, the primary keepers of truth about tobacco products were the industry itself. As a keeper of the truth, the tobacco industry was not a good steward. It hid much of its knowledge and distorted more of what it knew so as to oppose justice and protect its flow of cash coming from the hands of children and adults alike.

The reports of the surgeon general, and the FDA's defeated attempt at tobacco regulation reflected the high level of concern of the Public Health Service, that policy be based on the broadest and strongest possible scientific foundation. The current efforts of the World Health Organization to develop a Framework Convention on Tobacco Control through the United Nations Treaty process include an equally strong stand on the critical importance of the scientific foundation.

Of course, as I implied earlier, the tobacco industry itself is now claiming to desire that science should indeed guide its own regulation and product marketing, and some elements in the industry have even apparently embraced FDA regulation of tobacco, revision of the FTC method of cigarette testing, and the WHO framework convention process. With their history, my advice is, “Don't believe it.” The industry has done nothing to indicate that its concern for health has finally exceeded its concern about its bottom line. As I have already said, this will make your work as individuals, and the contributions of your society, not only more difficult to accomplish but ever more vital because without your work and without a scientific society to stand up and speak for truth, public health, and justice, the industry will fill the void with deceit, deception, and the perpetuation of its death-dealing cash machine.

Even today, the vast majority of knowledge about tobacco products and the ingredients and designs that contribute to their addictiveness and toxicity is still held by the industry itself. In this field as well, your society is beginning to expose scientific truth heretofore deliberately and deceitfully hidden from the public.

### Global issues: Research and research funding

Rational regulation of tobacco will require much more such targeted research.

As individuals, many of you will make the vital discoveries so necessary to success.

As an organization, SRNT should increase its efforts to contribute nationally and globally to the cultivation of such knowledge and to its appropriate application to serve the public's health.

Along these lines, I find it encouraging that your main meeting this year is flanked by two smaller meetings that are historic in their own right. The one that concluded yesterday focused on global initiatives in research on nicotine and tobacco. This included discussion of the increasingly important area of developing a stronger scientific foundation to guide tobacco product regulation and the vital need to cultivate the worldwide network of scientists to continue and extend this work.

I cannot overstate how important this is. For too many years, the tobacco industry operated globally under the assumption of relatively little cross-border communication and regulation. From a disease control perspective, that makes about as much sense as trying to control polio, malaria, AIDS, or drug addiction within the borders of one country while ignoring the rest of the world. I am more than pleased to see these efforts and to encourage even stronger efforts to think, work, and act together as part of a unified global community in support of public health.

The other meeting I referred to is the meeting next Saturday and Sunday that will focus on the troubling issue of how tobacco industry funds can be used to support research that will contribute to improved public health and more rational regulation of tobacco products. This is a deceptively difficult issue. On one hand, there surely is an obligation for an industry that derives so much profit to make a portion of those profits available to research that will reduce the harm caused by its products as one condition for allowing its continuing existence.

We have the potential today to dramatically reduce tobacco use through a comprehensive set of action steps built around cessation. Dr. Michael Fiore, as a result of a charge from Secretary Thompson, chaired a federal subcommittee on cessation that recently pulled together an ambitious series of such action steps that he will describe in more detail during his plenary session on Saturday. These action steps represent the kind of bold, big-picture, evidence-based approaches to dramatically reduce tobacco use in America.

On the other hand, the mechanism by which those funds are used could determine whether the resulting research is trustworthy and of essential use to the public's health or merely perpetuates a profit-making machine at the expense of public health. And there is a third possibility—research that provides the foundation for improved public health, even if that means radical changes in the tobacco industry or—what a

glorious thought—even Big Tobacco's ultimate demise as the purveyors of addiction, disease, disability, and death.

### **Reducing addiction, disease, disability, and death**

If the professions of medicine and public health had shown the same zeal for the improvement of the quartet of addiction, disease, disability, and death from tobacco that dentists directed toward dental caries, we would be years and years ahead of where we are today. To move forward, however, the field needs partnerships between the public-health-minded parties. As an organization, you need partnerships with organizations that will benefit from your science and which in turn may benefit your organization with recognition of your accomplishments.

An example of such a partnership with great promise to unite diverse groups in controlling cancer is the National Cancer Dialogue, which is chaired by the former first family, George and Barbara Bush, and of which I am a member. Unfortunately, the importance of tobacco control is not as evident at their Web site, or in their actions, as it should be. There is a lot on cancer research and cancer treatment but in light of the great potential to reduce the risk of cancer through the tobacco control strategies developed by many of you, SRNT researchers, I believe there should be much more prominent attention to tobacco. I will do my best to communicate this message to the Dialogue, and I encourage you to do so as well, both as individuals and as SRNT.

Might further tobacco research contribute to the demise of the tobacco industry, as we know it? With the acceptance of personal responsibility, a groundswell of public opinion based on appropriate education, communication, and scientific truth, it is possible.

The devil will be in the details, and I encourage you to first establish *among yourselves* a goal of developing recommendations that will incorporate strategies that hold the attainment of scientific truth, the service of public health, and application to justice as their purpose. Include mechanisms for periodic assessment and revision to address potential unintended consequences and deliberate attempts of the industry to thwart your efforts. As scientists adhere to the concept of evaluation of and responsiveness to the data that would naturally come, formalize such thinking in your discussions. Then tell Big Tobacco, if they are interested in research, you are ready to talk.

When you sit down with Big Tobacco, be sure your lawyers are at least as smart as theirs. You have no high ground to seize, but they do. It's your condescension that makes their goal possible. An industry that has delivered so many punches below the belt and kills a half million of its most loyal U.S.

customers each year just to make money has no right to ask for Marquis de Queensbury rules. And keep your meetings public.

Sure, science can provide the foundation for the advancement of public health, but medical science is really wasted if it is not applied to support policies that affect public health. Similarly, treatment development is irrelevant if not translated into treatments that are both acceptable and accessible. A few years ago, I testified to the FDA that nicotine gum should be made available over the counter. I argued that it was easy to get the disease but hard to get treatment and that our nation must reverse this if we are to move forward.

### **Communicating and applying scientific findings—scientists stand up**

I hate to think of the alternative: Science used by the tobacco industry in support of their own agenda. So, stand up in behalf of your own science—to ensure that your science is used to serve the good and not the tobacco industry.

At the time of the McCain Bill, there was one lobbyist on the Hill for every two members of Congress. They can interpret your science for policy makers and hire their own scientists to re-present your data with their spin. And the priorities of Big Tobacco have never been, and never will be, voluntarily directed to the improvement of public health. Their goal has been, and will remain, their own survival as cash-generating machines for their owners and stockholders—a façade behind which it will be business as usual.

For years the tobacco industry used its own studies to attempt to undermine what they knew was bad for their business—independent research showing that tobacco was deadly and addictive. (Big Tobacco also effectively gave its own interpretations of independent research to imply that there was so much confusion about the truth as to preclude regulatory constraints. And, it was just a few years ago, in 1990, that tobacco industry CEOs testified before the U.S. Congress that they “did not believe” nicotine was addictive.

“Nicotine does not produce substantial pharmacological effects,” was the way they put it to the Food and Drug Administration on January 2, 1996. Where did all the science come from in just a few years since those events which led Philip Morris to acknowledge on its Web site that its products cause addiction and disease? Somehow, Philip Morris still does not see addiction as an obstacle to the choice to smoke or not. The tobacco industry really has not changed: It just become even more insidiously self-serving?

Remember these things when considering the offers of the industry and the promise that it has changed. It has not! Don't be fooled by a name change of Philip Morris to the Altria Group.

Scream, if you see your data being misinterpreted by the tobacco industry. Scream even louder, if you see the industry use your forays into new territories, which necessarily generate new questions, as tacit evidence that public health decisions cannot be made because there are unanswered questions. Work to have SRNT acknowledged by the public, and in the courts, as the repository of scientific data accumulated with integrity. You could, in the realm of addiction, carry the authority of the Institute of Medicine or the National Academies of Science.

Having said that, no one understands better than I that public health policy is rarely a simple extension of laboratory findings. One of the great exceptions was getting smoking off airplanes with simple data on cotinine levels in saliva and urine of volunteers and flight attendants—maybe my greatest accomplishment. Rather, public health advancement is more typically the result of analyses of complex, and sometimes seemingly at-odds, data.

When the interpreters of data are the most knowledgeable and when their goals are the improvement of public health, the proposed course can be radically different from the course when the goals are the perpetuation of the tobacco industry and the improvement of its own cash flow. I have seen the tobacco industry spin your data to support its contentions that cigarettes were not addictive, did not cause cancer, and that environmental smoke exposure was not harmful.

### **Health policy should be grounded in the best available science**

This is where your society has such a vital role to play. The Society for Research on Nicotine and Tobacco has taken positions on complex policy issues, and I hope that it keeps actively issuing science-based commentaries.

Many of you have offered your testimony before the U.S. Congress, before various agencies and commissions, and even in the courts of law in an effort, on the side of justice, to set the record straight on the implications of the science for improving public health.

The testimony and commentaries from you as individuals and from the collective you are as a research society, to the Food and Drug Administration, the Federal Trade Commission, the World Health Organization, and other organizations, carry a weight that is far beyond your size and years in

existence. Moreover, such testimony gives you the opportunity to direct the application of your findings to serve public health.

Of course, as scientists you will not agree on all things all of the time, and there will be differences of opinion as to the implications of scientific findings. That is where a research society is so vital. Your society provides a forum where scientific truth and public health service reign supreme; and I have far greater confidence that the conclusions that result from your free and open discussions will be more in the interests of public health, and of truth and justice, than would be the conclusions emanating from the closed rooms of the tobacco industry and their law firms, where legal and financial implications seem to carry far greater weight than does honesty, integrity, and the protection of health.

I am sorry to see that the world continues to be more at war with those afflicted with addictions than it is with the purveyors of addictions. We must fight the industry and the disease, and not those afflicted by the disease of addiction. We should be working harder on behalf of those victims of addiction so that they will work on our behalf to support our efforts.

### **Influence of Big Tobacco**

Although I've hammered away at science and public health this morning, there is another aspect of the tobacco picture that I would like to speak to briefly. Let me begin that discussion by saying that we do not have free speech in America. About a dozen times while I was surgeon general, and since, after giving a talk on smoking in one venue or another, a reporter has come up to me and said something like this: "I used to be a reporter, (with such and such a magazine or newspaper), and I once wrote what I thought was a very fine investigative report on some phase of the tobacco industry. Not only did my editor not publish it, but I lost my job as well." That story is possible only because many publications stay afloat because of their dependence on the advertising money of tobacco. You are all familiar with the work of Ken Warner indicating how that very problem kept news about smoking and lung cancer in women out of many publications because of their dependence on tobacco advertising income.

I have a personal experience to report as well. In the mid-1990s, I was the chairman of the board of a company called Patient Education Media, Incorporated. We did business under the name of Time-Life Medical. In the first several years that we were in business, we produced 34 state-of-the-art videos on the more common medical conditions that take patients to see a doctor. If any of you have ever seen any of them, you will know they did the job of informing the prospective patient of just about

everything he or she had to know, with the promptness of *Time* magazine, with the illustrations of *Life* magazine, and with the credibility of C. Everett Koop. In 1995, we had enough business on the books and enough pledges of new income so that it was likely we would have an IPO early in 1996. At a board meeting in November, I was asked what the future plans of the company might be. I said that we had already begun to work on a "How to Stop Smoking" video, but the story was bigger than that. I had already met with the American Heart Association, the American Lung Association, the American Cancer Society, the Campaign for Tobacco-Free Kids, the National Cancer Institute, other segments of NIH and CDC, and they were all onboard to make such a video the centerpiece of a campaign based on "Let's Not Take the Scourge of Tobacco with Us into the Next Century." Sitting around the boardroom that day were representatives of Time Incorporated, *Life*, Time-Life, and Time-Warner.

The next day the permission to use the name and logo of Time-Life was rescinded, and two senior members of that company resigned from our board. We were a going concern at 4:00 p.m. and faced bankruptcy at 4:20 p.m.

When our president inquired why the precipitous behavior, the reply was, "We're in business to make money." When the president asked, "Are revenues from the tobacco companies getting in the way?" The reply was, "I'm just telling you we are in the business of making money."

The point of all this is that the power of Big Tobacco to dictate policy to the print media must be broken. The important messages concerning what you accomplish will have difficulty in seeing the light of day in the print media as long as Big Tobacco has a stranglehold on the freedom of speech because of their advertising contracts.

### **Serve tobacco users and develop partnerships to advance policy: Compassion for those who are addicted, outrage at those who addict**

Think about it. When was the last time you saw a protest march decrying a shortage of research on tobacco addiction and treatment? When did you last see the FDA being implored by patient advocacy groups to move more aggressively to foster accessible effective treatment for any addiction, let alone tobacco addiction? When did you last see a movie star showing as much antipathy to a purveyor of addiction as to a sprayer of a safe pesticide on apples? Such events have occurred with other diseases, including, ironically, diseases resulting secondarily from addiction, such as AIDS transmitted by contaminated needles and lung cancer caused by smoking.

Unfortunately, tobacco users have seen great hypocrisy from their governments with respect to tobacco and disease. They have read of the billions of dollars recovered from the tobacco industry and have seen precious few of those dollars used to provide treatment or to implement effective tobacco control programs. If they associate you with that establishment, your reputation will not fare well.

Most of you probably would not be attending this meeting if you did not care about persons afflicted with tobacco addiction. Do they know you care? You need to find ways to work synergistically with tobacco users so that your efforts translate more quickly and practically into benefits to them. In turn, they will work more aggressively to see to it that your efforts are more generously supported.

The American Cancer Society, the American Heart Association, and the American Lung Association provided me with untold support on issues such as smoking while I was surgeon general and since. You have about 50 million potential foot soldiers addicted to nicotine. They don't have to be your allies; recruit and accept them as co-belligerents.

I carried the same message earlier this month at the National Press Club with respect to all addictions in general,<sup>1</sup> but I am frankly more optimistic of near-term progress regarding tobacco addiction because there seems to be less of a feeling that tobacco use is a moral issue than there is with respect to other addictions.

Of course, morality is relevant to addictions, but its relevance is in respect to the purveyors of addiction and not to those afflicted. So I hope you will rise up with outrage at the tobacco industry, which peddles its addictions, and at those who enable them to do so by their actions and inactions, and that includes legislators at state and federal levels. But I hope just as

strongly that the strength of your outrage will be matched by the strength of your compassion for those who are afflicted by addictions. And I hope that your passion empowers you to continue your scientific endeavors in search of truth, in service of public health, and yes, even in the application of justice.

### 21st-century vision

The dawn of the 20th century gave way to a cause of disease—tobacco—that would account for more deaths than all of its wars combined. The dawn of the 21st century was marked by the recognition that the current course would lead to a far greater death toll than even witnessed in the 20th century. Much of this could be averted if public health and not the protection of the tobacco industry were the priority of world leaders. It really is a no-brainer!

I think as early as the mid 21st century we will look back at tobacco-induced disease as we now look back at various destructive plagues as important history but history nonetheless.

Knowing that you are so committed to scientific truth, to public health, and to the administration of justice gives me optimism about the future.

God bless all of you and your society.

Thank you.

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