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MEDICINE/PUBLIC HEALTH INTERFACE:

A CHALLENGE

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It is a distinct pleasure and honor for me to address you and congratulate you as you reach this major pinnacle in your lives and careers.

As a career public health professional who has practiced in the trenches of public health for 37 years, I would be remiss if I did not take this opportunity to get on my soap box in terms of my commitment to prevention, and that commitment leads me to offer you all a challenge; grasp your opportunities to have a positive effect on the health of our citizens. Consider your motives for entering your field of medicine as I discuss what I believe to be the real means by which positive health can be achieved by all who seek your services -- stop the sickness and injury before treatment is required.

The fields of medicine and public health are closely related, often overlapping, and even inextricably interdigitated in many ways. Physicians clearly comprise some components of public health and the field of public health must, of necessity, include physicians. I am personally and professionally fortunate to have worked with many outstanding physicians during my career. A number of them have been my mentors and I have profited significantly through my relationships with them. My first boss in public health, when I was an entrance grade county sanitarian, was a physician without whose guidance and support I probably would have become frustrated and left the field of public health at an early age.

The practice of public health is a multi-disciplinary effort which must include the talents of scores of professionals sharing the goal of the highest level of health attainable for all our citizens. Historically, public health physicians, nurses, and sanitary engineers were considered the major essential professionals in this field. Public health knowledge and issues have changed and expanded, however, and the field now demands the talents of not only physicians, nurses and engineers, but also epidemiologists, attorneys, physicists, biologists, geologists, biostatisticians, psychologists, dentists, toxicologists, chemists, ecologists, risk assessment scientists, and many others. The mantle of public health leadership now falls to those who earn it, regardless of specified professional background.

While public health requires such a multi-disciplinary approach, there is a core profession involved in public health. That is public health itself. The core public health professionals are products of one of the nation's twenty-three accredited schools of public health which are themselves multi-disciplinary in nature and in curricula. The basic public health sciences are epidemiology, biostatistics and environmental health. Courses in these sciences are required of all graduates of schools of public health whatever their specialized professional backgrounds. Many physicians and other professionals attend schools of public health for post-doctoral or post-graduate education.

Each of you in this graduating class will interface with public health as you engage in your chosen field of medical practice. Some of you will not only provide the essential interface but will become involved to some extent in activities that more directly affect the general health status in addition to your individual one-on-one physician/patient relationships. A few of you may ultimately become enamored and challenged with the opportunity to use your professional skills by becoming involved as full-time public health professionals. Some of you in this graduating class have already developed such interests and have improved your public health knowledge through your coursework.

The term "preventive medicine" stems from a period in the history of the United States when public health was almost exclusively concerned with the prevention of infectious diseases and was dominated by the medical profession. The

modern concept of public health on the other hand, is that of a major governmental and social activity, multidisciplinary in nature, and extending into almost all aspects of people's lives. Here the key word is "health," not "medicine;" the universe of concern is the health of the public at large, not just the medical care of individuals. Within this universal context, preventive medicine has become an essential component of public health.

We are a romantic people. When it comes to health, we have romanticized medicine to an exceptional degree. We try to convince ourselves that we have the best medical care, and that we are the healthiest people on Earth, and that our good health is due to our good medicine. This is a myth. Like all myths, there is some substance to it, but to attribute our good health primarily to the wonder of modern medicine is romantic. Though advances in curative and restorative medicine have been dramatic, the major conquests in improving and lengthening human lives have happened outside the customary practice of medicine. These conquests are primarily due to prevention --- public health, environmental health, and regulation.

But even more basically, the health status of any population cannot be improved without first addressing the underlying issues of poverty and ignorance. Because of this, improving the status of the economy and educational level of the population is essential to improving the general health status.

The life and death struggle with serious illness and injury is heroic, profoundly humanitarian, and in every sense noble. When serious illness occurs in my family, my first and overwhelming concern is to call a good physician. But our preoccupation with curative and restorative medicine and health care has obscured an important reality about health. In many cases, the battle has already been lost when illness or injury occurs. The major victories in the war against disease and death are not won by physicians practicing high-tech medicine or attending sick patients, but by practitioners of prevention working with the community to break the chain of events that produce illness, injury, or death.

In contrast to the high drama of curative and restorative medicine, prevention is almost dull. Because we love drama and romance, and prevention is perceived as having little of either, we have been slow to popularize disease prevention and health

promotion. Though prevention is clearly a part of our tradition, its importance is just beginning to penetrate our notions about good health. But despite this, prevention has quietly produced an almost miraculous reduction in disease and death due to contaminated food, water, and air; malnutrition; communicable diseases; and hazards of the workplace and the environment.

Such is the nature of disease prevention. Prevention requires that the community and the individual take straightforward, unromantic steps in the absence of any immediate crisis to produce an outcome which is distinctly unexciting -- the absence of disease. The real pleasure of success in prevention is when "nothing's happening."

In the community, prevention is practiced by providing preventive services. There are two essential types of preventive health services: Personal preventive health services emphasize the protection of the individual; for example, childhood immunizations; screening for lead, hypertension or diabetes; and family planning services. Collective (or community) preventive health services emphasize protection of the community at large, for example: water purification, fluoridation, food sanitation, the control of disease outbreaks, accident prevention, modern plumbing, sewage treatment, management of hazardous wastes, and air pollution control.

It may be useful to consider some of the higher priority issues involved in public health today and also to indicate a few public health practices that have had extraordinary impacts on improving the health status of the public.

Such seemingly unglamorous public health initiatives as immunization, pasteurization of milk, chlorination of water, treatment of sewage, and burying sewer pipes in the ground have done more to enhance the status of the public's health than all the collective actions taken in the private practice of medicine. However, these may be poor substitutes for the drama of heart transplants in the eyes of the public and news media. Immunization for the prevention of infectious diseases has, in itself, resulted in the most dramatic improvement in national health status this country has ever experienced.

We can be extremely pleased with the increasing levels of public awareness about lifestyle factors and their contribution to health. Already we have begun to see

results from reduction in smoking, per capita alcohol consumption and use of automobile seat belts. Yet we must face up to problems in improving pregnancy outcomes, dealing with the seemingly intractable problem of teen-age pregnancy and controlling sexually transmitted diseases. The STD problem in the U.S. has been expanding at an alarming rate, both in its scope and complexity. AIDS has emerged as a major STD which must be placed higher on the public health agenda.

Specific 1990 Health Objectives for the Nation that show satisfactory progress address high blood pressure control, smoking reduction, motor vehicle accident rates, immunizations for children, worksite health promotion programs, dental health, alcohol abuse and childhood diseases. Areas of continuing concern include infant mortality and low birth weights, drug abuse, nutrition, physical fitness and control of several infectious diseases.

Between 1972 and 1984, death rates from heart disease and stroke fell 34 percent and 48 percent, respectively. These declines are attributed to improved public awareness about the dangers of high blood pressure and increased numbers of adults checking and controlling their blood pressures.

The decline in adult smokers -- to about 28 percent of the population in 1987 -- suggests that the 25 percent target by 1990 is likely to be reached. Teenage girls are the only population group whose cigarette consumption has actually increased in this decade. Between 1978 and 1983, the death rate from automobile accidents fell from almost 24 per 100,000 population to 19 per 100,000 -- a decline ascribed largely to seat belt use, reduced drunken driving and improved roadway safety. The 1990 target is 18 per 100,000.

In 1985, 85 percent of the nation's children were immunized against preventable infectious diseases. The 1990 target of 90 percent appears well within reach. Between 1977 and 1985, the percentage of major employers offering health promotion and fitness programs to their employees increased from 2.5 percent to 32 percent; the 1990 target was 25 percent; workplace-related accidental deaths fell in 1984 below the 1990 target of 3,750 per year.

The target for eliminating tooth decay in 40 percent of 9-year-olds has already been met. Additional progress can be expected with increased use of plastic dental sealants.

Per capita consumption of alcohol is declining on schedule. Also, the objective of reducing the cirrhosis mortality rate from 13.5 per 100,000 to 12 per 100,000 has already been exceeded.

The objectives of reducing the incidence of mumps, rubella and polio are on target or have already been met.

We can congratulate ourselves for these achievements, but must remember that serious problems remain. There are still major areas in which improvement is needed, and in which private physicians must combine efforts with public health personnel to provide an impact.

For instance, though infant mortality rates have fallen for all groups in the nation, it appears now that the target of fewer than 12 infant deaths per 1,000 live births for minority and low-income women will not be reached by 1990.

More than one quarter of adult Americans continue to be overweight, posing health risks such as heart disease, cancer and diabetes.

Current best estimates are that only 10 percent to 20 percent of adult Americans participate in the kind of regular exercise most likely to ensure cardiovascular fitness.

Hepatitis B, pertussis, influenza and tetanus continue to defy public health efforts to reduce their spread.

Careful analysis of New Mexico standardized mortality ratios reveals excess mortality (above 100% experienced nationally) for the state's population for accidents by (53%), motor vehicle accidents in particular by (78%), chronic obstructive pulmonary disease by (64%), diabetes (53%), suicide (68%), influenza/pneumonia (7%), cirrhosis (10%), homicide (29%), and alcoholism mortality in New Mexico, with a Standard Mortality Ratio (SMR) of 682, is nearly seven times more than that experienced nationally.

In the future, public health program design, public health priorities and expenditures for public health should increasingly be based on the findings of the

sciences of epidemiology and public health risk assessment. Epidemiology is a public health science which has been increasingly utilized by public health professionals for policy recommendations, but has not been effectively translated into priorities for resource allocation. The science of public health risk assessment is one of the newer public health sciences, which allows us to better determine what will happen as a result of certain exposures over a longer period of time, when epidemiology does not provide us the information indicating that the public health has already been damaged. Risk assessment utilizes hazard identification, exposure assessment, dose-response assessment, and risk characterization to evaluate and estimate the effects of exposure to substances. Risk assessment also helps place risks and "how we live and die" in perspective and shows, for example, that driving is far more dangerous than flying; that tobacco use is significantly more dangerous than nuclear reactors; or that we make available and smoke billions of cigarettes every year while banning an artificial sweetener because of a one-in-a-million chance it will cause cancer.

Assessing risks also forces us to observe that people are more concerned about risks imposed on them than those they can control; that ignoring risk assessment may lead to one technology being replaced by another that is actually riskier; or that being overweight can be more risky than X-rays, coffee, or oral contraceptives.

Risk assessment also tells us that as a society, we tend to be overconfident in our knowledge and judgment, to overestimate rare but dramatic risks, to underestimate common but unspectacular events that claim one life at a time, and to be intransigent when it comes to changing preconceived notions. When evidence is presented that contradicts our preconceived ideas, we are quick to dismiss the evidence as erroneous or biased.

A useful analysis of mortality data is to consider the years of potential life lost. The YPLL will emphasize the importance of preventing accidents, cancer, heart disease, violence, and infant mortality. As many as seven of the ten leading causes of death in Bernalillo County are linked to six habits: alcohol misuse, lack of exercise, tobacco use, failure to wear seat belts, overeating, and failure to control hypertension.

It is exceedingly difficult to translate epidemiology and risk assessment into effective resource allocation, but their findings and projections indicate the need for vastly greater emphasis on prevention and health promotion.

Many of us long-time public health people have never lost sight of the need for prevention, the value of prevention, and the cost-benefit desirability of prevention. We have watched with frustration and dismay while staggering billions have been poured into the sickness treatment system of our communities, states, and nation, with unsatisfactory (though expensive) attendant impact on the health status of our citizens.

We realize that we must build a conscience for disease prevention, health promotion, and environmental quality. Citizens are finally recognizing that we must stop expecting health care to bail us out from the consequences of our own foolishness, and that we must stop waiting for tragedy before taking action.

Despite a long-standing commitment to prevention, we continue to witness more prevention rhetoric than substance. Prevention continues to be difficult to sell to the Congress, legislatures and local governing bodies, whereas treatment and rehabilitation programs usually continue to be better funded and more acceptable to those entrusted with authorizing and budgeting public funds. Even when a public health agency goes before a budgetary body with "prevention" as the number one priority, the number one request is frequently by-passed in favor of lower priorities such as treatment and rehabilitation programs. Prevention has always been a rocky road and this continues to be the case, because in the eyes of many people it provides no immediate gratification, feed-back, or profits. It does require the ability to look to the future. Prevention, thus far, lacks the glamour and money commonly associated with diagnosis and treatment, and therefore does not compete well with sickness treatment and crisis medicine. Like beauty, health promotion lies in the eyes of the beholder rather than in the funding allocated.

While the toxic effects of tobacco and alcohol are well-documented, a little plague or cadmium in the environment frequently creates havoc with health personnel and the news media. I cringe with frustration when I note the effort health personnel devote to some minor public health issues, and the space and attention afforded such issues by news media; and always wonder how many humans suffered or died

prematurely that same day from the toxic effects of tobacco or alcohol. Or, of equal importance, how many people are not enjoying positive health and well-being due to the insidious creeping effects of tobacco? We need to redefine the term "crisis" to include conditions that allow a crisis to exist, such as the growing of tobacco, the sale of tobacco, the promotion of tobacco, and the utilization of tobacco.

It is essential to understand the large stakes that some industries have in opposing widespread behavior change with respect to their products. For example, an employee publication of the J.R. Reynolds Tobacco Company included the following: "If the current efforts of anti-smoking groups to restrict smoking in public places were to result in no-smoking laws which caused every smoker to smoke one less cigarette a day, J.R. Reynolds Tobacco would stand to lose $92 million in sales every year." Understandably, the Chairman of the company added, "But we have no intention of standing idly by while this happens." As if to prove its point, Reynolds spent $40 million in one six-month period to launch a single cigarette. The industry's highly successful advertising and lobbying efforts are legendary.

As practicing physicians, each of you will have the opportunity to at least interface with the public health system, or become more fully involved. You will have the opportunity to report diseases so that the public health system may take appropriate preventive measures. You will have the opportunity to observe patients who exhibit symptoms possibly caused by some lifestyle issue or toxic environmental exposure. Calling these observations to the attention of the public health system may provide the first warning for public health to take appropriate preventive steps. You will have the opportunity of offering advice and input to public health personnel so that their efforts may be more effectively targeted. Some of you will perform research that will provide further information to enhance public health. And perhaps more importantly, each of you will have the opportunity to offer advice to your patients regarding their life styles and health habits such as nutrition, tobacco-use, substance abuse, seat belts, or exercise which may save their lives. Such advice from a physician is usually more effective and taken more seriously in a one-on-one physician/patient relationship than if the individuals hear about such important

lifestyle changes from other sources. I know many former smokers who quit on advice of their personal physicians. I know many others who haven't quit and simply allege that "my doctor hasn't told me to." And, as I indicated earlier, some of you may choose to become fully and professionally involved in the public health community as practicing public health physicians. Those public health physicians will enter a challenging, rewarding, controversial, demanding, and underpaid arena.

A public health physician recently told me that he became a physician to "save the world" and became involved in public health to more effectively pursue that goal. Each of you will have the opportunity to more effectively "save the world" to the degree that you understand and consciously enhance the amount you interface with the public health system of your communities, states and nation. Our shared goal must be "for people to die young as late in life as possible". I look forward to sharing this challenge with you.

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