

Commencement Address -U. of Minnesota--20 May 2002

It is a special privilege to be here with you this afternoon and to have the opportunity to offer congratulations as well as a few word of wisdom to a class graduating from a School rich with tradition and graduating some of the finest of those embarking upon a public health career. It is a special pleasure to do this during commencement exercises when elements of this great academic enterprise come together. The past and present -- represented by alumni and faculty, many of whom have changed the signposts of public health across the world. The future represented by you who are new graduates, receiving today, with justifiable pride, degrees that are recognized internationally as representing evidence of excellence in the field of public health.

I am grateful for the very generous introduction. I am fortunate to have been involved in my career in a diverse but exciting series of adventures and developments in the field of public health. However, one might also wonder whether my employment record might not be reflective of someone who couldn't hold a job for very long. I must offer in partial defense that some of the job changes were not by choice. A particularly awkward time in my career was 1977. I was just finishing 11 years as Director of the global smallpox eradication program. I was an acknowledged international expert on the disease. The only problem was that suddenly there was no disease. What does one do when stranded with no marketable skills. Well, I became a Dean.

So if there are words of advice, I might offer to you who are embarking on careers in public health, let the first be to choose your specialty with care!

Public health today is at the dawn of a new era. And I have never before used that expression during the 47 years I have in the public health field. The future has never looked brighter nor the opportunities greater than now. The question is are we capable enough and courageous enough to seize the opportunity now presented? It has taken a national security crisis to throw into sharp relief the potential of public health and, at the same time, its now tattered shape, worn by decades of negligence. If we are to take advantage of the

opportunities now being presented to us, creativity and imagination will be the critical attributes that are needed. We will need to reshape a culture that, I believe, has come too much to be dominated by managers with limited knowledge of the science and challenge of public health and who, I fear, all too often speak when they should be listening. I will elaborate before returning to the new challenges confronting us.

There is a great deal more to public health than good management. That would seem obvious but, to many, it is not. Regrettably, both at federal and state level, I see all too many programs in which the leadership is wholly preoccupied with budgets, Gant charts, quarterly reports and all the trappings of management but who have taken no time to study and understand the problem confronting them and to think through what they are doing and why.

In every program, it is critical to regularly step back and ask the question - not "am I doing things right?" but, rather, "am I doing the right things?" Most of the important changes in our smallpox eradication strategy came quite directly from asking that question. One example. When the program began, all the textbooks stated that smallpox vaccination conferred immunity for no more than 3 to 5 years and so, dutifully, we set about to systematically vaccinate and revaccinate the entire population of each of the endemic countries. The initial results were encouraging but not optimal. Childhood coverage was good, usually reaching 90% but vaccinating adults was proving difficult. A good deal of effort began to be expended in trying to solve this problem.

Meanwhile, we were establishing surveillance systems that required each health unit to report once each week as to the number of cases they had seen. A team of two would then go out to the village, search for additional cases, vaccinate contacts, and gather basic information -- name, age, date of onset and presence of a vaccination scar. The early results were puzzling. Virtually none of the cases had a vaccination scar. That didn't seem right. If vaccination was effective for only 3 to 5 years, we ought to be seeing cases among teenagers and adults who had previously been vaccinated. We weren't. Yet, we knew that, in the countries where we were working, vaccination programs had been hit and

miss affairs in which many remained unvaccinated and few had ever been vaccinated more than once. We were sure the surveillance teams must not have been looking carefully for scars and so we sent a special team to repeat the studies -- and to our surprise -- we found vaccine efficacy ratios of more than 90% after 20 years. As we learned, individuals partially protected by vaccination, could get a sub-clinical infection with smallpox and a major boost in antibody, much as happens today with measles infections. It protected them for life. For all of the years, smallpox had been studied and combated, this was unknown.

We were obviously wasting a lot of manpower and vaccine in trying to revaccinate a great many people who didn't need to be revaccinated. We were doing things right but we were not doing the right things. We altered the strategy to focus on getting a vaccination scar on every arm. These were primarily the children who were much more easily vaccinated and the program progressed much more rapidly with less effort and fewer vaccinations

A more egregious example of the observation that there is a great deal more involved in a successful program than mechanical management comes from a musical source and a well-trained management consultant.: It is a wonderfully humorous critique of Schubert's Unfinished Symphony. The critic writes:

"It appears that for a considerable period of time the four oboe players had nothing to do. The number should be reduced, and their work spread over the whole orchestra, thus eliminating peaks of activity. All 12 violins were playing identical notes. This seems unnecessary duplication and the staff of the section should be drastically cut. If a large volume of sound is really required, this could be obtained through an electric amplifier. No useful purpose is served by repeating with horns the passage that has already been handled by the strings. If all such redundant passages were eliminated, the concert could be reduced from two hours to 20 minutes. If Schubert had attended to these matters, he would probably have finished his symphony".

A second word of advice that has served me especially well over the years derives from my first year in medical training. It is the ultimate answer in

know
determining what to do in a problem situation when you don't know what to do. The point was made by those teaching us physical diagnosis that however puzzling a particular case, however problematical the diagnosis, the patient would usually provide the answer if one would only question him closely and listen carefully. The secret was thorough questioning and the key word was LISTEN.

For some 10 years, I directed the Epidemic Intelligence Service. All of us were on call 24 hours a day with the expectation that, if help was needed, one would get there (wherever there was) that day or early the next morning. Not surprisingly, it was the Chief EIS Officer in the early days who was expected to deal with the more difficult problems. I recall only too vividly on too many occasions to recount, of flying into a city that was experiencing some sort of mysterious outbreak, only to be besieged immediately on arrival by public health staff, the press, civil authorities and who knows who else, all seeking immediate answers as to what was happening and what could be done about it. As often as not, I found myself quite in the dark as well and without a very clear idea as to what was really going on or how best to sort it out. The answer, as I discovered, was to put on my most confident-appearing and reflective demeanor and to begin asking question after question and LISTENING. It was quite surprising to find that most of the time, there were a number of people who had a pretty clear idea of not only what the problem was but how it could be solved. It was simply that no one in authority was listening -- and, unfortunately, deaf authorities seem to be in all too abundant supply in all too many organizations today.

Thus, for our smallpox program, it was a rule that all staff spend at least one-third of their time in the field with vaccinators and lower level supervisors-- observing, questioning, listening. And so arose a surprising number of good ideas when one asked -- how could this job be done better, or faster, or more efficiently. We asked -- What could we at state or national or international level provide that would help you to do a better job. One of the most surprising discoveries came from Indonesia. There, they had surveillance staff who went out each day by bus or bicycle to seek reports of smallpox from clinics, markets and village leaders. One of the staff, characterized as efficient but basically lazy,

returned by noon each day to his District Headquarters but with the most incredibly long list of possibly infected villages -- most of these being later confirmed as correct reports. When we questioned him as to just what he was doing, he offered a simple but ingenious explanation. He took a pictorial card from a training manual which we had prepared and carried it to one elementary school after another, and, class by class, showed the picture of smallpox and asked if anyone had seen a patient such as that. It didn't take long to discover that 8 to 12 year old children generally know just about everything that goes on in their villages and are more than enthusiastic to tell all. Thus arose the use of a WHO smallpox recognition card which came to be used in schools and markets throughout the world.

Today, we are facing unique challenges of a character that this country has never before confronted. To counter these challenges will demand the very best of all of us in devising new approaches and solutions. Public health is at the center of the action. Once we experienced a level of confidence in our national security, protected as we were by two oceans, time and distance. We were fortunate. Few countries enjoyed such luxury. That sense of safety and security was shattered on September 11. Then some of our worst fears materialized as cases of anthrax began to be reported -- an assault with a biological weapon with a potential for disaster far beyond anything most had ever imagined. It was apparent that the US was now more integrally tied to the rest of the world than ever before and, as well, the threats, turmoil and hostilities of other peoples and nations. Several of us had spent some four years endeavoring to alert a complacent government and a generally disinterested public health and medical community to the threats posed by biological weapons-- weapons acknowledged to pose a substantially greater threat than either chemical or nuclear agents.. One of the most important of the national leaders in endeavoring to alert the country was Minnesota's own Mike Osterholm. The response by government was neither as generous extensive nor aggressive as we were asking but , in 1998, some initiatives began to be taken that have served to begin to prepare a nation to deal with this threat.

Happily, it is now being recognized by Congress and the Executive Branch of government that the most important thing we can do to be prepared to counter the threat of biological weapons is to strengthen our public health infrastructure, to link it more closely to those engaged in medical care delivery, especially the infectious disease specialists and those in emergency medicine and to forge regional programs that incorporate the hospital community and the laboratories.. In undertaking to do this, we will, of course, be better prepared to deal with such as new and emerging infections or chemical agents, whatever their origin.

A bill appropriating \$3 billion for public health preparedness -- and this is indeed what it is called -- was signed by the President on January 10 of this year. This is ten times as much money as was made available by the Congress for such activities in the Department of Health and Human Services last year. We have been and remain concerned that we could, at any time, experience another attack with a biological weapon. The fact is that some group prepared a very high quality anthrax powder and disbursed about 10 grams of it. They did not do this without a great deal of work and experimentation. We can count on the fact that there are other supplies out there somewhere. Note also that the Soviet Union kept, in storage, more than 30 metric tons of anthrax spores. Where those stocks are at present is not known. We do know, however, that the spores are stable enough to survive for decades at room temperature.

Thus, on January 10, we saw that it was urgent to disburse funds to the States so that they might accelerate their planning and programs for preparedness as soon as possible. Accordingly, on 31 January, Secretary Thompson notified the Governors and State Health Officers that more than \$1 billion had been allocated to the States, primarily proportionate to population and that they could begin spending up to 20% of the total funds immediately. Each state was asked to submit by 15 April a description of their plans and progress that had been made to date. The Secretary has promised to have all plans reviewed by the end of the month and, as they are approved, the balance of the funds will be made available to the States.

We have now had the opportunity to review quite a number of the State plans. I personally have been astonished and impressed by how many have taken this initiative as seriously as they have and have exhibited remarkable wisdom and foresight in development of their plans. What is gratifying to me is that State Health Authorities are assuming the responsible lead role in most states, bringing together those from hospitals, emergency medicine programs, the Veterans Administration, tribal authorities, the Red Cross, state and national law enforcement agencies and many others. What is expressed in the plans is a sense of community participation in the interests of better health of a degree that most acknowledge has never been evident before.

We are regularly asked whether this is some sort of emergency appropriation that will not be renewed. Only time will tell. However, the President has asked for a 50% increase in our Departmental budget next year. We have asserted regularly that it will take a number of years to rejuvenate our sadly tattered public health system and this seems now to be generally accepted in Congress. The anthrax outbreak of last year served to sensitize the country much as would a first dose of a vaccine. A second dose, I am confident will assure permanent immunity against again letting down our guard-- and one can say, with reasonable certainty, that there will be a second event. If not man-made, it could be one or more of the new or emergent infections -- another variant of a slow virus like HIV; perhaps dengue fever; perhaps a new arthropod borne encephalitis outbreak.

Public health over the next decade, indeed over the next half century promises to be more critically needed than ever before in history; a growing reliance and understanding between public health and medicine is a certainty; prospects for serious advances, through research, in preventing AIDS, tuberculosis and malaria can be foreseen. In brief, there is a potential for public health that is beyond the horizons we have heretofore imagined. Will this come about? It will if those of us in public health bring to the task good science, imagination, creativity, a spirit of adventure and a willingness to refashion fossilized bureaucracies and, where necessary, to short-circuit the obstructions.

In brief, not one dimensional managers but creative thinkers who are educated in the sciences relevant to public health and not pontificators but listeners.

You who are graduates from this School are especially well-prepared to meet these challenges. I look forward to writing with you new chapters in public health.