A Dean Discusses Bioethics in his work

D.A.Henderson May, 2016

I appreciated your invitation to participate in this seminar. The breadth of concerns and complexities of bioethics have grown steadily since I embarked on my medical career. Inevitably, bioethics has had a significant impact on the nature and scope of work of the Deans themselves as well as staff and faculty. In public health, bioethical quandaries intrude with regularity. The resolutions are often tortuous and complex. However intriguing the challenges may be, decisions are requisite. And, whatever the resolutions, there inevitably will be a number who know that the Dean was wrong and are not hesitant in letting that be known.

A few personal reflections. These are a bit dusty or perhaps moldy with time. I must point out that my experience as a Dean terminated more than 25 years ago. I hasten to note that we did have electric lights by then— but for perspective I must point out that my service as dean preceded the tenure of Sommer, two Bushes, Clinton, Klag, and Obama. A great deal of water—or something-- has gone over the dam in that time.

For the first ramblings of 3 Deans, we were cautioned to take not more than 10 to 15 minutes to review past personal experiences in public health and to offer gratuitous

advice which might provoke response from the audience. Not an insignificant challenge—given that we had only 15 minutes. Whatever, the time constraint forced a serious effort at oratorical brevity – an attribute which is wholly unfamiliar to Deans. Thus, as I learned long ago, there was no way to keep me in check other than to have a written script.

Bioethical issues are more frequently and openly discussed than they once were and are now more specifically singled out for specific analyses throughout the public health agenda; some of the most important and most controversial relate to incidents that involve human subjects and the preferential assignment of treatments, care, vaccines or whatever. One of the largest and most complex of vaccine studies up to the time of my inauguration into public health was the great national study of the Salk polio vaccine in 1954. It involved more than 1.8 million children—an effort of a magnitude never before attempted. At the time, I was late in my first year at CDC in Atlanta, working with Dr. Alex Langmuir, formerly of Hopkins, who directed the Epidemiology Branch and played a significant role in shaping the study.

Polio was recognized in the 19th century but the numbers of cases were few. They grew rapidly in number in the early 1900s with a peak of 58,000 cases in 1957. One-third of the cases were over 15 years of age. One victim was Franklin D. Roosevelt. There was panic and concern far exceeding that which we have observed in

conjunction with Ebola or SARS or Zika. A polio epidemic occurred in Rochester. As medical students, we were assigned to 8 hour shifts manning respirators. Aspiration of pharyngeal secretions was with a plain rubber tube, no filters.

A special foundation for treatment of poliomyelitis cases was founded and generously supported by donations – the National Foundation for Infantile Paralysis. The Foundation was unique in that it supported 6 special research laboratories, one being at Hopkins. NIH was a foot note at that time. The objective was to create a vaccine. Public interest was extremely high.

Jonas Salk, working at Pittsburgh, focused on an inactivated vaccine – a highly virulent strain from each of 3 polio viruses were inactivated and injected. Albert Sabin, at Cincinnati, worked to attenuate each of the three strains. These would be given by mouth – the strains grew in the intestine; thereby stimulating antibody production. The Sabin vaccine was still years away.

Spurred by national concerns and anxious for early results, the Foundation decided to support human trials at the earliest possible time and so began the planning for the largest control studies ever conducted up to this time. Only the Salk vaccine was to be tested. Sabin vaccine would come later.

Given the degree of anxiety, many argued to proceed forthwith with large-scale vaccination. Salk abetted this belief, arguing, in fact, that no tests were needed-- his

vaccine conferred 100% protection in animals. A small, steadfast group of epidemiologists insisted on community-based field trials. Francis at Michigan, Bodian at Hopkins, and Langmuir at CDC were three of the most persistent. Arguments for placebo-controlled trials emphasized that polio did not occur randomly throughout the country; more cases were to be found among the poorest who might be the least likely to be vaccinated and least likely to receive care; diagnoses of milder cases were more difficult and, if in doubt, might be overlooked if, in fact, they had been vaccinated. Both the public and the medical community learned a great deal about bias in studies and the importance of controls.

What was to be done was widely discussed. Epidemiologists argued vehemently for blinded case-control studies in diverse towns across the country – half of the group to receive vaccine and half an identical-appearing placebo. Many wanted to vaccinate first and third graders and leave second graders as controls. Knowing that polio occurred more frequently among children in poorer neighborhoods, a balance between neighborhoods had to be considered. Arguments over the design of the study extended throughout the medical community and the public as well. It was a critical learning experience in bringing to the forefront of medicine and public health the essential need for case-control trials.

Participants, included nearly 900,000 children in 211 counties in 44 states. Among these, 148 developed polio. The vaccine was clearly effective; it was not perfect.

The Salk Trial laid the ground work for the creation of Human Subjects Review Committees. The first was initiated in the early 1970s shortly before my arrival at Hopkins. Its policies and procedures became national models and began functioning in this School with Marcia Pines collaborating with NIH staff. In 1978, the Belmont Report summarized ethical principles and guidelines for all research involving human subjects -- respect for persons, beneficence, and justice. Somewhat later, during my three year stint in the White House Science Office, we mandated adoption of bioethical codes and practices for NASA which thereby brought the astronauts under the code. Soon, thereafter the Department of Education was included albeit reluctantly at the time. The "Common Rule" for Human Subjects Review finally included all parts of government.

But then, there have been exceptional circumstances in which deliberative bioethical approaches have been bypassed because of emergency circumstances. The months following the attack on the World Trade Towers was such a period. As you will remember, a surprise attack was made on the World Trade Towers on September 11, 2001. At the time, I was director of a new academic Center for Civilian Biodefense Studies. On the following Sunday afternoon, I received a call from the Secretary of

HHS. He requested my attendance at a 7 o'clock meeting in his office. He added: 7:00 o'clock tonight! A group of 8 of us met until midnight. The reason was that an intercept indicated that there would be a second attack on the U.S. and that smallpox would be the weapon. Until that point, little had been done in emergency response planning should a biological weapons attack occur.

Routine smallpox vaccination and production had stopped in the U.S. in 1972 and progressively throughout the world after eradication was declared in 1980. It was known that some 19 million doses of vaccine were in storage in CDC. A quick call to CDC revealed that there were only 90,000 doses available for ready use; most of the vaccine diluent had gone bad. They confirmed that there was no vaccine production capacity in the U.S.

We convened a small working group of some 10 experts and within a week reached several conclusions. The first was that a substantial quantity of vaccine should be produced urgently. We ascertained that there were fewer than 15 countries with vaccine sufficient to protect their own populations. Any sort of aerosol release would infect a great many individuals and spread rapidly to other parts of the world. At the same time, no country able to produce as much as a few million doses in a year. U.S. manufacturers revealed that none could produce more than a few million doses in less than 2 to 6 years.

The decision was made to purify the existing strain; convert production to a tissue culture system; test one of six clones only recently identified; contract for the one large scale tissue culture production center (in Austria); bypass restrictions on importation; undertake abbreviated human test trials; freeze and fill containers in the U.S. At the end of 18 months we had 200 million doses of freeze-dried vaccine ready for emergency use. Special Congressional authorization was needed for use of the vaccine and that was achieved.

The Message. There are occasions when speed is of the essence -- when actions are necessary that run counter to today's more elaborate procedures, including traditional human subject reviews. The one thing I am not sure about is whether we can decide and act with sufficient speed when it is needed. Presently, as I came to learn, the epidemic of inter-agency committeeitis which I watched emerge and spread has threatened on more than one occasion to paralyse the Country -- and the Congress!