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A MEDICAL MIRACLE – VACCINES

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For the past seven years, I have had the privilege and pleasure of meeting with and speaking before a great many Rotary groups throughout the Americas -- and what an extraordinary, dedicated and caring group of men and women you are. Needless to say, the invitation by Webster Abbott to speak here -- at home -- was an irresistible one. I thank you for asking me.

Rotary has made and is making an extraordinary contribution to the health and well-being of peoples throughout the world. I am well-acquainted with the breadth and diversity of those programs. The most extraordinary of all -- and in my view the single most effective of any ever sponsored by an service organization -- is Polio Plus. Today, I should like to offer some personal thoughts as to why I feel this way, to give you a sense of its role in the larger scheme -- for its importance and impact extends far beyond the prevention of polio -- and, finally, to look to a future which offers both greater hope and promise for a healthier world than any can now imagine.

In many ways, what I would call the vaccine revolution began just 25 years ago when the World Health Assembly decided to embark on a program of smallpox eradication with the stated goal that no cases should occur anywhere after December 1976 -- that is, a program expected to be completed in 10 years time.

There were <u>many</u> skeptics; indeed, there were few believers.

- **Ten to fifteen million cases each year in 34 countries -- mostly among the poorest where travel was difficult, health services lacking and many had no knowledge whatsoever as to what vaccinations were.**

- **Between 2 and 2.5 million died every year; hundred of thousands were blind. In South Asia, it was the leading cause of blindness; in Africa, there was no data. To give you some perspective, the <u>number</u> of deaths is 4 times the number of <u>cancer</u> deaths each year in the U.S.!**

- **You will recall, perhaps, that the U.S. (like other countries) in the 1960s was spending a lot of money to protect itself against smallpox entering the country -- about $150,000,000.**

  - **All children had to be vaccinated by school entry.**

  - **Yellows vaccination cards had to be obtained for all tourists.**

- **We began that program in January 1967 with more hope and faith than certainty of success (public health can be instructive to politics).**

What we were to discover was:

- **That few people anywhere objected to or were resistant to vaccination. Their desire to be vaccinated, in fact, sometimes posed a problem. (In Ethiopia, almost no vaccinations had ever been performed; epidemic control teams; notes on paths.)**

- **Vaccination in hospitals and clinics did not work very well; it reached too few, it was too far to travel, there was too much waiting and, I hate to say it, but in most clinics, vaccination was not a priority.**

- **Vaccination teams were set up to take vaccine out into the villages. They soon discovered that teachers, religious leaders, schoolchildren, police, etc., were more important to the success of the program than M.D.s. They knew the people and they could motivate their interest, organize vaccination clinics and get the people to attend.**

- **Special groups began to participate -- Boy Scouts, Girl Scouts, political organizations and, where Rotary had clubs, they joined in.**

- **Not all in the government medical establishment thought this was a good idea. (We doctors tend to be rather stuffy and conservative. Vaccinations were usually given by doctors in offices and clinics and the M.D.s objected to other approaches.) Especially controversial were the somewhat orthodox approaches taken to publicize the program. The Rotary Club near New Delhi, India, took the publicity challenge seriously, using elephants and an airplane to bomb the market and public health headquarters. -- "We are not amused."**

Vaccination and special teams were created to search for cases and to stop the spread:

- **The disease began to disappear: South America -- Indonesia -- Western Africa/ Southern Africa.**

- **There was a problem in South Asia -- India, Bangladesh, Pakistan. The disease spread faster than we could stop it -- buses, trains, crowding; the "home" of smallpox.**

- **Then there was an idea: in India, search every house -- 140 x 10^6 houses in a seven to ten day period. Find cases and send out special teams to control the disease. We sent 120,000 people to the field, more than 90 percent of houses were reached; a reward was offered.**

- **Less than two years passed before the last case occurred -- in October 1975.**

- **There would be two years more of work in Eastern Africa, but finally, on October 26, 1977, the last case occurred. We missed the deadline by nine months and twenty-six days. Today, no vaccinations are being performed. Smallpox has been eradicated.**

During the first years of the program, we were astonished to see throughout the world hospital wards full with cases of polio, measles, tetanus and whooping cough. We asked, "Why aren't you vaccinating?" The response was that there was no vaccine; all resources were being used to treat cases <u>after</u> they occurred. And <u>yet</u>, as we documented in Brazil and China, it was <u>far less</u> costly to vaccinate than to treat cases. At that time, not more than 2 percent of children were being vaccinated globally.

We launched the "expanded program on immunization" in 1974. We started

- **with six vaccines: DPT, polio, measles and tuberculosis.**

- **started slowly. In part, this was because there was an attempt to give vaccines only in clinics and hospitals; in part, it was easier to raise money to transplant a heart or to do expensive surgery on one sick person than to prevent disease in thousands or tens of thousands.**

In the mid-1980s, Rotary began Polio Plus and UNICEF got behind the program.

- **Once again, we began to use community resources--community service volunteers. Rotary played a most significant role.**

- **Immunization levels began to rise -- from 20 percent in the early 1980s to more than 80 percent in 1990.**

- **More than 2.5×10^6 deaths are being prevented every year. With more children surviving, contraceptive use increased sharply and fertility rates began to decline.**

- **The delivery system is in place. It is more extensive than any other social service ever created -- ill. Pakistan, postal system.**

The best of the programs is in the Americas where polio has decreased so rapidly that only one case has been detected in the past 12 months. In Peru, despite "Shining Path," the health workers in the most dangerous areas went door to door.

What does all this mean to our country? In fact, more than you might imagine.

- **Recall, just three years ago, the measles outbreaks that began in Baltimore, Philadelphia, New York and Los Angeles. Also, there were German measles and whooping cough cases.**

- **The National Vaccine Advisory Committee, which I then chaired, investigated and discovered that the principal problem was <u>not</u> lack of money, as we first thought, but simply the problem of making vaccine available at convenient times, of mobilizing communities to educate them about the need to be vaccinated and of making vaccination a priority.**

- **The Department of Health and Human Services joined with state and local health departments, Junior League, Rotary and others, and they involved the community. At one visit we made, a young health worker who had worked in Latin America said, "This is great -- just what we did in Guatemala."**

- **The Mayor of Philadelphia, a Democrat, lectured Secretary Sullivan and myself, "This is the best program to come of Washington in at least 30 years. The President should be talking about this."**

- **Today, the vaccine preventable diseases have decreased by 50 to 90 percent.**

At a CVI meeting two years ago -- basic research and the power of vaccines.

We believe that at least twenty vaccines could be available for routine use by the end of the century.

- **Now, with new technology, we can combine many of these into a single inoculation.**

- **They can be put into microcapsules so that some is released immediately, some after a month and some after six months.**

- **Therefore, there could be one inoculation, not three or four.**

- **Most recently, it was discovered that some of these can be given by mouth!**

By the year 2000, we hope that with one or, at most, two inoculations, or perhaps feedings, to prevent an individual from ever contracting twenty or more diseases -- "communion wafer."

With a global delivery system now in place, there is no reason why all children should not benefit. And my own hope, indeed expectation, is that one of those will be against AIDS.