Poliomyelitis Vaccination Campaign in Salt Lake City, Utah

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ALMOST 400,000 shots of poliomyelitis vaccine were given in a mass immunization campaign in Salt Lake City, Utah, in 1957. From the inception of the campaign, arising from pressures of various civic groups early in 1957, until its end in July of that year, streams of people passed through clinics in schools, churches, department stores, and other places to receive their injections.

A total of 116,710 vaccine injections were given at clinics held in 127 schools, 25 churches, and 40 industrial firms, business offices, and stores. In addition, 275,130 injections were given in the offices of private physicians. Altogether, 62 percent of the city's residents were immunized.

The Salt Lake County Medical Society sponsored the vaccination program and appointed me as coordinator. Scheduling of clinics for all schools was begun at once through my office. Within 4 weeks all the schools and businesses that sought vaccination for their employees were accommodated. The nurses and equipment were supplied by the Salt Lake City and County Health Departments.

The first clinics were arranged for 500 employees of a major department store and for a junior high school where two students had died of poliomyelitis in 1956. For the school clinic, the PTA purchased vaccine from a local druggist at the commercial rate until it could be bought at the institutional price directly from drug firms.

The second school clinic was sponsored by a local Lion's Club. Newspaper and radio publicity resulted in a crowd of 2,450 persons. The challenge here was to obtain enough syringes so that there would be a separate one for each person.

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The city health department had only 1,500 syringes. Four hundred more, relics of the poliomyelitis pioneer programs, were found in the basement of the State Capitol. All hospitals were asked to have syringes ready in case of need. Since the second clinic was to last from 6 p.m. until 10 p.m., the first 300 syringes used were cleaned, packed, and rushed to a nearby hospital for autoclaving and were returned for the last hour.

The problem of syringes continued to be the knottiest one of all throughout the campaign. Disposable syringes were too expensive: at 18 cents per unit, it would have meant $180 in the waste basket for every 1,000 persons injected. Interchangeable 2 cc. syringes were best. Dr. Hingson's jet-injector, which injects 900 persons per hour would have been ideal, but it was not then available.

Monetary Considerations

When the immunization program was first considered, several physicians were opposed to mass clinics, preferring individual vaccinations in their offices. The medical society, believing that this method would fail to meet the citywide demand on short notice, agreed to a fee of $15 per hour to be paid physicians who worked in the clinics.

At most of the clinics, each person was charged $1, which covered the following costs: vaccine, 65¢; replacement of broken syringes, 3¢; cotton, alcohol, and acetone, 3¢; physician's fee, 7¢; and a surplus of 22¢ to allow for indigent persons. (Unused Federal funds were also allocated to purchase vaccine for anyone under 20 years of age and pregnant women. Free injections were given at the city and county health departments during August 1957. All nurses canvassed their areas and encouraged indigent groups to take advantage of this offer.)

The charge was as high as $1.25 in some of the business offices and stores since their vaccine was purchased at the commercial rate. A few stores absorbed the entire cost of vaccinating their employees.

The county health commissioner purchased $36,000 worth of vaccine for the school and church clinics. Clinic sponsors reimbursed the commissioner at cost.

Publicity and Promotions

When plans for mass clinics were announced, one Salt Lake City newspaper, the *Deseret News*, carried a daily schedule of clinics that gave the time and place of all mass clinics for the coming week and information on how to schedule a new clinic with the medical society. They covered the progress of the local vaccination campaign and the national poliomyelitis situation. Thus, the mass immunization program was kept constantly before the public.

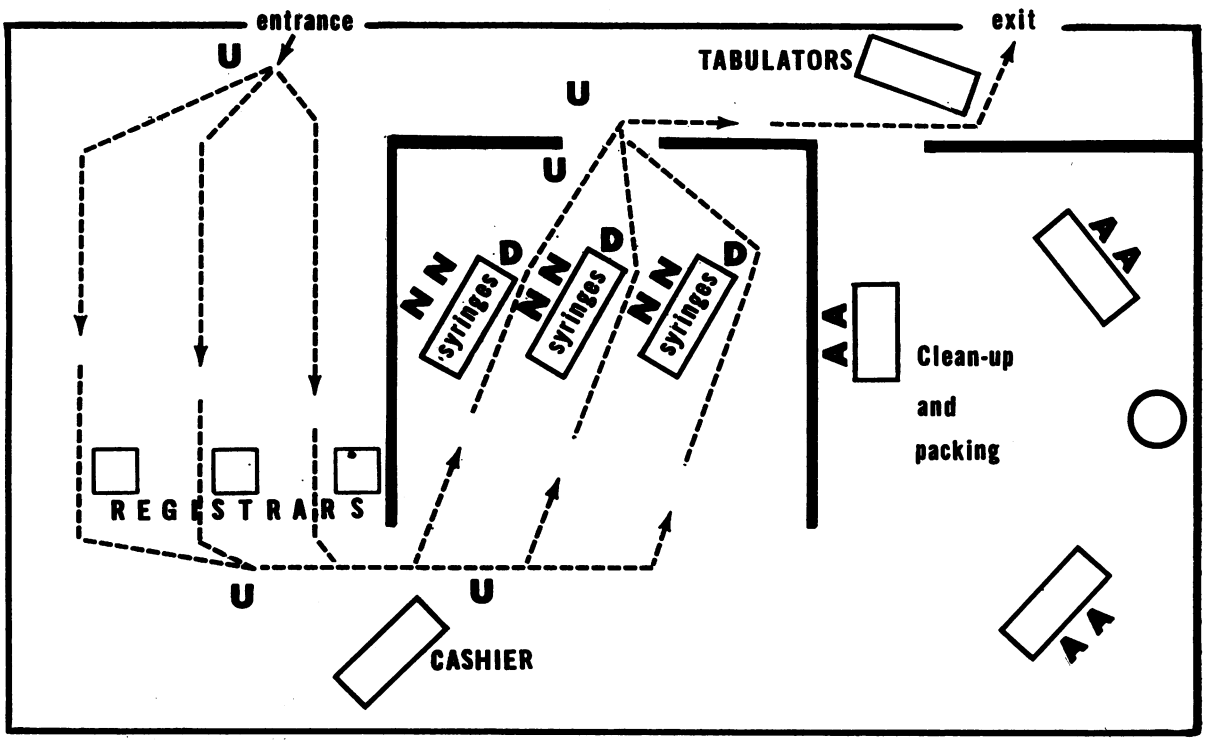
Vaccination reminders were sent to 97,000 homes by 1 bank and 7 department stores along with their monthly statements. "Polio Won't Wait, Vaccinate" posters were placed in show-windows of downtown stores, utility companies, and banks. Newspaper advertisers used 1-inch squares of the same poster as inserts on their advertisements during the last 2 weeks of July.

Daily radio announcements were broadcast for the last 2 weeks of the clinics. There were six free-time, 10-minute interviews of different physicians concerning the need for Salk vaccinations.

One studio televised a "live" poliomyelitis immunization clinic for more than 100 employees. The vaccination of the employees was completed in 20 minutes by one physician, who carried on an interview while administering the injections.

As a promotional stunt, during the second school clinic, searchlights illuminated the area outside the school, and trade stamps were given with every injection. At the last clinics, free soft drinks were served.

Typical Clinic Design for Mass Vaccinations



D=doctor; N=nurse; U=usher; A=aide

Vaccine Shortage

A vaccine shortage in March created a momentary panic in the poliomyelitis committee, for two big clinics of nearly 1,000 each had been scheduled. The *Deseret News* contacted the Public Health Service in Washington, D. C., about the shortage and found it was nationwide. Mass clinics throughout the country had exceeded the manufacturers' estimates.

Telephone calls on this black March 13 to a drug firm brought part of our back order in 4 days. The National Foundation for Infantile Paralysis gave me $1,000 to purchase any vaccine available in the State. Only twenty 9-cc. vials of Salk vaccine were found in 24 drugstores in 8 cities.

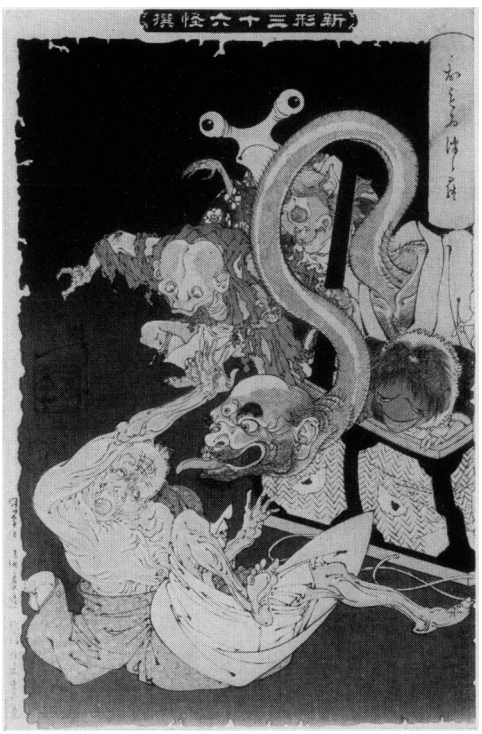
In the meantime, the National Foundation found 500 vials of vaccine in Reno, Nev., not being used. It was shipped by commercial airline in time for the clinics that night. A 1,200-bottle shipment came through in several days and kept us going for another month.

On April 11, another vaccine shortage occurred because of a delay in shipment. *Deseret News* officials arranged with the Utah Air National Guard to send a jet to Indiana to pick up 1,200 bottles of vaccine. The airplane made the 3,000 mile roundtrip flight in 10 hours, returning the same day with enough vaccine for that night and the next several weeks.

By mid-April, private physicians were short of vaccine. We visited a drug wholesaler and found the problem was at the manufacturers'

Poliomyelitis Vaccination in Bucks County

A Japanese print called "A Chest Full of Goblins" was used as a scary eye-catcher in a poliomyelitis vaccination campaign by the Bucks County (Pa.) Department of Health through county newspapers, beginning in early March 1958.



"Bucks County needs 400,000 more polio shots" were key words used in the opening statement of the campaign by Dr. Jackson Davis, director of the Bucks County Department of Health.

He commended the medical society of the county for its vote in February to encourage physicians to set up office hours periodically for administering poliovirus vaccine at a reduced fee, and urged a call to the family doctor to learn the hours set. Dr. Davis emphasized that "the odds are now 2 to 1 for paralysis if your child under 5 years gets poliomyelitis."

Statistical facts which he gave for the disease disclosed no confirmed cases in Bucks County in 1957, in spite of the fact that only 40 percent of the most vulnerable group, infants and children under 5 years of age, had received even one injection of poliovirus vaccine. "Will our luck hold in 1958?" he asked.

The approximately 225,000 poliomyelitis shots that were administered in Bucks County, he pointed out, were chiefly in children 5 through 19 years of age.

level. Long-distance telephone calls revealed that four manufacturers favored bulk sales of vaccine to public health agencies; only small amounts were for distribution directly to physicians. One manufacturer was willing to split 50 percent of Utah's quota with commercial outlets for the private physician's use. Another manufacturer offered to make 2,000 bottles available to us immediately, on the condition that we purchase it through a public health agency.

A Salk vaccine bank was formed to provide vaccine for the mass clinics and to lend it to any physician in our county who could not obtain it through commercial sources. Responding to statewide demand, we lent 11,000 injections to 80 different physicians, 21,600 injections to 16 county health units in Utah, 140 to the Army and Air Force, and supplied 2 hospitals and 2 universities. Nearly every borrower returned the vaccine after commercial supplies were available.

School Survey

Since one of the prime objectives of the campaign was to immunize the school children in time for the poliomyelitis season, we conducted a survey to see if the objective was being met. A survey, based on the number of children present on 1 day, was conducted in all the city's 41 grade schools, 11 junior high schools, and 3 high schools.

Good immunization coverage was found in all grade and junior high schools in the upper third economic areas. However, 20 to 35 percent of the children in the poorest economic areas never received a single poliomyelitis injection. Two high schools still had 35 percent of its students without vaccinations.

A clinic was arranged in each school where there were at least 40 students present who had never been vaccinated. Since only the sixth and seventh grades were considered reliable in our survey, the need in the lower grades was estimated proportionately to the response in the upper classes.

Clinics were held during 1 class hour in 31 schools over a 3-day period. During these "mop-up" clinics, 1,980 injections were given, greatly increasing the immunization level. The $1 charge was waived for any child who could not afford it.

Final Phase of Clinics

For the conclusion of our program, we set up 17 city and suburban clinics in schools throughout the area. We held only 1 clinic each day, from 1 p.m. to 8 p.m., so that the full staff of city and county health department nurses and all syringes and needles would be available.

Since this period lasted 16 days, persons getting a first shot during the initial July clinics could attend one again in 14 days and receive their second injection. Dr. John G. Bachtold and Dr. Louis P. Gebhart, virologists of the University of Utah, advised the committee on the effectiveness of spacing the various injections. Since the poliomyelitis season was fast approaching, they allowed a minimum 10-week interval between the second and third injections rather than the usual 7 months.

At 9 city clinics, injections were given 17,443 persons, and at 8 suburban clinics 11,963 were vaccinated. More than 4,000 of these received their first shots. At the last clinic, held on July 31, 1957, we vaccinated 3,500 persons.

Operations

The accompanying figure depicts our flow chart when 1,000 persons were expected to be vaccinated within 1 hour's time. This rate of injections required 3 doctors, 6 nurses, 6 clerks, 6 ushers, and 6 women for cleaning and packing syringes.

The best attendance was at 6 p.m., and the worst between 2 p.m. and 4 p.m. Nurses began setting up tables and loading syringes 1 hour in advance of a specified beginning time, for it was our experience that if 1,000 persons were expected to attend, more than 100 persons were in line one-half hour before time. We started our injections ahead of time to create public goodwill.

There was no attempt to keep a registry of persons getting injections other than completing a shot-record card and tabulating the number attending.

The nursing service from the Salt Lake City

and County Health Departments was indispensable. After their regular duties, the nurses spent many evening hours setting up and conducting clinics. Hundreds of volunteer nurses assisted them in keeping records, ushering, and cleaning and packing syringes and needles.

Results and Conclusions

Tabulation sheets used at each clinic provided an accurate count of the injections given. In the city, the number was 66,170, while in the county (suburbs) it was 50,540. A more detailed age distribution record, kept in the city clinics, revealed our poorest attendance was in the group 15–19 years old. Of those over 40 years old, 11,198 were given injections even though publicity was not directed toward them.

To get an idea of the total immunization coverage in our community, we conducted a telephone survey, sampling the 88,000 private family listings in the directory. A total of 391,840 injections were given. Since the public clinics had administered 116,710 injections, the remaining injections must have been given by private physicians in their offices. An obvious conclusion may be drawn: Mass clinics do not take patients away from private physicians.

School Announcements

University of Minnesota. From July 21 through August 1, 1958, the School of Public Health will hold a workshop on radiological health in industry and the community. The course is designed for physicians, nurses, chemists, sanitarians, and others concerned with such health problems.

Topics to be covered in the workshop include: introduction to radiation; sources of radiation exposure; atomic structure; radioactivity; X-rays; interaction of radiation with matter; units of measurement; natural and artificial background; biological and genetic effects of radiation; maximum permissible levels; principles of radiation protection; and public health aspects of radiological health.

For further information, write to the School of Public Health, 1325 Mayo Memorial Building, University of Minnesota, Minneapolis 14.

Massachusetts Institute of Technology. The Institute offers a 2-week special summer program in air pollution from August 11 through August 22, 1958. Intended primarily for industrial, chemical, mechanical, and sanitary engineers who wish a better understanding of the broad concepts of air pollution control, the program will cover the meteorological problem, toxicology and public health, aerosol technology and air cleaning, and air analysis, along with legislative and regulatory acts. No formal background, however, is required in meteorology or physiology. Academic credit is not offered. Write the Massachusetts Institute of Technology, Cambridge, for further information.

Harvard University. A new division of environmental hygiene has been added to the School of Public Health. Radiation hazards, air pollution, accident prevention, and industrial hygiene will comprise the curriculum and research activities in the new division.

University of Michigan. The department of environmental health of the School of Public Health has expanded its radiological health curriculum from 1 to 7 courses for the 1958–59 school year.

To the current course on radiological health have been added fieldwork in radiological health; radiation biology; techniques used in radioactive air, water, sewage, and stream pollution studies; radiological health seminar; disposal of radioactive wastes; and a second part of radiological health.