

## Polio Vaccines Come to Winnebago County (*and I Get Them*)

By Lynell Cannell

*Early in the coronavirus pandemic lockdown, my sister Sheva's 17 grandchildren started getting together virtually to talk about topics of interest or projects they were doing at home. One child picked Jonas Salk as a hero to talk about. My sister told me about the discussion and what she had remembered and told her grandkids about polio vaccine. Being older, I remembered more, but I became interested to find out expanded details that I could share with the kids. Learning about the polio virus and the vaccines against it seemed particularly relevant at this time.*

Polio, short for poliomyelitis, is a highly contagious infectious disease caused by three types of poliovirus. The disease mainly affects young children. Most people who get it have no symptoms, but in its worst form the virus destroys the nervous system causing paralysis. It may result in permanent paralysis of muscle groups such as breathing muscles and leg muscles. Because of its ability to cause paralysis and the fact that infants and children are at greatest risk, polio was sometimes called “infantile paralysis”. Winnebago County had a polio epidemic in 1945 (321 cases, 26 deaths) and another large outbreak in 1950 (195 cases, 9 deaths). Polio was a scary threat each summer and fall until researchers were able to find a vaccine to stop it.

The first polio vaccine in the US was a “killed-virus” vaccine administered by injection and developed by Dr. Jonas Salk. This inactivated poliovirus vaccine (IPV) consisted of the three serotypes of poliovirus whose infectivity, but not immunogenicity, was destroyed by treatment with formalin. Dr. Salk did tests on the vaccine in 1952 and 1953. In 1954 the National Foundation for Infantile Paralysis selected about 200 counties in the US and extensive field trials were conducted to assess the effectiveness of the Salk vaccine. Counties in many states meeting certain criteria were chosen to have all their 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> graders get either the Salk vaccine shot or a harmless dummy shot that looked the same. Data would be accumulated to see whether the odds of getting polio were less for the vaccinated children than the children who remained unvaccinated or who got the dummy shot. Neither the children nor their parents would know which kind of shot they got.

In Illinois there were three counties meeting the criteria – Winnebago, DuPage, and Peoria. It looked like Winnebago County in Illinois was going to participate, with the local health officer, the local chapter of the Foundation, and the principals of the schools in agreement. The local medical society also gave tentative approval at first. But, about two weeks before the shots were to be administered, the local medical society withheld approval of the trial. In the end only DuPage County (14,500 eligible children) and Peoria County (10,000 eligible children) went ahead with the shots in the trial at the end of April 1954.

On April 12, 1955, a year after the field trials, it was announced that the field trials had shown the Salk vaccine to be 80-90% effective against paralytic polio and later that day the U. S. government licensed the vaccine. Right away Winnebago County conducted an all-out effort to get all the 1<sup>st</sup> and 2<sup>nd</sup> graders inoculated. The original plan was for students to receive three doses of vaccine, with two free shots given April 27 and May 18, 1955 using vaccine provided by the National Foundation for Infantile Paralysis and the third shot given no sooner than seven months later to be arranged for privately.

The importance of protecting the county's children from polio can be seen by the many volunteers and detailed coordination involved in giving the 1<sup>st</sup> and 2<sup>nd</sup> graders from all the schools in the county, both public and private, a dose of the Salk vaccine in a single day. The medical personnel who volunteered their services included many nurses, 96 doctors, and 24 dentists. Other volunteers came from the local American Red Cross and the civil defense council. The police, fire and sheriff departments were also involved. 8,149 Winnebago County students (about 97% of the 1<sup>st</sup> and 2<sup>nd</sup> graders) got their first shot on Wednesday, April 27, 1955. Students were shuttled by buses and cars from their schools to one of four test centers (West High School, East High School, Harlem High School, and Washington Junior High School). Each test center had six stations administering shots. Each center had about 200 students scheduled per half hour slot between 9 am and about 3 pm. After getting the shot, each child was given a shiny penny provided by the Rockford and Loves Park banks.

The noon slot at West High School was assigned to the 204 children from St. Patrick School in Rockford. *That's when, as a 2<sup>nd</sup> grader, I got my first polio shot. My 3-year-younger sister Sheva remembers that when I was picked up from school I said my arm hurt. The parents had been told to put us down for a nap when we got home. I remember going to sleep with my shiny penny clutched in my hand. Tears came to my eyes when I woke up, opened my hand, and saw that my shiny penny was now brown. Losing the shine on the penny is what I remember from the day. I don't particularly remember being shuttled to the high school or other details.*

The second dose of vaccine didn't happen in May 1955 as planned. An October 6, 1955 newspaper article in the Rockford Morning Star reported that the state health department had authorized resumption of Salk polio shots on or about November 1<sup>st</sup> and also that the executive board of the American Academy of Pediatrics had just "approved resumption of vaccination against polio, reversing its stand of last June when it recommended that vaccination with Salk vaccine be discontinued because of uncertainties then about its manufacture, safety, and effectiveness." The article also said that the second shot would now be the final one, with a third shot not planned. On November 2, 1955 the now 2<sup>nd</sup> and 3<sup>rd</sup> graders of Winnebago

County went to one of the four inoculation centers to receive their second Salk vaccine shot, again getting a shiny penny. *This time I knew better than to leave my penny in my sweaty palm.*

After November 2<sup>nd</sup> there was more vaccine available to be given to the priority groups of children age 5-9 and expectant mothers. There was some vaccine available for free, but people were requested to get it privately if possible to save the free vaccine for poorer people.

*My sister Sheva got a polio shot on February 13, 1956. When did she get her second one? Sheva got stitches in her head on April 21 and then had another doctor's appointment on April 27, 1956, probably to get the stitches out. Perhaps she also got her 2<sup>nd</sup> shot then. I got a 3<sup>rd</sup> polio shot from the pediatrician on August 7, 1956, immediately following Sheva's school check-up, at which she could possibly also have gotten her 3<sup>rd</sup> shot.*

The introduction of the Salk inactivated poliovirus vaccine was very successful and the cases of paralytic poliomyelitis in the United States dropped from 20,000 per year in 1955 to 2,500 in 1960. When prepared properly, IPV does not cause poliomyelitis. At the same time that Jonas Salk was developing his "killed virus" inactivated vaccine, Albert Sabin was developing three "live virus" vaccines containing attenuated versions of the three serotypes of poliovirus. These vaccines were designed to be taken orally and are referred to as oral poliovirus vaccine (OPV) types one, two, and three. OPV was shown to be safe and highly effective in terminating epidemics of polio overseas and so these vaccines were approved for use in the US. In 1961-62 they replaced IPV for routine immunization against polio in the US. (It turns out it's possible but very rare for OPV to cause polio, so OPV is no longer used in the US. We only use IPV now.)

In the fall of 1962 the Winnebago County Medical Society organized a Victory Over Polio campaign using the Sabin vaccines. This campaign to totally eradicate polio from the county was targeted at both children and adults. They wanted adults to get the vaccines not only to immunize them but especially to keep them from being carriers of the disease. The medical society underwrote the expenses, asking for but not requiring a 25 cent donation per inoculation. The mass campaign was enabled by setting up 38 school-based "clinics" (21 Rockford schools and 17 in neighboring communities). There were 4,000 volunteers involved. All of the county's doctors, 50 pharmacists, registered nurses, Red Cross workers, Jaycees, policemen, deputies, Civil Defense workers, radio amateurs, hospital workers, club members, and other citizens were involved. Rockford Transit Co. gave free rides, the Rockford Automobile Dealers Association provided special transportation for families without cars with invalid family members, and taxi drivers volunteered too. Nurses were sent to the home-bound. Each clinic was manned by a minimum of 45 persons and set up to process 1,000 persons per hour. Sunday, September 30, 1962 was the day that more than 130,000 persons

were immunized with a two-drop dose of Type One Sabin oral vaccine. (Another 22,075 persons came to one of eight clinics a week later on the make-up day and perhaps 800 more shut-ins were inoculated after that.) Almost everyone got the two drops on a sugar cube. Babies got the vaccine dropped on the tongue from an eyedropper. Adults who didn't want the sugar could take the two drops mixed in water or on the tongue.

Muller-Pinehurst Dairy served as supply central for the campaign, storing 1,000 pounds of sugar cubes and volunteering use of its 30-degrees-below-zero freezer to store the frozen vaccine until pharmacists came to get it the day of use. *Muller-Pinehurst Dairy was in our two-room Centerville School district, just down the road from where we lived. Even though not listed in the newspaper as one of the 38 large school-based clinics for the public to use, I remember that we were able to get the Sabin vaccine at the dairy. Our family (Dad-Bob, Mother-Maxine, Lynell, Sheva, Dawn, and Jenine) went together to get our vaccine, with 3-month old Jenine getting drops from an eyedropper and the rest of us getting the drops on a sugar cube.*

Phase two of the Victory Over Polio campaign was five weeks after phase one. Most of Winnebago County's residents took type two oral Sabin polio vaccine on Sunday, November 4, 1962 at the same places they had used in phase one. *Our family went then too.*

Type three oral Sabin polio vaccine was originally scheduled to follow on December 15, 1962, but there were delays because of questions about if it could cause polio in one in a million cases. The Winnebago County Medical Society's Immunization Committee decided on January 30, 1963 to go ahead with Phase three of the Victory Over Polio campaign because "it is safer to take the vaccine than to not take it". They calculated "that a person is 30 times more liable to contract Polio Type III by not taking the vaccine than by taking it." They noted that type three polio accounted for about 44% of all polio cases and so if people stopped after taking types one and two vaccines they would only be 56% protected. On February 17, 1963 there were 38 clinics open for people to take the Type three Sabin polio vaccine to complete the Sabin series.

#### References

*My family: Maxine Cannell's datebooks; reminiscences from Lynell Cannell and Sheva Cannell Forbes*

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