

POLIOMYELITIS VACCINE*

One of the most dramatic health developments in Canada during 1954-55 was the commencement of large scale immunization with Salk vaccine against poliomyelitis.

Analysis of poliomyelitis incidence in Canada over a number of years shows the increasing occurrence of this disease as a cause of disability and death. In 1953 more cases and more deaths were reported than in any previous year, a total of 8,736 cases, 4,963 with some degree of paralysis, and 481 deaths. The average annual attack rate reported over the five years ended in 1929 was approximately five cases per 100,000. This figure rose to eight for the five years ended in 1934, to 14 for the five year period ended in 1949 and to 26 for that ended in 1954. Since 1949 when paralytic and non-paralytic cases were first reported separately the number of cases with paralysis have been about half the reported total and the death rate has not changed significantly in proportion to that for total cases. There has been however an increasing tendency for older age groups to be attacked. In 1926, 70 p.c. of deaths occurred in children under fifteen. By 1953 this proportion had dropped to 30 p.c. In 1953, 31.6 p.c. of reported cases, 31.4 p.c. of those with paralysis and 60.9 p.c. of deaths occurred in persons over age twenty.

The increasing seriousness of the problem has been under consideration at all levels of government and funds from the National Health Program have been extensively used for the development of facilities for treatment; more than a million and a half dollars have been utilized for this purpose since the commencement of the Program in 1948.

Immediately after the 1952 announcement of results obtained in field trials with gamma globulin for protection against paralytic poliomyelitis, steps were taken to assure supplies of this blood fraction for use in 1953. Reserve stocks of wartime blood serum, collected by the Red Cross and held by the Connaught Laboratories at Toronto, were used with assistance from the federal grants to make approximately 30,000 0.5-cc. doses available for use in the 1953 epidemic. A further 100,000 doses were prepared from blood collected by the Red Cross for use in 1954. Over \$1,000,000 was utilized through the National Health Program for this purpose.

DEVELOPMENT AND TESTS

In 1952 Dr. Jonas E. Salk described his method of preparing experimental poliomyelitis vaccine by employing formaldehyde to destroy the disease producing ability of the virus. In this discovery Canadian scientists had made an important contribution as the culture fluid used in the manufacture of the vaccine for Dr. Salk's first trial was developed in the Connaught Laboratories. This chemical medium, known as Mixture 199, which was a by product of cancer research, does not contain organic materials that might cause allergies. It was found suitable for the growing of polio virus at the Hospital for Sick Children in Toronto in 1952.

In 1953, at the request of the National Foundation for Infantile Paralysis, workers at the Connaught Laboratory developed a method for mass production of all three types of polio viruses by the use of minced monkey-kidney tissue immersed in Mixture 199. During late 1953 and early 1954 large amounts of virus culture were shipped to the United States for processing into vaccine.

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