of vaccine for post-exposure treatment at days 10, 20, and 90; whereas in the United States boosters are recommended at only days 10 and 20.) Except for mild pyrexia at the time of his second and third doses of vaccine, treatment was uneventful. However, the patient did experience local erythematous reactions as well as some regional lymphadenopathy. The rabies antibody titer was 1:16 upon completion of the 21-dose series of vaccinations; and at the time of a 90-day DEV booster the antibody titer was 1:8. Health officials, considering this response inadequate, administered a booster dose of diploid vaccine on 14 July.

The patient's friend who stabbed himself during preparation of the animal's head for shipment was advised that there was no way to determine his real risk, and it was therefore recommended that he receive antirabies treatment. On 18 January, eight days after the stabbing incident, he began a course of rabies immune globulin followed by 21 doses of duck embryo vaccine and three booster doses on days 10, 20 and 90; his course was uneventful.

This episode serves as a reminder that rabies is enzootic in Mexico, and that any biting incidents in travelers to Mexico should be considered potential rabies exposures. Recent experience along the United States-Mexico Border has demonstrated that biting incidents in Mexico carry a substantially higher risk of rabies transmission than do similar incidents in the United States or Canada.

Source: Canada Diseases Weekly Report 6(21):103-104, 1980.

POLIOMYELITIS IN THE AMERICAS, 1979

The pattern of poliomyelitis in the Americas varies widely. In North America the two highly industrialized countries, Canada and the United States, have limited the disease incidence to a few cases per year by means of continuing immunization programs (see Table 1). Cases are mostly scattered, occurring among unvaccinated people, but every few years discrete outbreaks occur among special population groups that resent vaccination. The very low incidence of the naturally occurring disease has also brought to notice the few vaccine-associated cases that are apt to occur with the wide use of the oral live poliomyelitis vaccine in large populations.

A similar picture of zero, or near zero, poliomyelitis is also found in some countries of Central and South America—including Chile, Costa Rica, Panama, and Uruguay—as well as in much of the Caribbean area. In most other countries, however, the disease represents a continuing risk to the child population. In some countries—including Brazil and Mexico—a continuing high number of cases has been reported over the last few years with little fluctuation. In others, recurring outbreaks have been noted every few years; this has been the case in Haiti, the Dominican Republic, Bolivia, and Honduras.

Argentina, Canada, and the United States

In 1979, 29 cases of paralytic poliomyelitis were reported from North America, 12 being associated with an epidemic among the Amish population of Canada (2 cases) and the United States (10 cases). These Amish populations, which refuse immunization on religious grounds, are related to a group involved in an outbreak in the Netherlands in 1978.[1] The poliovirus implicated in these outbreaks is a type 1 poliovirus that resembles a strain first isolated in Kuwait in 1976. Oligonucleotide mapping confirms that the polioviruses isolated from these religious groups in the

[1]See World Health Organization, *Weekly Epidemiological Record* 54(47):365-366, 1979.

Table 1. Poliomyelitis in the Americas, 1951-1979.

Country or area	Population (in millions)	Average annual number of cases			Number of cases			
		1951-1955	1966-1970	1971-1975	1976	1977	1978[b]	1979[b]
Countries and areas where poliomyelitis has been controlled:								
Antigua	.70	0	0[a]	0[a]	0	0	0	0
Argentina	25.40	1,119	223	98	0	0	3	20
Bahamas	.22	1	1[a]	0	0	0	1	0
Barbados	.26	1	1[a]	0	0	0	0	0
Belize	.15	2	1	1	0	1	0	3
Bermuda	.06	1	0[a]	0	0	0	0	0
Canada	23.50	3,924	2	3	0	2	8	3
Canal Zone	.04	10	0[a]	0	0	0	0	0
Chile	10.41	477	110	15	0	0	0	0
Costa Rica	2.00	241	30	6	0	0	0	0
Cuba	9.47	179	1	1	0	0	0	1
Dominica	.08	0	0[a]	0	0	0	0	0
French Guiana	.06	0	0[a]	1	1	1	0	0
Grenada	.11	4	1[a]	0[a]	0	0	0	0
Guadeloupe	.34	3	1[a]	0	0	0	0	0
Guyana	.80	3	2[a]	1[a]	0	1	0	0
Jamaica	2.11	168	4	1	0	0	0	0
Martinique	.34	3	1[a]	1	0	0	0	0
Panama	1.78	37	17	16	0	0	0	0
Puerto Rico	3.32	146	1[a]	1	0	0	0	0
Saint Kitts-Nevis-Anguilla	.06	1	1[a]	0	0	0	0	0
Saint Lucia	.12	1	1[a]	1	0	0	0	0
Saint Vincent	.11	0	—	23	0	1	0	0
Suriname	.45	0	5[a]	0[a]	2	0	0	1
Trinidad and Tobago	1.07	43	3[a]	37	0	0	0	0
United States of America	218.06	37,864	52	15	14	18	15	26
Uruguay	2.76	163	14	1	9	10	0	0
Countries with continuing poliomyelitis problems:								
Bolivia	5.64	4	31	59	43	143	15	377
Brazil	116.40	—	11,688[a]	8,562	2,502	2,309	1,497	2,313
Colombia	26.50	103	463	396	558	529	308	461
Dominican Republic	4.70	4	31	60[a]	27	38	148	11
Ecuador	6.50	42	334	100	13	24	15	5
El Salvador	4.00	49	72	86	73	9	10	3
Guatemala	6.80	103	147	122	27	46	38	24
Haiti	4.58	—	5[a]	11	6	69	38	1
Honduras	3.04	—	47	37	24	175	74	226
Mexico	62.33	1,365	1,046	389	292	907	707	797
Nicaragua	2.25	81	129	68	1	36	1	86
Paraguay	2.75	58	58	107	20	20	37	17
Peru	15.50	107	188	131	131	183	82	58
Venezuela	12.70	286	214	121	43	10	32	56
Total	577.47				3,786	4,532	3,029	4,489

[a]Covers less than the indicated five-year period.
[b]Provisional data.
— = Data not available.

Netherlands, Canada, and the United States are identical.

There was no spill-over of the outbreak into the population at large, and the prompt widespread use of oral poliomyelitis vaccine forestalled further spread among the Amish. This outbreak among the Amish in the United States was the first reported since 1972, when a small outbreak (11 cases) was reported among students at a boarding school who had failed to receive immunization, again on religious grounds.

In Argentina, between August 1978 and January 1980, 51 suspected cases of poliomyelitis were reported. This outbreak occurred after two years without any reported cases, and only 18 confirmed cases were noted from 1973 to 1975. The 20 cases reported during 1979 came from five provinces, and all but one occurred among children under 3 years of age; one case was recorded among the 4-5 year age group. About two-thirds of the cases had a history of no immunization or incomplete immunization. Therefore, it would appear that an immunization coverage assessment is needed to determine whether the occurrence of these cases can be attributed to a decreasing coverage—and, if so, whether this affects the whole population or only certain population groups.

Countries with Continuing Poliomyelitis Problems

Brazil and Mexico accounted for 3,110 (69 per cent) of the total 4,489 cases reported in the Americas in 1979. These cases mainly affected very young children with histories of no immunization or partial immunization.

In a few small to medium-sized countries, periodic outbreaks cause wide fluctuations in the annual numbers of reported cases. Such outbreaks occurred in Haiti in 1977, the Dominican Republic in 1978, and Bolivia and Honduras in 1979. The outbreak in Honduras, which followed the general pattern, started in November 1978; by the end of that year 80 cases had been reported. In 1979 the number of reported cases was 226. Available information confirms that nearly all the cases occurred among non (or partially) immunized children, and that more than two-thirds of these children were less than 2 years old. (Only 10 per cent of the children below 2 years of age had received three doses of oral poliomyelitis vaccine.)

The immunization programs in these countries have not had their anticipated effect on the overall annual numbers of poliomyelitis cases. Further efforts are being made to administer the vaccine to children at risk. Epidemiologic surveillance and immunization program monitoring need to be used to pinpoint the hard-to-reach population groups, and health services research may be required to determine the best way to reach these groups at risk.

Source: World Health Organization, *Weekly Epidemiological Record,* Vol. 55, Nos. 47 and 48, 1980.

RUBELLA IMMUNIZATION IN CANADA

There are two main types of rubella immunization programs. In one, all infants (males as well as females) are given the vaccine in their first year of life. This diminishes the circulation of wild rubella virus and protects women of childbearing age through herd immunity. In the other type of program, virus is allowed to circulate and infect children. Rubella vaccine is administered only to girls 11-14 years of age. This latter approach has the advantage of providing the longer immunity conferred by natural infection, which is then further reinforced in girls by giving them the vaccine. Most provinces in Canada