Paralytic poliomyelitis eradication: When success and forgetting may mean danger
(or, Let’s not count the chickens before the eggs hatch)

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In May 1985, the Pan American Health Organization (PAHO) introduced a plan for eradicating indigenous transmission of wild poliomyelitis virus from the Americas by the end of 1990. The basic strategy has involved the widespread use of oral poliomyelitis virus vaccine (OPV) through routine immunization or mass immunization campaigns. Another strategy has been active surveillance to detect all new cases of acute flaccid paralysis followed by rapid investigation to establish a diagnosis and, if needed, by ‘mop-up’ operations with OPV. In 1991, only nine confirmed cases of wild poliomyelitis were identified in the Americas (eight from Colombia and one from Peru). Although the initial target date has passed, PAHO is leading the world towards global eradication of wild poliomyelitis. Since September 1991 no case of wild indigenous poliomyelitis has been detected in the Americas.

Between 1949 and 1991 surveillance for paralytic poliomyelitis in Canada revealed 15,498 cases, 70% of which occurred during the prevaccine period 1949-54. These cases can be epidemiologically classified into two groups: nonvaccine-associated, i.e., caused by wild poliomyelitis viruses (endemic or imported); or suspect-ed vaccine-associated, either among OPV recipients or contacts. In recent years, infection due to wild poliomyelitis viruses has been rare. From 1965-91, 53 cases of paralytic poliomyelitis were reported in Canada (Figure 1). The most recent wild cases were associated with imported virus. The last case of wild indigenous poliomyelitis occurred in 1977. Canada, therefore, has not had an indigenous case in 15 years - a tremendous achievement. Actually, the PAHO and Canadian polio-myelitis experience is one of the major successes of public health programs. However, thousands of cases occur in other regions of the world, particularly in Africa and Asia, constituting a constant risk of importation.

There are currently four components to the surveillance of poliomyelitis and flaccid paralysis in Canada: surveillance of the disease through the Canadian Communicable Disease Surveillance System, surveillance of vaccine-associated adverse events, an active pediatric hospital network surveillance system and a review of all cases of Guillain-Barré syndrome from hospital discharge databases. Clearly, except for the first traditional component, the dynamic force has been the surveillance of adverse vaccine reactions. As recommended by the Advisory Committee on Epidemiology (1), surveillance of poliomyelitis requires adequate investigation of all clinically compatible cases. Multiple stool and other clinical specimens should be collected as soon as possible (at least within two weeks of symptom onset) and rapidly transported to a recognized viral laboratory with documentation of maintenance of the cold chain, adequate neurological assessment and follow-up to establish neurological deficit lasting at least 60 days. Cases should be reported as soon as suspected.

However, based on recent examples, it is clear that these recommendations have not been fully applied. We can and must do better. Because of the rarity of paralytic poliomyelitis in Canada today, other conditions (such as Guillain-Barré syndrome) are often thought of before polio when diagnosing. The two last cases that occurred among adults in 1989 were finally classified as possible vaccine-associated cases of paralytic poliomyelitis (2). Due to the lack of timely and thorough investigation of these cases (particularly regarding stool samples) both of these cases would have been classified as ‘polio compatible’ by PAHO standards.
Figure 1) Reported paralytic poliomyelitis cases in Canada, 1965-1991 epidemiologic classification

It is very disconcerting that clinically compatible cases of paralytic poliomyelitis are not thoroughly and timely investigated. This poses three major risks: missing the opportunity for immediate control measures following a genuine case of wild poliomyelitis (the possibility of occasional importation of the virus requires continual vigilant surveillance for paralytic poliomyelitis in Canada); the impossibility for Canada to be certified free from indigenous poliomyelitis and be acknowledged for its efforts; and the risk to overclassify cases as vaccine-associated (that might actually be related to other enteroviruses) which could lead to an unusually high rate of vaccine-associated paralytic poliomyelitis, decreasing confidence in the vaccine.

To counteract the feeling of complacency resulting from forgetting the disease when indigenous cases have long disappeared, a general effort involving health care providers, public health officials and laboratory virologists to increase awareness and program support for the investigation of cases of acute flaccid paralysis is needed in Canada. Poliomyelitis should always be considered and appropriate laboratory investigation should be carried out. All suspected cases should be reported immediately to local public health authorities so appropriate laboratory investigations can be undertaken.

For more information on the reporting, investigation and differential diagnosis of paralytic poliomyelitis suspected cases in Canada, please contact the Childhood Immunization Division at (613) 957-1340 or 1-800-363-6456.

REFERENCES