

Poliomyelitis outbreaks in the Netherlands and Canada

The outbreaks of poliomyelitis due to the type 1 poliovirus in the Netherlands and in three Canadian provinces (Ontario, Alberta and British Columbia) that occurred between April and August 1978 revealed important epidemiologic and laboratory data that will undoubtedly enhance our knowledge in the prevention of this disease.¹ The epidemic in the Netherlands began in mid-April and lasted 6 months. Of the 110 cases reported 80 were of paralytic poliomyelitis; one death occurred.² The ages ranged from less than 1 year to 14 years in 65 patients and from 15 to 44 years in 45 patients. All the patients had refused vaccination for religious reasons.

In December 1978 I and my colleagues reported the data available at that time.¹ Since then the data have been updated. Of six cases of paralytic poliomyelitis that occurred in Norwich, Ont. five were from one family; four brothers and one sister, aged 14 to 25 years, were affected (R. Andreychuk: personal communication, 1979). The sixth patient, a 15-year-old boy, was a friend of the family. Coxsackievirus A9 as well as type 1 poliovirus were cultured from throat and rectal swabs from the girl and the friend of the family. The onset of illness in each case was in late July or early August 1978. In Lethbridge, Alta. paralytic poliomyelitis occurred in an 8-year-old boy in July 1978,³ and in the upper Fraser Valley in British Columbia paralytic poliomyelitis occurred in two men, aged 18 and 26 years, in early August and late July 1978 respectively (A.A. Larsen: personal communication, 1979). All of the patients with paralytic poliomyelitis in Canada had refused vaccination for religious reasons.

Since there had been a considerable amount of travel between the Netherlands and Canada by these religious groups, the outbreak in Canada was clearly caused by a strain of type 1 poliovirus imported from the Netherlands. The epidemiologic findings were confirmed by laboratory tests:

the virus strains isolated from patients with and patients without paralysis in Canada and the Netherlands were found to be similar in their antigenic composition and were considered wild.¹

Although two types of poliomyelitis vaccine are available in Canada, the recent outbreaks clearly demonstrate that paralytic poliomyelitis has by no means been eradicated. As long as there are members of the population who are not adequately immunized, wild strains of poliovirus will continue to circulate. It is reassuring that in both outbreaks only unvaccinated persons were affected. The epidemic did not spread to the surrounding communities either because the prompt oral administration of poliovirus vaccine, in monovalent type 1 or trivalent form, blocked the spread of the epidemic virus, or because the immunity of the population, induced by either orally administered vaccine or inactivated poliovirus vaccine administered subcutaneously, proved to protect children and adults. The three routine immunization schedules for infants and children used in the past (orally administered vaccine in British Columbia, inactivated poliovirus vaccine in Ontario and the Netherlands, and inactivated poliovirus vaccine followed by orally administered vaccine in Alberta) were equally effective in the control of the epidemics.

With the current poliomyelitis immunization programs periodic serologic surveys are important for monitoring the maintenance of protection.⁴ They can indicate whether significant proportions of susceptible age groups are being protected by vaccination, and whether the distribution of antibodies parallels the estimates of immunity based on surveys of vaccination history. Evidence of declining immunity levels in Canada has been claimed largely on the basis of two studies conducted in Ontario in 1969-70.^{5,6} The studies revealed that only 65% of children aged 4 to 6 years⁵ and 87% of children aged 6 to 9 years⁶ had serum neutralizing

antibodies to all three serotypes of poliovirus. Serologic surveys performed in 1971-72 in New Brunswick⁷ and in 1976 in Manitoba⁸ demonstrated that 83% to 97% of children and young adults had antibodies to the various poliovirus serotypes. Preliminary data from the Canada health survey conducted from May to December 1978 on approximately 2000 blood samples collected randomly from children and adults aged 6 to 44 years in all provinces indicate that 90%, 95% and 89% of the serum samples contained antibodies to types 1, 2 and 3 respectively (T. Stephens: personal communication, 1979). An even higher percentage of samples from persons in Ontario, Alberta and British Columbia contained antibodies to type 1 poliovirus (91% in Ontario and Alberta, and 94% in British Columbia). Thus, the serologic data confirmed the epidemiologic finding that the "herd immunity" induced by immunization prevented the spread of epidemic virus throughout the population. However, this finding should not result in recklessness or complacency in immunization programs. On the contrary, efforts by professional groups and government agencies should be renewed to eliminate the susceptibility of nonvaccinated Canadians through extensive immunization. This goal may be achieved with intense routine immunization programs for infants and children and with selective immunization of nonvaccinated adults.

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BOOKS

This list is an acknowledgement of books received. It does not preclude review at a later date.

THE ART OF MEDICATING PSYCHIATRIC PATIENTS. John R. Lion. 149 pp. The Williams & Wilkins Company, Baltimore; Burns & MacEachern Limited, Don Mills, Ont., 1978. \$17.15, paperback

BASIC TABULATION LIST WITH ALPHABETICAL INDEX. International Classification of Diseases. Ninth revision. World Health Organization. 331 pp. World Health Organization, Geneva, 1978. Price not stated, paperback. ISBN 92-4-154133-4. Available from the Canadian Public Health Association, Ottawa

CANCER NURSING. Medical. Edited by Robert Tiffany. 190 pp. Illust. Oxford University Press, Don Mills, Ont., 1978. \$15.75, hardbound; \$9.75, paperback. ISBN 0-571-11174-2, hardbound; ISBN 0-571-11175-0, paperback

CONFÉRENCES D'ENSEIGNEMENT 1977. Cahiers d'enseignement de la SOFCOT 7. Sous la direction de J. Duparc. 176 pp. Illust. Expansion Scientifique Française, Paris, 1978. Prix non mentionné, broché. ISBN 2-7046-1003-7

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CORE KNOWLEDGE IN THE DRUG FIELD. A Basic Manual for Trainers. Edited by Lorne A. Phillips, G. Ross Ramsey, Leonard Blumenthal and others.

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12. Evaluation. William J. Filstead. 28 pp. ISBN 0-662-01327-1

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