MEASLES *update*

Volume 4 Number 1 February/March 1996

Congratulations!

Congratulations to the staff of the Perth District Health Unit, the over 100 community and school volunteers, and Dr. Susan Tamblyn, the Medical Officer of Health, for being the first Health Unit in Canada to complete the measles catch-up campaign.

As of February 23, 1996, 17 days after the campaign began, 90% of the 15,500 school-aged children in the district have received a two doses of measles vaccine; the remaining 10% have consented to be vaccinated after the March break.

Current News

Provinces Implementing the Routine Two-Dose Measles Vaccine and Supplementary Catch-Up Program

British Columbia, Prince Edward Island and the Yukon join Ontario and Quebec in the routine two-dose measles vaccine and supplementary catch-up program.

British Columbia

In British Columbia, on January 25, 1996, the Health Minister officially announced the introduction of a routine two-dose measles and one-time catch-up vaccination program to begin in April 1996. Both programs will start concurrently. The catch-up vaccination campaign will be administered by public health nurses and will take place in schools and other public locations. The campaign will target all children between 18 months and those completing secondary school. Measles-rubella (MR) vaccine will be used for the catch-up campaign.

Prince Edward Island

On February 7, 1996, the Prince Edward Island Ministry of Health announced the introduction of a two-dose measles schedule, starting in March, 1996, with the second measles-mumps-rubella (MMR) to be given at school entry for those 4 to 6 years of age. A second dose of monovalent measles vaccine will be offered to all students in Grades 1 to 12 in 1996 as a part of the catch-up program. This catch-up program is expected to start in March and be completed this fall.

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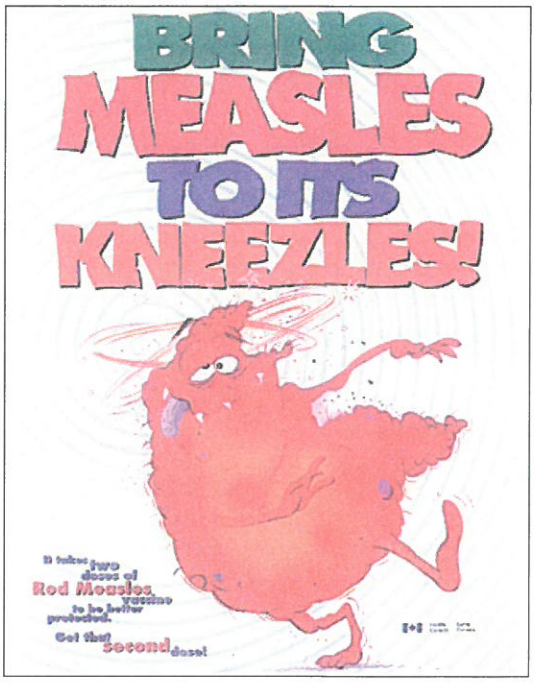

Promotional material supplied by Health Canada

The Yukon

In the first week of January, 1996, the Yukon Territory began implementing a routine two-dose measles schedule, with the second MMR to be given at 18 months. A catch-up campaign using monovalent measles vaccine and targetting school-aged children is expected to start in March.

Catch-Up Campaign Activities in Progress

Ontario

In Ontario, a routine two-dose measles schedule with the second dose of MMR given at school entry and a catch-up campaign using monovalent measles vaccine for all school-aged children have been introduced. Although the catch-up campaigns were expected to start officially on February 1, 1996, some health units started immunizing a week earlier. As of February 20, over 400,000 children have been immunized. So far, the program has been running smoothly and, as expected, no serious adverse events have been documented. The acceptance rate is > 95%.

Quebec

In some regions in Quebec, the catch-up program with monovalent measles vaccine targeted at school-aged children began on February 13, 1996. Province-wide implementation is expected by mid-March. The routine second dose of MMR at 18 months has already been incorporated in the regular immunization schedule. The catch-up program for preschoolers (those ≥ 18 months) will start at a later date, and will be done only on a progressive basis for completion by December 1996.

The current catch-up programs and the anticipated campaign will immediately protect approximately 75% of Canadian school-aged children.

A Preliminary Report

Measles Antibody Levels in School-Aged Children in Newfoundland — Implications for Measles Immunization Strategies

S. Ratnam, R. West, V. Gadag, B. Williams, E. Oates, Newfoundland Public Health Laboratory, and Division of Community Medicine, Faculty of Medicine, Memorial University of Newfoundland, St. John's, Newfoundland

As part of ongoing studies on measles immunization, an investigation was carried out during 1995 to examine the issue of secondary vaccine failure through a cross-sectional study of school-aged children.

A total of 1,075 children from the ages of 5 to 17 years (mean: 10.5 years), representing the Newfoundland provincial school population, were enrolled. All had received a single dose of documented MMR II vaccination at one year of age and none had a history of measles disease. Serum samples were tested for measles antibody by the plaque reduction neutralization (PRN) test[1]. While there is no agreed standard serum value which correlates to protective immunity, there is indication that a PRN titre of > 120 is protective[2]. The study data were analyzed based on this criterion.

Of the 1,075 children, 297 (27.6%) had measles antibody titres < 120 and were considered susceptible. The proportion susceptible among the school-aged children who received a single dose of MMR II is consistent with findings in Quebec and England despite the differences in the age group of children studied[3,4]. The proportion of susceptible children by age (in years) ranged from 14.3% to 35.5%; however, there was no consistent age-dependent trend in the susceptibility rates. Our previous studies have indicated a susceptibility rate of approximately 16% by 18 months of age among those receiving a single dose of MMR II[5,6].

Our study data to date support the current move towards a two-dose immunization strategy in the control and elimination of measles and indicate that the second dose should be given before school entry, preferably at 18 months of age. The data also underscore the need to consider a mass catch-up immunization program in the interim to prevent potential outbreaks of measles in school settings. The combination of the above approaches, if implemented during 1996, can potentially eliminate indigenous measles in Canada by the year 2000, the target date set by the Pan American Health Organization[7].

References

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3. Boulianne N, De Serres G, Ratnam S et al. *Measles, mumps, and rubella antibodies in children 5-6 years after immunization: effect of vaccine type and age at vaccination.* Vaccine 1995;13:1611-16.
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7. Health Canada. *National Advisory Committee on Immunization: supplementary statement on measles elimination in Canada.* CCDR 1996;22:9-15.

Laboratory Surveillance of Sporadic Measles in Canada

*LCDC Sporadic Measles Diagnostic Laboratory Working Group**

The December 1992 Canadian Consensus Conference on Measles set a goal to eliminate indigenous measles in Canada by the year 2005. This goal was endorsed by the National Advisory Committee on Immunization and the National Advisory Committee on Epidemiology.

In August 1995, the Bureau of Microbiology, Laboratory Centre for Disease Control (LCDC), established a Sporadic Measles Diagnostic Laboratory Working Group to develop Laboratory Surveillance Guidelines in support of the measles elimination strategy in Canada and for surveillance of sporadic cases.

The key elements of these guidelines are as follows:

1. All sporadic clinical and suspect cases should be laboratory-confirmed. In addition, sufficient cases should be laboratory-confirmed to establish the existence of an outbreak. This confirmation should be carried out either by the Provincial Laboratory or one of the laboratories in the Canadian Measles Laboratory Network†. Test results should be reported to the professional submitting the specimen and to local public health officials as early as possible and not be held for receipt of LCDC confirmatory testing results.
2. All positive and indeterminate serum samples should be sent to LCDC for confirmation via the provincial or territorial laboratory. In addition, a random sample of 5% to 10% of negative specimens should be sent to LCDC for testing. Negative specimens from all patients who meet the clinical case definition should also be retested at LCDC using the CDC Capture IgM Assay (Pan American Health Organization (PAHO) designated "gold standard" assay). Specimens submitted to LCDC should be directed to the **Measles Laboratory, Virus Laboratories, LCDC, Building #10, Postal Locator 1001C, Tunney's Pasture, Ottawa, Ontario, K1A 0L2; Tel: (613) 957-8061; FAX: (613) 954-0207; E-mail: jweber@hpb.hwc.ca**.

Patients and Specimen Volume

At least 4 mL of blood are needed for a comprehensive laboratory investigation of rash illness. Smaller volumes, where young children are involved, will permit limited testing.

Timing of Serum Collection

A single serum specimen, obtained 3 to 28 days following rash onset, is generally considered acceptable and sufficient for IgM testing. However, if this specimen is taken earlier than 7 days following rash onset and found to be negative for measles-specific IgM antibody, a second specimen should be obtained 10 to 20 days following the first or acute-phase specimen.

Information that should accompany the Specimen

Each specimen submitted to the laboratory for testing must be accompanied by the following minimal information:

Name, address of individual, institution submitting the specimen
Patient identifier
Patient Name
Age/Date of birth
Sex
City, County ("municipality")
Symptoms
Date of Onset of Symptoms
Type of Specimen
Date of Collection

For laboratory-confirmed cases, the following additional information should be obtained by the submitting physician or by a public health official:

Date of fever onset
Date of rash onset
Number of dose(s) of measles vaccine received
Date of last measles vaccination

Laboratory Testing

The laboratory will test specimens for anti-measles IgM antibody. Alternatively, measles infection can be confirmed serologically by demonstrating a significant rise in antibody titre, with the first (acute) serum sample taken within 7 days of rash onset and the second (convalescent) sample taken 10 days after the first.

* **Members:** Dr. J.M. Weber (Chair), Mme M. Fauvel, Dr. M. Fearon, Dr. G. Horsman, Dr. P. Middleton, Dr. M. Petric, Dr. J. Preiksaitis, Dr. S. Ratnam, Dr. B. Ward. **Liaison Members:** Dr. P. Duclos (BCDE); Dr. J. Carlson, Dr. M. Douville-Fradet, Dr. J. Waters, (ACE); Dr. K. Forward (TAC).

† A list of these laboratories is available from the Provincial Laboratory Directors.

The laboratory should also include a "rash screen" test (IgM serology for measles, rubella, HHV-6 and parvovirus) when clinical history suggests measles-like illness during a non-epidemic period.

Targeted Virus Isolation During Outbreaks

During an outbreak, efforts should be made to obtain a urine or nasopharyngeal aspirate specimen for viral isolation. The optimal time for collecting urine specimens is within 7 days of rash onset and for nasopharyngeal aspirate specimens within 4 days of rash. Urine specimens should be centrifuged and frozen. If the probable case is serologically confirmed as measles, the urine sample should be processed for virus isolation. In outbreaks, and with prior arrangement, LCDC may process appropriate specimen material for virus isolation.

The provincial public health authorities and LCDC should be advised of any isolation of measles virus. LCDC will conduct or arrange for genotypic analysis of the isolate.

Canadian Reference and International Networking

LCDC laboratory staff have received both the training and the reagents to carry out the CDC Capture IgM assay. Laboratories testing sera for measles should begin immediately to forward their specimens to LCDC for confirmation by the IgM Capture method. LCDC will provide measles reference services for the Canadian Measles Laboratory Network and contribute to the PAHO Measles Laboratory Network for the Americas.

Evaluation of a Possible Association Between Measles Virus Infection and Inflammatory Bowel Disease

P. De Wals, Direction de la santé publique de la Montérégie et Département des Sciences de la santé communautaire de l'Université de Sherbrooke; B. Ward, Centre d'étude sur la résistance de l'hôte, Hôpital Général de Montréal, Université McGill, Québec

Abstract

A review of the literature was undertaken to evaluate the biological plausibility of a reported association with infection by the wild or attenuated measles virus at an early age and chronic inflammatory bowel disease in adulthood. In all, five micro-biological studies and four epidemiological studies have been published in this issue. The majority of positive studies comes from the same group of researchers. Inflammatory lesions in the intestines of patients show structures suggestive of virus particles, but the arguments claiming that these are the measles virus are unconvincing. The epidemiological studies, which are trying to discover whether there is a statistical relationship between a measles attack during the perinatal period or following vaccination at an early age, are very difficult to interpret because of possible bias and uncontrolled confounding factors. The hypothesis that Crohn's disease and other chronic bowel inflammations may be caused by a virus is interesting and should be bolstered by further studies. However, there is much less likelihood that the measles virus is involved. For the moment, there is no reason to frighten vaccinees by informing them of an extremely hypothetical risk, thus jeopardizing an immunization program with demonstrated benefits.

Measles in Canada, 1996 (as of February 27)

Paul Varughese, Immunization Division, Bureau of Infectious Diseases, LCDC, Ottawa

From January 1 to February 27, 1996, 13 cases of measles were reported; 11 in January. This compares with 17 reported in January 1995. Of the 13 cases, 12 were reported from Ontario and one was from Alberta. Laboratory confirmation status of all cases is not available at present; however, to date, at least four (including the one from Alberta) have been confirmed as IgM positive and one as laboratory-confirmed (type of test unspecified). The Alberta case was an "imported case" involving an adult female who developed clinical measles 2 days after her return from Japan. She had no documented evidence of immunization. To date, no secondary cases have been reported from Alberta.

The 12 Ontario cases were reported from seven different Health Units. Ages of cases ranged from 1 to 42 years, with a median of 8 years. Nine cases, ranging in age from 4 to 15 years, had a history of receiving one dose of MMR. Those who were unvaccinated included the 1-year-old; vaccination status was unavailable for a preschooler and the 42-year-old.

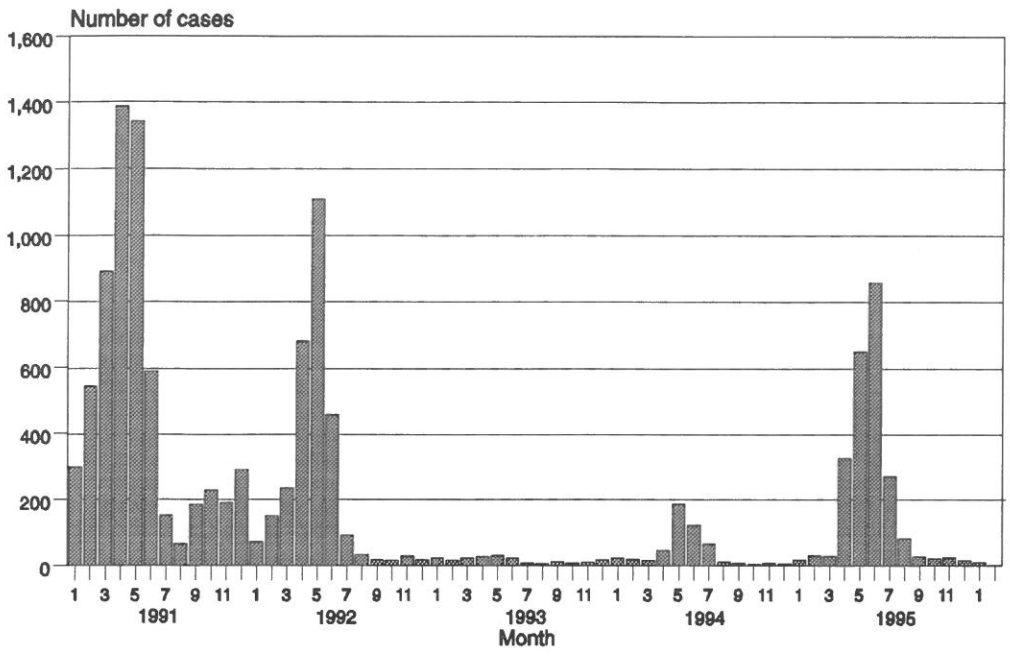
Figure 1 shows monthly notifications of measles cases in Canada from January 1991 to February 1996. It is to be noted that the characateristic seasonality remains virutally unchanged.

Comments

From January 1 to December 31, 1995, a provisional total of 2,348 (8 per 100,000) cases of measles were reported, the highest number since 1992 when 2,742 were reported. The epidemiologic characteristics of the 1995 cases were described in the recent issue (November/December 1995) of *Measles Update*. The current trend suggests continued transmission of the virus into 1996. Importation from other countries has not been identified as

Figure 1

Reported cases of measles, by month, Canada 1991–1996*



*Provisional data

a significant problem, although it is highly possible that this could happen until all the susceptibles are protected.

In Canada, enhanced measles surveillance is essential, especially to monitor the progress towards its elimination. The surveillance system should also be sensitive enough to detect all cases for prompt action. Timely notification of cases, accompanied by pertinent epidemiologic information, is required at all levels of governments. Moreover, the Canadian situation is being closely monitored by the international public health community, including the Pan American Health Organization.

Acknowledgement

The assistance and co-operation of all provincial and territorial epidemiologists, medical officers of health and other health care personnel, and staff from LCDC, is greatly appreciated.

International Notes

Expanded Programme on Immunization

International importations of measles from the Americas into the United States, 1990-1994

WHO Weekly Epidemiological Record, Vol 70, No 23, 1995

Internationally imported cases of measles have been a well recognized problem in measles control in the United States of America. This issue has been recently highlighted by the apparent interruption of indigenous transmission of measles in the United States in the autumn of 1993 and presumed reintroduction by subsequent imported cases.

Historically, countries of the western hemisphere have been the most common source for imported measles cases into the United States, Mexico being the leading source. For the period of 1980-1985, an average of 108 internationally imported cases were reported annually in the United States, with 19.7% of imported cases coming from Mexico and another 20.6% from other countries in the Americas. More recently, the period of 1990-1994 has witnessed a progressive decline in both the absolute number and the percentage of imported cases coming from Mexico and other countries in the Americas.

In 1990, during a peak of measles activity throughout the western hemisphere, 178 (69.8%) of the 255 imported cases came from Mexico and 53 (20.8%) from other countries in the Americas. In contrast, only 2 (4%) of the 50 imported cases reported in 1994 came from Mexico and only 6 (12%) from other countries in the Americas.

While the number of imported cases from other regions of the world has either remained steady or increased, the near-elimination of imported cases from the Americas has resulted in a substantial decline in the total number of cases imported into the United States.

The strategy adopted by the Pan American Health Organization for measles elimination, which emphasizes national mass campaigns targetting all children within an age group for a dose of measles vaccine regardless of prior immunization status, has produced striking declines in reported measles cases throughout the western hemisphere. The success of this program is reflected in fewer imported measles cases reaching the United States, thereby facilitating measles elimination activities. These results show that the benefits of improved international control of measles extend beyond national boundaries and that improved global control of measles is required to help all countries achieve and sustain measles elimination goals.

Announcement

National Canadian Immunization Conference

IMMUNIZING FOR HEALTH: ACHIEVING OUR NATIONAL GOALS

8-11 December, 1996
The Royal York Hotel, Toronto, Ontario

Call for Abstracts

This 4-day conference, organized by the Laboratory Centre for Disease Control and the Canadian Paediatric Society, with support from the private sector, primarily will focus on childhood immunization. Issues such as vaccine supply and delivery, education, assessment of vaccine programs, regulations and legislations, and global immunization efforts will be discussed. The progress towards the achievement of recently established Canadian national goals for the reduction of vaccine-preventable diseases of infants and children will also be examined.

Time has been allotted within the conference for peer-reviewed presentations (poster and oral) that relate to the objectives of the conference. Health units are encouraged to present material related to education and promotion. Deadline for submitting abstracts is **31 July, 1996**.

The program has been approved for continuing education credits from the Royal College of Physicians and Surgeons of Canada, and the College of Family Physicians of Canada. Members of the Fédération des médecins omnipracticiens du Québec may claim credits through the College of Family Physicians of Canada.

To obtain additional information, a registration package and an abstract submission form, contact **Mr. C. Schouwerwou, Conference and Committee Coordinator, Division of Immunization, Bureau of Infectious Diseases, Laboratory Centre for Disease Control, P.L. 0603E1, Tunney's Pasture, Ottawa, Ontario, K1A 0L2, FAX: (613) 998-6413**.

Submissions of pertinent reports/epi notes are welcome and success of this endeavour depends upon the readers' interest and cooperation. Priority for inclusion in the newsletter is determined by the article's relevancy. This is not a formal publication, and the views and interpretation may not necessarily reflect Health Canada's position. Distribution is free of charge. Anyone wishing to receive a copy on a regular basis should contact the Division of Immunization, Bureau of Infectious Diseases, LCDC, Ottawa, Ontario, K1A 0L2; telephone (613) 957-1340; Fax (613) 998-6413.

Editors:
Paul Varughese (613) 957-1344
Philippe Duclos
Division of Immunization
FAX: (613) 998-6413

Preparation:
Editorial and Production Division

Bureau of Infectious Diseases
Laboratory Centre for Disease Control
Health Canada
Tunney's Pasture, Ottawa, Ontario K1A 0L2