Information on Measles

Measles
Measles is one of the most highly communicable infectious diseases.

Symptoms include: prodrome includes fever, cough, coryza (runny nose), conjunctivitis, Koplik spots (white spots on the inner lining of the mouth – pathognomonic for measles).
A characteristic red blotchy rash appears on the 3rd -7th day; rash begins on face then becomes generalized and lasts 4-7 days.

Complications can include: diarrhea, otitis media, bronchopneumonia, encephalitis and in rare cases, sub-acute sclerosing panencephalitis (SSPE) and death

Mode of Transmission
The virus is transmitted by **airborne droplets** (sneezing or coughing) or direct (close personal) contact with nasal or throat secretions of infected persons. Less commonly, the virus spreads through contact with articles freshly soiled with nasal and throat secretions.

Incubation period
The incubation period is approximately 10 days but could last 7-18 days from exposure to onset of prodrome.

Period of communicability
The virus can be spread for about **four days before and until about four days after rash onset**.

Immunization
In Canada, children routinely get two doses of the vaccine MMR (measles, mumps, and rubella) to prevent infection. The two-dose vaccine schedule was introduced in the late 1990s (1996-97).

❖ **In New Brunswick the individual groups listed below are eligible to receive publicly funded measles (MMR or MMRV) vaccine:**

- Individuals born in 1995 or later are eligible for two doses of measles containing vaccine which are usually administered at 12 and 18 months of age. Among these individuals, children born in 2009 or later are eligible to receive two doses of MMRV vaccine, and those before 2009 are eligible to receive two doses of MMR vaccine.
- Adults born in 1970 or later who have not previously received two doses of MMR vaccine are eligible to receive publicly funded MMR vaccine.

❖ **Persons born before 1970, those with documented evidence of vaccination with two doses of measles containing vaccine after their first birthday and those with laboratory evidence of immunity or a history of laboratory confirmed measles disease are considered immune.**

Airborne Precautions in addition to Routine Practices should be followed when individuals with probable measles present to a health care setting. Refer to the following documents for reference:

Public Health Ontario Infection Prevention and Control for Clinical Office Practice: http://www.publichealthontario.ca/en/BrowseByTopic/InfectiousDiseases/PIDAC/Pages/Infection-Prevention-and-Control-for-Clinical-Office-Practice.aspx

Canadian Pediatric Society. Infectious Diseases and Immunization Committee. Infection control in pediatric office settings. *Paediatr Child Health* 2018, 23(8):e176–e190. https://www.cps.ca/en/documents/position/infection-prevention-and-control-in-paediatric-office-settings

Laboratory Guidelines for Suspected Measles

Measles virus infection can be diagnosed by a positive serologic test result for measles immunoglobulin (Ig) M antibody, a significant increase in measles IgG antibody concentration in paired acute and convalescent serum specimens by any standard serologic assay, or isolation of measles virus or identification of measles RNA (by RT-PCR) from clinical specimens, such as urine, blood, throat or nasopharyngeal secretions.

Initial Lab Testing

All lab specimens should include date of onset of both fever and rash

Obtain serology specimen for IgM and IgG ideally within 3 to7 days after the onset of the rash

And in addition collect:
A nasopharyngeal swab or aspirate, or a throat swab within 4 days after the onset of rash **and /or** approximately 50 ml of sterile urine within 7 days after the onset of the rash

To facilitate rapid testing this must be labeled /indicated on the requisition as "SUSPECTED MEASLES SCREEN"

Follow up lab testing

Convalescent serology

A second blood specimen may be needed to be drawn >7 -10 days after the first specimen to check for seroconversion or a significant rise in Measles specific IgG antibodies between acute and convalescent sera if IgM results, viral isolation or RT-PCR are non-diagnostic and clinical suspicion remains.

Note: Both false positive and false negative measles IgM results can occur. If the clinical presentation is inconsistent with a diagnosis of measles or in the absence of recent travel/exposure history, a positive IgM result must be confirmed by convalescent IgG serology, viral culture or by detecting viral RNA.

Most acute measles cases develop IgM three days or more after rash onset. Therefore, a suspected measles case where serum collected ≤ 3 days post rash onset initially tests IgM negative should have a second serum collected > 3 days post rash onset for retesting for IgM.

If the initial serology results in a patient with known or suspected exposure to Measles show low, indeterminate or negative IgM and IgG, both tests should be repeated in 1-2 weeks.