Measles Quick Reference Guide**

Fever + Respiratory Symptoms + Rash (head → downwards) **WITH** Travel History or Contact with Someone with Measles

= THINK ABOUT MEASLES! Especially if unvaccinated* or immunocompromised.

* The majority of cases in Canada are amongst unvaccinated individuals.

CLINICAL PRESENTATION

Incubation Period

- Average 10 to 12 days (range 7 to 21 days)

Symptoms

- High fever and 3 Cs (cough, coryza, conjunctivitis)
- Koplik spots (transient, tiny white spots on the buccal mucosa) before the rash
- Maculopapular rash starts 3 - 7 days after the other symptoms
  - Head → Downwards

FOR SUSPECT MEASLES CASE

Infection Prevention & Control

- Identify individuals with suspect measles using facility screening procedures for those presenting with viral respiratory symptoms or a rash.
- If possible, schedule visit to minimize exposure to others (e.g. end of day, place in appropriate room immediately upon arrival, or consider nasopharyngeal testing outside in vehicle).
- **Airborne** (N95 respirator) + Routine Practice
  - Routine Practice includes a Point of Care Risk Assessment (PCRA) to determine if other personal protective equipment (gloves, gown, eye/face protection) is required.
  - Patient and accompanying individual(s) to wear mask.
  - If no airborne isolation room → private room, door closed.
  - After patient leaves, close door and leave room empty for a minimum of 2 hours to allow for air clearance before cleaning or until required air exchanges have occurred.
- **Measles is infectious 4 days BEFORE rash onset until 4 days AFTER rash onset (rash onset = day 0).**
  - If immunocompromised, infectious until symptoms have resolved.

Testing (specimens go to Cadham Provincial Lab)

- **Nasopharyngeal Swab for measles PCR*** AND measles serology (IgM + IgG)
  * Within 7 days of rash. Flocked/Dacron swab in VTM / UTM.
- Clearly mark "Suspect measles" on each laboratory requisition and include symptoms, travel history and/or close contact of a known measles case to ensure priority processing of the specimen.
- Consider also sending a urine specimen for measles PCR for individuals presenting later in the disease course.
  - Urine can be collected within 14 days of rash onset & can help improve sensitivity of later stage diagnosis of measles.

Next Steps

- **Notify Public Health on same day of suspected cases** – fax clinical notification form AND phone call
  - www.gov.mb.ca/health/publichealth/cdc/protocol/mhsu_0013.pdf
- Education: advise them to isolate until results are back, other preventative measures (e.g. hand hygiene, cough etiquette).
- Treatment: supportive management of symptoms.
- If you need to send them to ED, advise facility of suspect measles in advance of their arrival.
- If seeing patient in hospital, also notify IP&C of suspected cases
- Public Health and IP&C will review potential contacts and determine if susceptible / needs post-exposure prophylaxis (PEP).
  - Health care staff exposed at the workplace are referred to Occupational Health or designate for follow-up.

** Refer to Manitoba Health Measles protocol for more details: www.gov.mb.ca/health/publichealth/cdc/protocol/measles.pdf

MEASLES CONTACTS IDENTIFIED BY PUBLIC HEALTH

If identified by Public Health, PH will:

- Confirm the exposure
- Assess for any symptoms consistent with measles. May recommend assessment and testing by health care provider
- Review immunity
- Review eligibility for PEP
    - If eligible for vaccine, PH may provide the vaccine or request that the patient's health care provider administer the vaccine
    - If eligible for IMIg, PH may provide IMIg or refer to a local site
    - If eligible for IVIg, PH will connect with nearest local site
- Provide education with regards to self-monitoring for symptoms
    - Some individuals without immunity may be required to self-isolate (quarantine)

SUMMARY OF MEASLES PEP RECOMMENDATIONS FOR SUSCEPTIBLE CONTACTS

Based on the current *Canadian Immunization Guide* recommendations: www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/page-12-measles-vaccine.html

Populations	Time Since Exposure to Measles [a]	
	< 72 Hours After Exposure	**72 Hours – 6 days After Exposure**
All Infants < 6 months old	IMIg (0.5 mL/kg)[b]	IMIg (0.5 mL/kg)[b]
Susceptible immunocompetent infants 6 – 12 months old	MMR vaccine[c]	IMIg (0.5 mL/kg)[b]
Susceptible immunocompetent individuals 12 months and older	MMR vaccine series	Not applicable[c]
Susceptible pregnant individuals[d]	IVIg (400 mg/kg)	IVIg (400 mg/kg)
Immunocompromised individuals 6 months and older[e]	If ≤ 30 kg, IMIg (0.5 mL/kg)[b] If > 30 kg, IVIg (400 mg/kg)	If ≤ 30 kg, IMIg (0.5 mL/kg)[b] If > 30 kg, IVIg (400 mg/kg)
Individuals with confirmed measles immunity	No PEP required	No PEP required

[a] Unless contraindicated, individuals who receive Ig should receive measles-containing vaccine after a specified interval, once the measles antibodies administered passively have been degraded. For details, refer to Blood Products, Human Immune Globulin and Timing of Immunization in the Canadian Immunization Guide: www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-1-key-immunization-information/page-11-blood-products-human-immune-globulin-timing-immunization.html.

[b] If injection volume is a major concern, IVIg can be provided at a dose of 400 mg/kg.

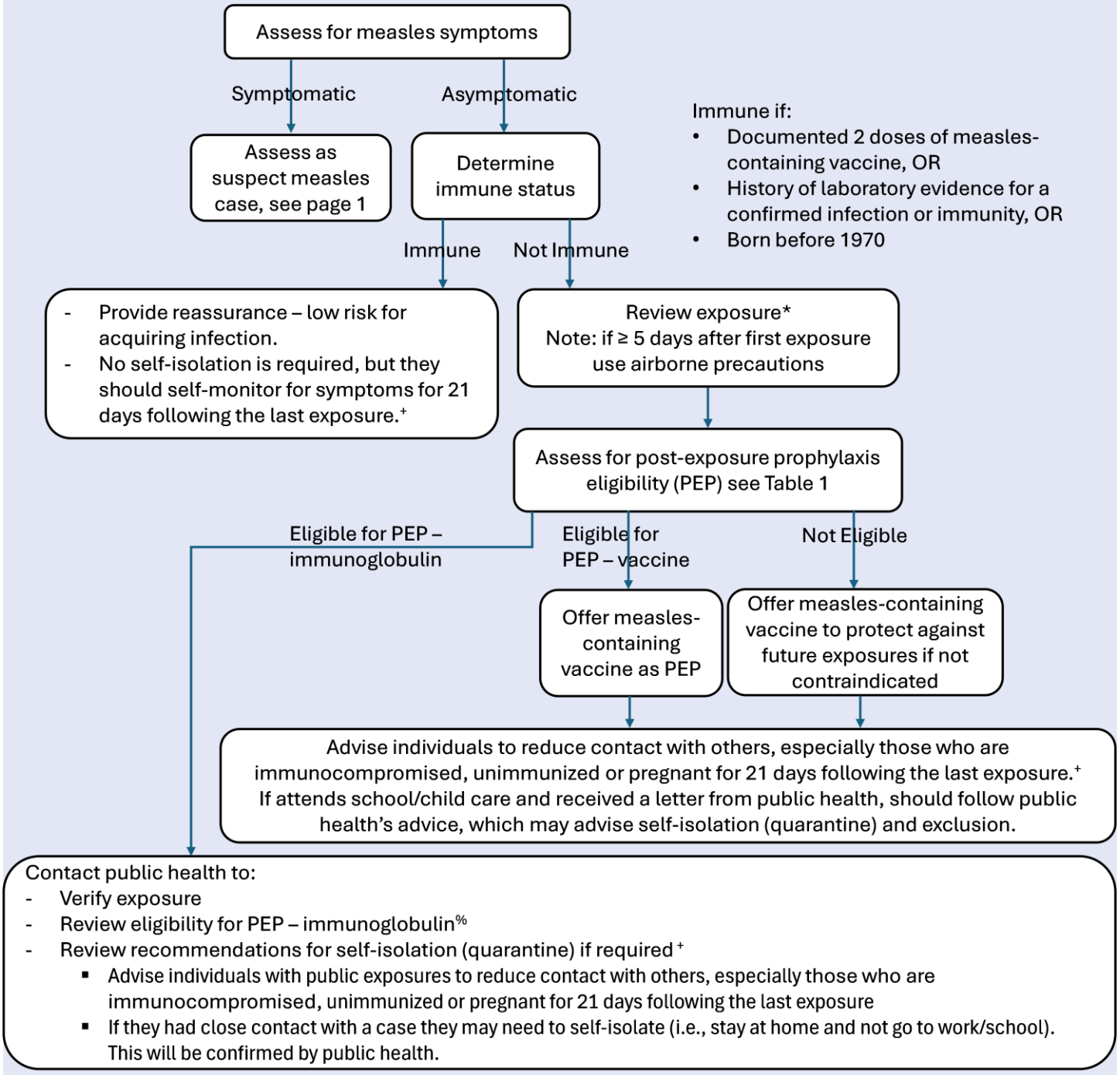
[c] Two doses of MMR vaccine provided after 12 months of age are required for future long-term protection.

[d] Provide MMR vaccine series postpartum for future protection. For details of PEP guidance in pregnancy see https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/page-12-measles-vaccine.html#table3

[e] Measles PEP recommendation depends on level of immunocompromise, for specific guidance see www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/page-12-measles-vaccine.html#table4

SELF-IDENTIFIED MEASLES CONTACTS

Public Health may issue media advisories to communicate with the public about community locations where unidentified individuals may have been exposed to measles. These individuals may present to HCPs to receive advice or measles post-exposure prophylaxis (PEP).



*For list of measles exposures in Manitoba: www.gov.mb.ca/health/publichealth/diseases/measles-exposures.html

+ If health care worker, regardless of immune status, advise to discuss with Occupational Health or designate to determine return to work.

% For individuals eligible for IVIG, after review with Public Health, coordinate with nearest local site (all health regions have identified facilities that can provide IVIG).

- IVIG is ordered from the blood bank by the ordering clinician https://healthproviders.sharedhealthmb.ca/services/diagnostic-services/transfusion-manitoba/resources-and-tools/immune-globulin-utilization/.
- Measles exposure is an approved indication for IVIG for those that meet the criteria (i.e. infants, susceptible pregnant women, and immunocompromised) and should be listed on the order form.

PREVENTION

Immunization remains the most effective way to prevent measles.

- Immunization providers should continue to offer the *measles, mumps, rubella and varicella* (MMRV) or *measles, mumps and rubella* (MMR) vaccine as per: www.gov.mb.ca/health/publichealth/cdc/div/schedules.html
- If immunization records are unavailable, immunization is recommended rather than ordering serology testing to determine immune status.
- Children aged **6 months to under 12 months** travelling to a measles-endemic country should be offered a dose of the MMR vaccine. Note, this dose does not replace any of the doses in the Routine Immunization Schedule. These children are still eligible and should be offered two doses of measles-containing vaccines as per the Routine Immunization Schedule to ensure long lasting immunity.
- **Manitoba's Measles Outbreak Eligibility:** Additional outbreak eligibility criteria have been established for measles vaccine. Refer to www.gov.mb.ca/health/publichealth/cdc/vaccineeligibility.html#MMR for further details, as the criteria may change as the outbreak evolves.

VITAMIN A AND MEASLES

- Vitamin A supplementation (i.e. treatment) has been shown to reduce measles related morbidity and mortality in populations where Vitamin A deficiency is common. The benefits are less clear for populations where Vitamin A deficiency is rare, including Canada.
- Vitamin A supplementation may have a role for management of patients with measles, particularly those who require hospital admission. Consider consultation with Infectious Diseases for severe cases.
  When used, the World Health Organization recommends two doses of Vitamin A supplements given 24 hours apart.
- There are no studies to support the use of Vitamin A for prevention of measles infection.
- High doses of Vitamin A, beyond the WHO recommended dosing, can lead to toxicity.
- For more information, please see:
  www.canada.ca/en/public-health/services/diseases/measles/health-professionals-measles.html#s3
  www.aap.org/en/news-room/fact-checked/fact-checked-vitamin-a-does-not-prevent-measles/

RESOURCES

- Manitoba Measles (includes updates on case numbers and public exposures): www.gov.mb.ca/health/publichealth/diseases/measles.html
- Manitoba's Publicly-Funded Vaccine Eligibility: www.gov.mb.ca/health/publichealth/cdc/vaccineeligibility.html
- PHAC Measles: For health professionals (includes images of clinical manifestations): www.canada.ca/en/public-health/services/diseases/measles/health-professionals-measles.html
- PHAC Criteria for Measles Immunity: www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/page-12-measles-vaccine.html#p4c11t1
- PHAC Measles PEP Recommendations for Contacts: www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines/page-12-measles-vaccine.html#table2