

Testing directions and algorithms for patients suspected of Zika infection, according to patient category[#]

Clinical Features	Tests to order	Zika Virus Testing Algorithm	Comments
A. Currently symptomatic patients with illness compatible with acute Zika virus infection	<ol style="list-style-type: none"> 1. Zika virus serology and PCR 2. Chikungunya virus PCR 3. Dengue virus PCR 	<p>Zika virus PCR at PHOL*</p> <p>Zika virus PCR and serology at NML</p> <p>Chikungunya/dengue serology at PHOL</p>	<ol style="list-style-type: none"> 1. In most cases, Zika virus is detected by PCR in serum up to 7 days, and in urine up to 10 days, following symptom onset; on some occasions, virus has persisted for several days longer. PCR sensitivity will be maximized if specimens are collected earlier in the course of illness. 2. A positive Zika virus PCR is sufficient to confirm Zika virus infection. NML will only perform Zika virus serology in Zika virus PCR-positive patients who are pregnant, neonates, and those with atypical clinical presentations. 3. Consider ordering dengue and/or chikungunya serology if the clinical findings are suggestive of either infection.
B. Non-pregnant patients who have recovered from a Zika-like illness (currently asymptomatic)	<ol style="list-style-type: none"> 1. Zika virus testing is not indicated^u 2. Order other testing as clinically indicated 	No Zika virus testing will be performed. ^u	<ol style="list-style-type: none"> 1. Patients who have recovered from a self-limiting illness suggestive of Zika virus infection do not require testing for Zika virus.
			<ol style="list-style-type: none"> 2. Specimens from this patient group will not be accepted for Zika virus testing;^u testing for other pathogens will occur as ordered on the test requisition. 3. See the PHAC guidelines for further information on management of asymptomatic patients, including prevention of sexual transmission after travel.^{1,u}
C. Non-pregnant asymptomatic patients who have never experienced a Zika-like illness	<ol style="list-style-type: none"> 1. Zika virus testing is not indicated^u 2. Order other testing as clinically indicated 	No Zika virus testing will be performed. ^u	<ol style="list-style-type: none"> 1. Specimens from this patient group will not be accepted for Zika virus testing;^u testing for other pathogens, if indicated, will occur as ordered.
			<ol style="list-style-type: none"> 2. See the PHAC guidelines for further information on management of asymptomatic patients, including prevention of sexual transmission after travel.^{1,u}
D. Asymptomatic pregnant patients	<ol style="list-style-type: none"> 1. Zika virus serology 	Specimens will be forwarded to NML for Zika virus serology.	<ol style="list-style-type: none"> 1. Serology is the appropriate test for asymptomatic pregnant patients. PCR is not recommended in asymptomatic patients as they are unlikely to be viremic at the time of testing.
			<ol style="list-style-type: none"> 2. A negative Zika IgM at 2 to 12 weeks following the last potential exposure indicates that infection is unlikely, though does not exclude it.
			<ol style="list-style-type: none"> 3. See the PHAC guidelines for further information on management of asymptomatic pregnant patients, including if diagnosed with Zika virus infection.^{1,u}
			<ol style="list-style-type: none"> 4. NML suggests waiting one month after departure from a Zika virus endemic area

			before performing Zika virus serology on asymptomatic pregnant patients.
E. a. Confirmed maternal Zika virus infection during pregnancy, or b. Risk factors for maternal Zika virus infection in pregnancy and suspected fetal anomaly on antenatal ultrasound (e.g., microcephaly, CNS calcifications, arthrogryposis)	1. Zika virus serology on the mother in scenario b.	Specimens will be forwarded to NML for Zika virus serology.	1. Amniotic fluid can be tested for Zika virus by PCR, and will be forwarded to NML for testing. Decisions around performing amniocentesis should be made after review by a fetal medicine specialist with expertise in congenital infections. See the PHAC guidelines for further information. ¹
	2. Consider amniocentesis (see comments)		
	3. After birth, neonatal evaluation and testing as in F. below		
F. Neonate with confirmed fetal or maternal Zika virus infection during pregnancy, or risk factors for maternal Zika virus infection and suspected fetal anomaly on antenatal ultrasound or on assessment at birth (e.g., microcephaly, CNS calcifications, arthrogryposis)	1. Placenta and umbilical cord tissue Zika virus PCR	Specimens will be forwarded to NML for Zika virus serology and PCR; PHOL will also perform Zika virus PCR on serum/cord blood if sufficient specimen is received.*	1. See the PHAC guidelines for further information on evaluation of the neonate with suspected Zika virus infection. ¹
	2. Umbilical cord blood or neonatal serum for Zika virus PCR and serology and dengue serology+		2. Neonates being evaluated for suspected Zika virus infection should be assessed by a paediatric infectious diseases physician, and paediatric neurologist if any neurological findings.
	3. CSF Zika virus PCR and serology, and dengue serology (if lumbar puncture done)		3. Most neonates with congenital Zika virus infection will be Zika virus PCR-negative, as they will usually no longer be viremic at birth if infected weeks or more before delivery.
			4. Neonatal specimens should be collected within 2 days of birth if possible.
G. Patients with an acute neurological syndrome possibly linked with Zika virus infection (e.g., Guillain-Barré syndrome) and risk factors for Zika virus infection	1. Zika virus serology and PCR on serum		
	2. Zika virus PCR and serology on CSF (if lumbar puncture performed)		

Footnotes:

If considering Zika virus testing in other clinical situations, contact **Public Health Ontario Laboratories Customer Service Centre at 416-235-6556 or 1-877-604-4567.**

* PHO commenced Zika virus PCR testing and reporting on March 14, 2016. As of May 4, 2016, negative PCR results reported by PHO will be final. Specimens with positive PCR findings by PHO will continue to be reported as provisional and will be sent to NML for repeat/parallel testing; this practice will end when PHO has accumulated sufficient parallel data with NML. Note: all specimens collected on pregnant women will continue to be sent to NML for replicate testing regardless of PHO's final result.

µ The Canadian Recommendations on the Prevention and Treatment of Zika Virus, revised March 24, 2016, state: "Infectious disease physicians, with asymptomatic male patients who are part of a couple trying to become pregnant, may want to consider consulting the local provincial lab to discuss serologic testing in scenarios where there is a medical need to pursue conception in advance of the recommended six-month deferral period. At this time, the sensitivity and negative predictive value of the test in this particular population is not sufficiently well-defined to be of practical use in clinical decision-making and therefore serology is not routinely available at the NML for asymptomatic individuals, other than pregnant women." See reference 1 for further information. If submitting such specimens, the relevant medical indication must be provided on the [Mandatory Information Intake Form for Zika Virus Testing](#).

Reference: 1. Canadian Recommendations on the Prevention and Treatment of Zika Virus (Prepared by the Committee to Advise on Tropical Medicine and Travel), available at: <http://www.healthycanadians.gc.ca/publications/diseases-conditions-maladies-affections/committee-statement-treatment-prevention-zika-declaration-comite-traitement-prevention/index-eng.php>

This testing guidance sheet is an excerpt from [Public Health Ontario's Zika Virus—Test Information Sheet](#). LAST UPDATED May 4, 2016. For more information please contact Public Health Ontario's Laboratory Customer Service Centre at 416-235-6556 or 1-877-604-4567.