

VACCINE-PREVENTABLE DISEASE TESTING

This document is intended to help medical providers with vaccine preventable disease diagnostic testing and evidence of immunity to limited vaccine-preventable diseases (VPD.) Regional disease epidemiology is also included to help assess likelihood of disease.

Disease	Epidemiology in the U.S.	Testing for Infection	Testing for Immunity
Chickenpox (Varicella)	Up to 150,000 cases per year	Lesion swab for PCR	Serologic test for varicella IgG antibodies can assess immunity
Diphtheria	Fewer than one case, per year.	Throat, NP swab for PCR. Cultured isolates should be sent to ND Lab for confirmation. Samples may be referred to CDC for further testing.	N/A – individuals should receive Td/Tdap booster every ten years
<i>Haemophilus influenzae</i> disease¹	Varies largely by age. Incidence in people <1yo and >65yo is estimated at >6/100k.	Culture of site of infection. Invasive disease should be serotyped.	N/A – vaccination only prevents type B.
Hepatitis A	Varies due to outbreaks. Estimated 19,900 infections in 2020.	Liver function tests and IgM serology	Serologic test for hepatitis A IgG antibodies can assess immunity
Hepatitis B	Estimated 20,700 acute cases per year	Liver function tests and serologic testing	Serologic testing for HBsAg negative/anti-HBs positivity can determine immunity
Measles	Varies due to outbreaks. Between 13 and 1,274 cases reported per year since 2010.	Nasopharyngeal, throat, or buccal swab for PCR AND IgM serum	Serologic test for measles IgG antibodies can assess immunity
Meningococcal disease¹	About 0.11/100k per year	Culture of site of infection. Invasive disease should be serotyped.	N/A – vaccination only prevents types A, C, W, Y, and B
Mpox/Orthopox	Varies due to outbreaks. Over 29k cases reported in 2022.	Lesion swab for PCR	N/A – individuals with continued exposure should receive a booster every 10 years
Mumps	Varies due to outbreaks. Between 200-6,000 cases, per year.	Buccal, throat, or NP swab for PCR	Serologic testing not recommended to assess immunity

¹Only certain serotypes are prevented through vaccination.

²If individual is experiencing acute flaccid myelitis, their provider should arrange testing through ND HHS.

Pertussis	Cases tend to peak every 5-10 years. Incidence is higher in younger individuals. <1yo from 5-126/100k per year.	NP swab or nasal aspirate for PCR. Culture is rarely used but may also determine a case.	Serologic testing not recommended to assess immunity. Serologic test (IgM) may determine recent infection or immunization, but can not determine active infection, and should not be used as a diagnostic.
Polio	Endemic wild-type polio is eliminated in the U.S. VDPV may circulate in areas with low vaccination rates and persons recently vaccinated abroad with OPV.	Stool sample referred to CDC ²	Serologic testing not recommended to assess immunity
Rubella	Endemic rubella is eliminated in the U.S.	NP/throat swabs or urine samples for PCR testing. Serologic testing can also diagnose disease but should be referred to CDC for avidity testing.	Serologic test for rubella IgG antibodies can assess immunity
Shingles (Zoster)	2-8/1000 people per year.	Lesion swab for PCR	N/A
<i>Streptococcus pneumoniae</i> infection¹	Varies largely by age. Incidence in people <5yo is 8/100k and in people >65yo is >24/100k	Culture of site of infection. Invasive disease should be serotyped.	N/A – vaccination only prevents 13 to 23 types
Tetanus	About 30 cases per year	N/A – diagnosis is symptomatic	N/A – individuals should receive Td/Tdap booster every ten years

Most tests can be performed at, or referred through, the ND HHS Laboratory Services Section. Please refer to their [website](#) for the full menu of tests and specimen collection information.

When performing serologic testing, please refer carefully to the type of antibody being tested and reported, as well as the laboratory guidance on how to interpret quantitative or qualitative results. Immunoglobulin G (IgG) is the antibody type that refers to future protection against disease challenge. As with all medical recommendations, neither vaccination nor immune testing can predict an outcome with 100% confidence but is based on the best evidence available. For more information on diseases and disease trends, please visit the [ND HHS website](#). You can reach ND HHS Disease Control Section by calling 701-328-2378 or toll-free at 800-472-2180.

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