VACCINE PREVENTABLE DISEASES REFERENCE CENTERS
TESTING RESOURCES

The Vaccine Preventable Diseases Reference Centers (VPD RCs) network is composed of four public health laboratories that provide diagnostic testing and typing for eight vaccine preventable diseases (Measles, Mumps, Rubella, Varicella-zoster, *B. pertussis, C. diphtheriae, N. meningitidis* and *H. influenzae*) as well as Middle East respiratory syndrome (MERS-CoV) and Enteroviruses.

Testing is performed using standardized methods developed by CDC and is available to public health departments free of charge. Submitting sites are assigned to one or two of the VPD RCs depending on the services requested.

VPD RC Laboratories

Viral Pathogen Testing

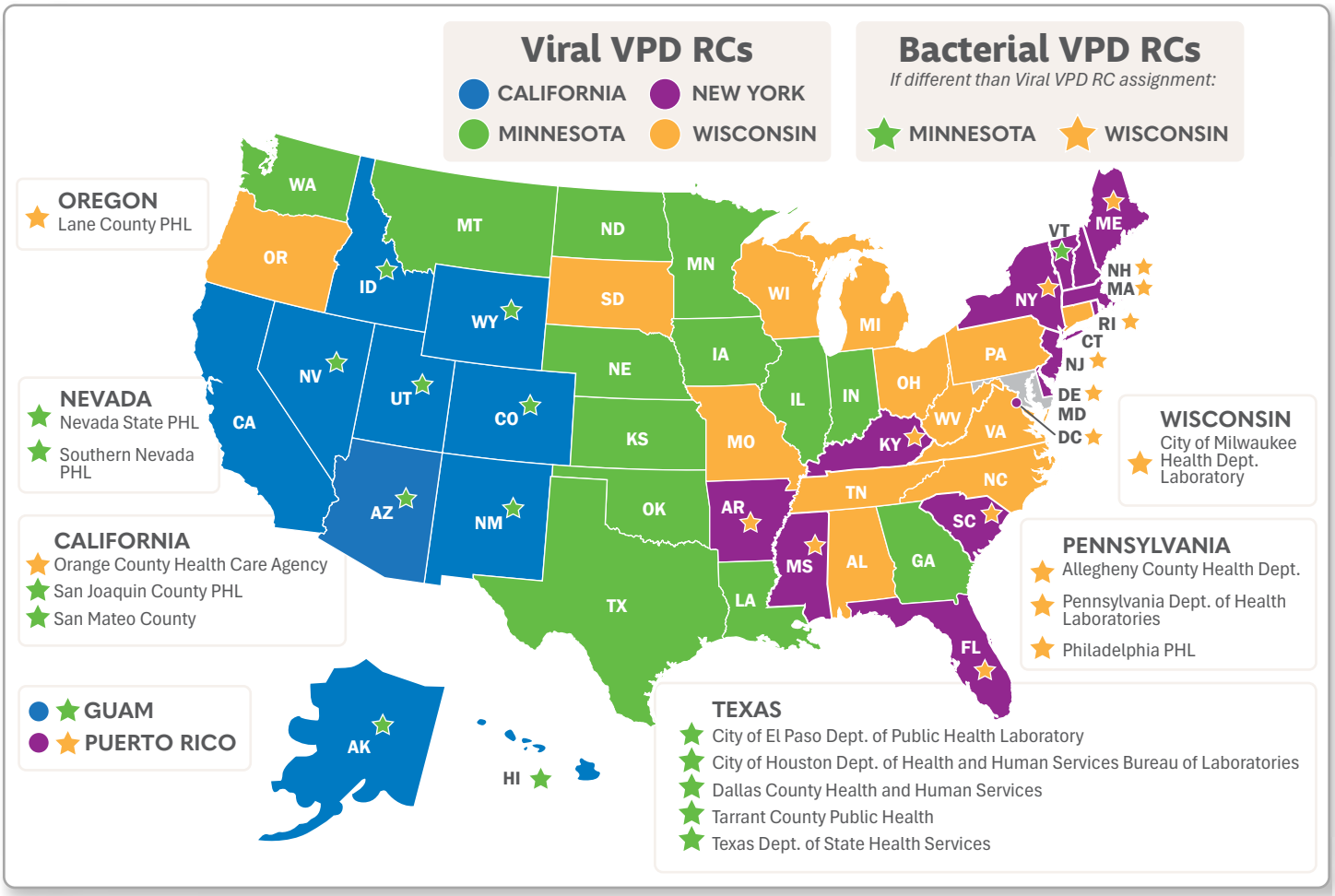
- **California Department of Public Health Laboratory** (Contact: VRDL.submittal@cdph.ca.gov)
- **New York State Department of Health: Wadsworth Center** (Contact: VPDNYS@health.ny.gov)
- **Minnesota Public Health Laboratory Division** (Contact: health.vpd.submissions@state.mn.us)
- **Wisconsin State Laboratory of Hygiene** (Contact: cddvpdproject@slh.wisc.edu)

Bacterial Pathogen Testing

- **Minnesota Public Health Laboratory Division**
- **Wisconsin State Laboratory of Hygiene**

Testing for *Streptococcus pneumoniae* is available through the Antimicrobial Resistance Network (AR Lab Network).

Figure 1. VPD RC Assignments
Visit aphl.org/VPD for the most up-to-date assignments



Testing Available at VPD RCs

Bacterial Pathogen Testing

VPD RC laboratories that provide bacterial pathogen testing perform: PCR for detection, serotyping/serogrouping and culture.

Pathogen	PCR	Serotyping/ Grouping	Maximum Turnaround Time (# of Business Days)		Location(s)/ Network
			PCR	Serotyping/ Grouping	
B. pertussis*	Yes	N/A	2	N/A	**Minnesota Only**
H. influenzae	Yes	Yes	2	5	Both Bacterial RCs
N. meningitidis	Yes	Yes	2	5	Both Bacterial RCs
C. diphtheriae	Yes†	N/A	2	N/A	Both Bacterial RCs

* Culture of *B. pertussis* is also available with a turnaround time of 10 business days.
† PCR is for identification of *C. diphtheriae, C. ulcerans/pseudotuberculosis*, and detection of the *tox* gene; positive *tox* gene isolates are forwarded to CDC for confirmatory Elek testing.

Viral Pathogen Testing

VPD RC laboratories that provide viral pathogen testing perform PCR and genotyping, which is conducted on all PCR-positive specimens unless otherwise indicated as part of larger outbreak.

Pathogen	PCR	Genotyping	Maximum Turnaround Time (# of Business Days)		Location(s)
			PCR	Genotyping‡	
Measles virus§	Yes	Yes	2	10	All Viral RCs
Mumps virus	Yes	Yes	2	10	All Viral RCs
Rubella virus	Yes	Yes	2	10	All Viral RCs
Varicella-zoster virus	Yes	Yes	2	Quarterly	All Viral RCs
Enterovirus	Yes	Yes	2	10	**New York Only**
MERS-CoV	Yes	N/A	2	N/A	**California & New York Only**

‡ For MMRV, genotyping is Sanger-based.
§ Measles virus vaccine assay (MeVA) has a maximum turnaround time of three business days.

Reporting Results from VPD RCs

The VPD RCs will receive specimens and perform the appropriate tests,¶ with anticipated turnaround times as listed in the testing tables on Page 2. Results will be reported, with patient identifiers, by the RC to the submitting laboratory through secure web portal, encrypted email, secure fax or over the phone. Results for all specimens tested will be reported to CDC by the RC via electronic HL7 messaging; however, these data will not replace state notifications to CDC through the Nationally Notifiable Diseases Surveillance System, which should be submitted per the usual protocol.

VPD RC Specimen and Shipping Recommendations

It is critical that specimens are properly packaged and shipped to the VPD RCs to ensure optimal test results and avoid delays in testing or rejection of specimens. Please contact your assigned VPD RC (**Figure 1**) with questions about specimen submission and to obtain specimen requisition information/forms. Submitting agencies should phone or email to notify the RC about intention to submit eligible specimens. Shipping costs are covered by VPD funding; please contact your VPD RC or APHL to obtain that information. See below for specimen submission requirements for available VPD RC viral and bacterial pathogen testing.

Bacterial Pathogen Recommendations

Note: Swabbed specimens must be collected with **synthetic swabs**; cotton swabs are **not acceptable**.

Method	Specimen Type	Minimum Volume	Specimen Storage	Shipping Recommendations
B. pertussis Real time PCR	NP swab	600 µL	• Store in universal or viral transport medium (UTM or VTM); UTM preferred • Refrigerate at 4°C as soon as possible • If specimen will be received > four days post-collection, specimen must be frozen	• **Refrigerated specimens:** Ship on cold packs • **Frozen specimens:** Ship on dry ice
B. pertussis Culture	NP aspiration, wash or swab	250 µL	Samples must be received by the RC within 72 hours of collection. • **If plated within 24 hours of collection:** Use Amies transport medium with charcoal • **For delays of 24–72 hours:** Use Regan-Lowe transport medium (available from MDH-PHL)	**All media specimens:** • Ship overnight • Ambient or refrigerated temperature
N. meningitidis PCR, Serogrouping ***H. influenzae***	CSF or isolate	500 µL	• **Primary specimen:** Freeze • **Isolates:** Transport growing isolate on agar slants appropriate for the growth of the organism, at ambient temperature	• **Frozen specimens:** Ship on dry ice • **Isolates:** Ship at ambient or refrigerated temperature
C. diphtheriae	Isolate	N/A: sufficient growth of organism	• Blood agar plates • Store at room temperature up to seven days or refrigerated for up to 30 days.	Ship at ambient or refrigerated temperature

¶ Additional testing may be performed on submitted specimens.

Viral Pathogen Recommendations

Note: Swabbed specimens must be collected with **synthetic swabs** in **viral transport media (VTM/UTM) only**; cotton swabs and molecular transport media (MTM) are **not acceptable**. Urine samplesshould be sent in a spill-proof container with parafilm.

Method	Specimen Type	Minimum Volume	Shipping Recommendations **All specimens types:** Ship overnight, Monday–Thursday
Measles virus PCR	• Throat swab in VTM/UTM • Nasopharyngeal (NP) swab in VTM/UTM • Combined throat/NP swab in VTM/UTM • Urine • Cerebrospinal fluid (CSF) **(MN only, in cases of encephalitis)**	250 µL**	**Storage:** Place swabs in 2-3 mL standard VTM/UTM **Shipping:** • **If shipping within 24 hours:** Store at 4°C • **If shipping is delayed:** Store at -70°C, ship on dry ice
Mumps virus PCR	• Buccal swab in VTM/UTM • NP swab in VTM/UTM • Throat swab in VTM/UTM • Urine **(MN & CA only)**†† • CSF **(MN only, in cases of encephalitis)**	250 µL**	
Rubella virus PCR	• Throat swab in VTM/UTM • NP swab in VTM/UTM • Urine **(MN, WI & CA only)**†† • CSF **(MN only, in cases of encephalitis)**	250 µL**	
Enterovirus	• NP swab in VTM/UTM • CSF	300 µL	
	Stool	**Solid:** 1 g **Liquid:** 300 µL	
Varicella-zoster virus PCR	Scab	N/A	Ship in a dry, sterile container at ambient temperature
	Skin lesion swab in VTM/UTM	250 µL	Ship at 4°C or frozen on dry ice
	CSF	250 µL	Freeze, ship on dry ice
MERS-CoV PCR	• Lower respiratory specimens • Upper respiratory swabs in VTM/UTM	250 µL	• **If collected within three days of receipt at RC:** Refrigerate, ship on frozen gel packs • **If collected over three days prior to receipt at RC:** Freeze, ship on dry ice
	Stool **(CA only)**	**Solid:** 1 g **Liquid:** 300 µL	

** California's minimum submission volume for MMRV is 300 ul

†† California requires that urine be centrifuged and resuspended in VTM prior to freezing and shipping

This project was 100% funded with federal funds from a federal program of $4,650,000. This publication was supported by Cooperative Agreement #NU47CD000001 from the US Centers for Disease Control and Prevention (CDC). Its contents are solely the responsibility of the authors and do not necessarily represent the official views of CDC.

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