

## **Infectious Disease Serology and Virology**

[Infectious Disease Serology](#)

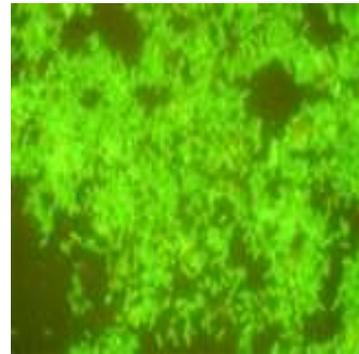
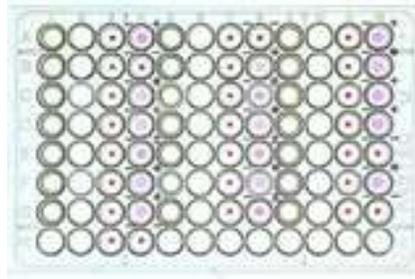
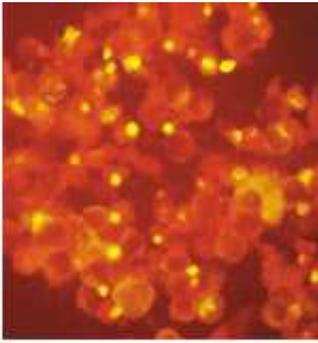
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## Infectious Disease Serology

(615) 262-6374

### Introduction

Diagnostic and immune status serologic assays are performed for various viral, rickettsial, bacterial, fungal, chlamydial and mycoplasmal agents. The assay methods vary depending upon the specific agent for which testing is requested. For specific agents and assay methods refer to Chart V - 1 SEROLOGICAL TESTS AVAILABLE FROM TDH LABORATORY.

Serological testing for infectious agents that are not performed by the Tennessee Department of Health (TDH) Laboratory may be available at the Centers for Disease Control and Prevention (CDC). Consult with the appropriate section at the Nashville laboratory before submitting specimens for testing. According to CDC's guidelines, all specimens submitted to the CDC must come through the state laboratory or receive the state laboratory's approval for direct shipment from the provider to the CDC.

### Specimen Acceptance Policy

**HIV-1** -- Serological testing for HIV-1 is available only in support of counseling and testing sites established by the TDH Sexually Transmitted Diseases/HIV (STD/HIV) Control Program.

**Other agents** -- serological testing is available to all public and private health care providers.

### Type of Specimen Required

**Immunity Screening** -- Immunity screening for rubella is intended for prenatal and family planning patients. Immunity screening for measles and mumps is not routinely available. Arrangements may be made with the TDH Laboratory to perform this screening on a case-by-case basis. A single, whole clotted blood or serum is required for rubella, measles, or mumps immunity screening.

**Diagnostic Testing** -- As a rule, acute and convalescent sera must be submitted for serological testing. The acute serum should be collected as soon after the onset of illness as possible. For the majority of the serological testing offered by the TDH Laboratory, the convalescent serum should be collected 14 days from the time the acute specimen was collected. In most cases, the laboratory requests that the acute and convalescent sera be submitted at the same time. For those agents for which IgM is available, submit the acute specimen when it is collected. See Chart V - 1 SEROLOGICAL TESTS AVAILABLE FROM THE TDH LABORATORY.

**Infectious Disease Serology (Continued)**

**Chart V - 1  
 Serological Tests Available from the TDH Laboratory**

Testing for infectious agents not listed in this chart may be available at the CDC.  
 Consult with the TDH Laboratory concerning testing not listed.

Agent or Disease Suspected	Specimen Needed	Test Method	Normal Reference Range <sup>1</sup>	Turn Around Time (days) <sup>2</sup>
Eastern Equine encephalitis virus	Acute and convalescent(14 days) sera	IFA IgG	<1:16	5
		IFA IgM	<1:16	5
<i>Ehrlichia chaffeensis</i>	Acute and convalescent(28 days) sera	IFA, IgG	<1:128	5
Human immunodeficiency virus Type 1 (HIV-1) <sup>3</sup>	Whole, clotted blood or serum	Screening - EIA	Non-Reactive	7
		Confirmation - WB	Non-Reactive	7
LaCrosse (California encephalitis group) virus	Acute and convalescent(14 days) sera	IFA IgG	<1:16	5
		IFA IgM	<1:16	5
<i>Legionella pneumoniae</i> (Type 1-specific)	Acute and convalescent(28 days) sera	IFA, IgG	<1:128	5
Measles virus <sup>4</sup> (Rubeola)	Immunity Screening -- Whole clotted blood or serum	EIA (IgG)	Positive (Immune)	5
Measles virus (Rubeola) <sup>4</sup>	Diagnostic -- Acute and convalescent (14 days) sera	EIA (IgG)	Negative	1
		EIA (IgM)	Negative	1
Mumps virus <sup>4</sup>	Immunity Screening -- Whole clotted blood or serum	EIA (IgG)	Positive (Immune)	5
Mumps virus	Diagnostic -- Acute and convalescent (14 days) sera	EIA (IgG)	Negative	1
<i>Mycoplasma pneumoniae</i>	Acute and convalescent(14 days) sera	EIA IgM	Negative	5
		EIA IgG	Negative	5
Q Fever ( <i>Coxiella burnetii</i> ) Phases 1 and 2	Acute and convalescent(28 days) sera	IFA, IgG	<1:256	5
Rocky Mountain Spotted Fever ( <i>Rickettsia rickettsii</i> )	Acute and convalescent(28 days) sera	IFA, IGG	<1:128	5
Rubella virus	Immunity Screening -- Whole clotted blood or serum	EIA (IgG)	Positive (Immune)	5

**Infectious Disease Serology (Continued)**

**Chart V - 1 (continued)  
 Serological Tests Available from the TDH Laboratory**

Agent or Disease Suspected	Specimen Needed	Test Method	Normal Reference Range <sup>1</sup>	Turn Around Time (days) <sup>2</sup>
St. Louis encephalitis virus	Acute and convalescent (14 days) sera	IFA IgG IFA IgM	<1:16 <1:16	5 5
Typhus ( <i>Rickettsia typhi</i> )	Acute and convalescent (28 days) sera	IFA, IgG	<1:128	5
West Nile Virus <sup>4</sup> (WNV)	Acute and convalescent (14 days) sera or CSF	EIA IgG EIA IgM	Negative Negative	5 5
Western Equine encephalitis virus	Acute and convalescent (14 days) sera	IFA IgG IFA IgM	<1:16 <1:16	5 5

Abbreviations

EIA	Enzyme Immunoassay	IgG G	Class Immunoglobulin
WB	Western Blot	IgM M	Class Immunoglobulin
IFA	Indirect Fluorescent Antibody	Quant	Quantitation, Quantitated

<sup>1</sup>The normal reference range as stated in this table is for a single serum.

<sup>2</sup>Turn-around time is the number of working days from receipt of the specimen by the testing laboratory until the laboratory sends a report of test results.

<sup>3</sup>An EIA procedure is performed at the Knoxville, Jackson and Nashville laboratories to screen serum specimens for antibody to HIV-1. The WB procedure is performed at the Nashville laboratory as a confirmatory test for those specimens found repeatedly reactive for HIV-I antibody by the EIA procedure. The Knoxville and Jackson laboratories forward specimens for the WB procedure to the Nashville laboratory. Testing is available only to the TDH STD/HIV Control Program's counseling and testing sites.

<sup>4</sup>Prior approval required before specimen submission.

## Infectious Disease Serology (Continued)

### Specimen Collection

#### Blood

1. Collect an acute serum as soon after the onset of the illness as possible. A convalescent serum should be collected 14 days after the collection of the acute serum. Exceptions to this general rule of collection of specimens are noted in Chart V - 1 SEROLOGICAL TESTS AVAILABLE FROM TDH LABORATORY
2. Draw at least 5 to 7 ml of blood into a red-top vacuum tube allowing the tube to fill completely. Allow the tube to stand at room temperature to ensure complete clotting of blood. Blood should not be taken for 1 hour after a meal to avoid chylous serum.
3. Store the specimen in a refrigerator until it is sent to the laboratory. If a sample of serum is to be sent to the laboratory, separate the serum from the blood clot by centrifuging the whole clotted blood at 1,500 to 2,000 rpm at room temperature for 10 minutes. Pipette the serum into a new red-top vacuum tube or a sterile plastic screw-capped vial. **A minimum of 1 ml of serum should be sent to the laboratory for testing.**

Serum-separating tubes may be used to collect the specimens for serological testing. These specimens should be sent to arrive in the testing laboratory within 48 to 72 hours of collection to avoid having the red blood cells hemolyze and "spill" into the upper portion of the tube.

4. Acute serum that is held until the collection of a convalescent serum should be separated from the blood clot and stored frozen until collection of the convalescent serum. Acute serum will not be tested routinely unless the TDH Laboratory offers testing for the IgM class of antibody for the analytic testing requested. Convalescent specimens may be run as stand alone specimens in limited situations. Consultation with the supervisor of the Serology Unit is required before the convalescent serum will be tested singly.

#### Spinal Fluid

Prior arrangement must be made with the TDH Laboratory before cerebrospinal fluid (CSF) specimens are submitted for serologic testing. The VDRL test for syphilis is routinely performed on CSF. The EIA test for West Nile Virus (WNV) IgM is performed on CSF seasonally.

#### Specimen Identification

1. Use the appropriate form for the test requested:

Rubella	Rubella Form PH-1917
HIV-1	HIV-1 Serology Form PH-3173
Other non-syphilis serology	Immunoserology Form PH-1589

**Complete all the information on the form.** Include pertinent clinical information with each specimen. Be specific about why the specimen is being submitted to the laboratory.

**For rubella, measles (rubeola) and mumps,** indicate whether the specimen is for diagnosis of a current infection or for immunity screening and if the patient is a prenatal or family planning patient.

**For HIV-1** serological testing, include the information as prescribed by the TDH STD/HIV Control Program.

## Infectious Disease Serology (Continued)

- Using indelible ink, label each specimen with the patient's first and last name and the date of collection. Attach the tear strip number from the test request form to the specimen and secure it with transparent tape. Those providers submitting electronic test requests should affix a label produced by Laboratory Order Entry (LOE) to the associated specimen. Unlabeled specimens or specimens containing information that does not exactly match the information on the accompanying test request form or electronic record **will not be tested**.

### Shipment of Specimens

- Packing and shipping specimens to the state public health laboratory requires personnel trained in current regulations. Follow the shipping guidelines of your current carrier or shipping method.
- Affix the mailing label (PH-0838), return address and other labeling required by pertinent regulations to the outer container.
- Ship to the Tennessee Department of Health Laboratory Services.

Location and address for items shipped by UPS, Federal Express and carriers other than the US Postal Service	Postal address for non-specimen mail	Postal address for specimen mail US Postal Service
Tennessee Department of Health Laboratory Services 630 Hart Lane Nashville, TN 37216-2006	Tennessee Department of Health Laboratory Services 630 Hart Lane Nashville, TN 37243	Tennessee Department of Health Laboratory Services P.O. Box 305130 Nashville, TN 37230-5130

- Use first-class postage on packages shipped via US Postal Service (USPS).

### Reporting Procedure and Interpretation

An interpretation of the results is given with each report. **For specimens sent to the CDC, the CDC will provide interpretation of test results.**

### Final Reporting

The results of all specimen requests are reported to the provider who submitted the specimen.

If the result of the specimen is positive for a notifiable disease, this result is also reported to the TDH Communicable and Environmental Disease Services and to the health department in the patient's county of residence.

## Criteria for Unacceptable Specimens

1. The specimen is not properly identified with required information.
2. The patient identifier on the specimen does not exactly match the identifier on the test request form or electronic record.
3. The specimen is broken or leaked in transit.
4. The specimen is extensively hemolyzed, lipemic (chylous), extremely turbid, or grossly contaminated with bacteria.
5. Whole, clotted blood was collected more than 7 days prior to receipt by the laboratory and serum not separated from the clot.
6. The quantity of the specimen received is not sufficient to allow accurate completion of test(s) requested. (QNS-Quantity Not Sufficient).
7. An acute serum specimen was submitted a month ago. A convalescent serum specimen has not been received.
8. The convalescent serum was collected sooner than 10 days from the date of collection of the acute serum. (The provider will be notified and asked to provide a more appropriately timed convalescent serum.)
9. No test request form or electronic record was received with the specimen or no specimen was received with a test request form or electronic record..

**Infectious Disease Serology (Continued)**

**Rubella Form PH-1917**

FRONT

SOCIAL SECURITY NO.			TENNCARE NO.			MCO			<b>RUBELLA SEROLOGY</b>			<b>A335477</b>								
MEDICARE NO.						RECORD FOLDER NO.						DATE REPORTED			DATE/TIME RECEIVED			▼ LAB NO. ▼		
PATIENT'S NAME - LAST, FIRST, MIDDLE									SPOUSE - FIRST NAME											
STREET AND NUMBER																				
TOWN					STATE					ZIP										
DATE OF BIRTH			RACE			ETHNICITY			SEX			PHONE NO.								
COUNTY NO.			COUNTY NAME						SITE NO.											
PURPOSE OF SPECIMEN																				
<input type="checkbox"/> IMMUNITY SCREENING * (Date of Collection _____)																				
<input type="checkbox"/> FAMILY PLANNING <input type="checkbox"/> PRENATAL																				
<input type="checkbox"/> EXPOSURE/DIAGNOSIS * (Date of Exposure _____)																				
DATE OF ONSET OF ILLNESS					DATE OF COLLECTION ACUTE					CONVALESCENT										
CLINICAL INFORMATION																				
EXAMINATION RESULTS * (*SEE REVERSE SIDE)																				
<input type="checkbox"/> IMMUNITY <input type="checkbox"/> NO IMMUNITY <input type="checkbox"/> EQUIVOCAL (SEE REVERSE SIDE)																				
<input type="checkbox"/> EXPOSURE/DIAGNOSIS - REPORT OF RESULTS IN LETTER FORM																				
<input type="checkbox"/> UNSATISFACTORY																				
EXAMINED BY:																				
RDA-1160																				

**ENZYME IMMUNOASSAY (EIA) TEST FOR RUBELLA ANTIBODY**

IMMUNITY SCREENING - single serum tested and reported as immunity, no immunity, or equivocal based on the following criteria:

NO IMMUNITY	-	Immune Status Ratio (ISR) less than or equal to 0.90
*EQUIVOCAL	-	Immune Status Ratio (ISR) greater than 0.90 but less than 1.10
IMMUNITY	-	Immune Status Ratio (ISR) greater than or equal to 1.10

\* Serum, producing equivocal results for 2 of the 3 tests performed on it, are reported as equivocal. Another serum should be submitted for testing with the method performed by Laboratory Services, or the new specimen may be submitted to another laboratory offering different test methodology.

EXPOSURE/DIAGNOSIS - Report of test results and interpretation of results are submitted to provider of specimen in letter form and are not reported via this form.

BACK

**Infectious Disease Serology (Continued)**

**HIV-1 Serology Form PH-3173  
 FRONT**

SOCIAL SECURITY NO.		TENNCARE NO.		MCO		<b>HIV - 1 SEROLOGY</b>			<b>B0979687</b>		
MEDICARE NO.			RECORD FOLDER NO.								
PATIENTS NAME - LAST, FIRST, MIDDLE				SPOUSE - FIRST NAME				COLLECTION DATE		LAB NO.	
STREET AND NUMBER						TYPE OF SPECIMEN: <input type="checkbox"/> SERUM <input type="checkbox"/> PLASMA			RISK FACTOR(S):		
TOWN		STATE		ZIP		<input type="checkbox"/> FOLLOW-UP TEST			DATE OF PREVIOUS TEST: / /		
DATE OF BIRTH		RACE	ETHNICITY	SEX	PHONE NO.		TEST RESULTS				
COUNTY NO.		COUNTY NAME			SITE NO.		<input type="checkbox"/> NON-REACTIVE FOR HIV-1 ANTIBODY BY EIA	<input type="checkbox"/> REPEATEDLY REACTIVE FOR HIV-1 ANTIBODY BY EIA	<input type="checkbox"/> NON-REACTIVE FOR HIV-1 ANTIBODY BY WESTERN BLOT	<input type="checkbox"/> REACTIVE FOR HIV-1 ANTIBODY BY WESTERN BLOT	<input type="checkbox"/> INDETERMINATE RESULTS FOR HIV-1 ANTIBODY BY WESTERN BLOT
NAME ADDRESS CITY STATE ZIP CODE						TEST INTERPRETATION					
						<input type="checkbox"/> NEGATIVE FOR HIV-1 ANTIBODY	<input type="checkbox"/> POSITIVE FOR HIV-1 ANTIBODY	<input type="checkbox"/> INDETERMINATE RESULTS FOR HIV-1 ANTIBODY (SEE BACK OF FORM)	<input type="checkbox"/> UNSATISFACTORY (REASON):		
PH-3173 REV 10/05		TENNESSEE DEPT OF HEALTH LABORATORY SERVICES DR. DAVID L. SMALLEY, PhD, MSS, BCLD, DIRECTOR			<input type="checkbox"/> K	<input type="checkbox"/> J	<input type="checkbox"/> N	EXAMINED BY:			RDA-1160

PLEASE FILL OUT SHADED AREA COMPLETELY

DETACH THIS STRIP  
 ↓  
 B0979687  
 SPECIMEN CONTROL NO.

**HIV-1 SEROLOGY**

Serum or plasma are the only acceptable specimens for testing for HIV-1 antibody.

Persons with INDETERMINATE HIV-1 antibody results should be retested in one to six months.

Interpretation of test results are based on package insert instructions for the commercial EIA procedure used and on current ASTPHLD/CDC recommendations for the Western Blot procedure.

EIA = Enzyme Immunoassay (Screening Test)  
 Western Blot (Supplementary Test)

**TESTING LABORATORY LOCATION CODES**

J = JACKSON BRANCH LAB, 285 SUMMAR DRIVE, JACKSON, TN - DR. ORISTYNE E. WALKER, PhD, HCLD, DIRECTOR  
 K = KNOXVILLE BRANCH LAB, 1522 CHEROKEE TRAIL, KNOXVILLE, TN - DR. DAVID L. SMALLEY, PhD, MSS, BCLD, DIRECTOR  
 N = NASHVILLE REFERENCE LAB, 630 HART LANE, NASHVILLE, TN - DR. DAVID L. SMALLEY, PhD, MSS, BCLD, DIRECTOR

EXPOSE ADHESIVE, REMOVE LINER  
 LINER  
 TO EXPOSE ADHESIVE  
 EXPOSE ADHESIVE, REMOVE LINER  
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 TO EXPOSE ADHESIVE  
 EXPOSE ADHESIVE, REMOVE LINER  
 LINER  
 TO EXPOSE ADHESIVE

**BACK**

**Infectious Disease Serology (Continued)**

**ImmunoSerology Form PH-1589**

SOCIAL SECURITY NO.			TENNCARE NO.			MCO			<b>IMMUNOSEROLOGY</b>			<b>B141501</b>											
MEDICARE NO.						RECORD FOLDER NO.						DATE REPORTED			LAB RECEIPT DATE/TIME			SPECIMEN CONTROL NO. LAB NO.					
PATIENTS NAME - LAST, FIRST, MIDDLE									SPOUSE - FIRST NAME									DATE OF ONSET			DATE OF COLLECTION: ACUTE _____ CONVALESCENT _____		
STREET AND NUMBER												TOWN			STATE			ZIP			TYPE OF SPECIMEN: <input type="checkbox"/> SERUM <input type="checkbox"/> CSF*		
DATE OF BIRTH			RACE			ETHNICITY			SEX			PHONE NO.			DISEASE SUSPECTED:								
COUNTY NO.			COUNTY NAME						SITE NO.			CLINICAL INFORMATION											
<b>EXAMINATION RESULTS</b>															<b>*SEE REVERSE SIDE</b>								
TEST NO.*	ACUTE TITER	CONVALESCENT TITER	EXPLANATION*	TEST USED*	TEST NO.*	ACUTE TITER	CONVALESCENT TITER	EXPLANATION*	TEST USED*	TEST NO.*	ACUTE TITER	CONVALESCENT TITER	EXPLANATION*	TEST USED*									
<input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/> SUBMITTED TO REFERENCE LABORATORY FOR EXAMINATION RESULTS FORTHCOMING.																							
PH-1589 REV 11-06												TENNESSEE DEPT. OF HEALTH LABORATORY SERVICES 600 HART LANE NASHVILLE, TN DR. DAVID L. SMALLEY, PH.D., M.S.S., BCLD., DIRECTOR			NASHVILLE CENTRAL LABORATORY			EXAMINED BY: _____ RDA-1160					

TEST NUMBERS			EXPLANATIONS		
RESPIRATORY	CNS	MISCELLANEOUS			
1 INFLUENZA A	21 MUMPS	41 SPOTTED FEVER GROUP	A	NO SEROLOGIC EVIDENCE OF INFECTION	
2 INFLUENZA B	22 HERPES SIMPLEX	42 TYPHUS FEVER GROUP	B	RESULTS COMPATIBLE WITH CURRENT INFECTION	
3 ADENOVIRUS	23 EAST EQUINE ENCEPHALO	43 Q FEVER (PHASE 1)	C	RESULTS COMPATIBLE WITH INFECTION AT UNDETERMINED TIME BUT NOT NECESSARILY RELATED TO THE PRESENT ILLNESS	
4 RESPIRATORY SYNCYTIAL	24 WEST EQUINE ENCEPHALO	44 Q FEVER (PHASE 2)	D	ANOTHER SERUM IS REQUESTED	
5 PARA INFLUENZA 1	25 ST. LOUIS ENCEPHALITIS	45 RUBEOLA (Red Measles)	E	OTHER _____	
6 PARA INFLUENZA 2	26 CALIF. ENCEPHALITIS	46	<b>TEST USED</b>		
7 PARA INFLUENZA 3	27 WEST NILE VIRUS	47	HI	HEMAGGLUTINATION - INHIBITION	
8 M PNEUMONIAE	28	48	AGG	AGGLUTINATION	
9	29	49 LEGIONNAIRES'S DISEASE	IFA	INDIRECT FLUORESCENT ANTIBODY	
10	30	50 EHRlichiosis (MONOCYTIC)	EIA	ENZYME IMMUNOASSAY	
11	31	51			
12	32	52			
13	33	53			
14	34	54			
15	35	55			
16	36	56			
17	37	57			
18	38	58			
19	39	59			
20	40	60			

PRIOR ARRANGEMENT MUST BE MADE WITH THE STATE REFERENCE LABORATORY BEFORE CEREBROSPINAL FLUID (CSF) SPECIMENS ARE SUBMITTED FOR SEROLOGIC TESTING

BACK

## Syphilis Serology

(615) 262-6374



### Introduction

Syphilis is a disease caused by infection with the spirochete *Treponema pallidum*. Serological tests greatly aid in the diagnosis of syphilis. Serologic assays used to screen patients for syphilis are non-treponemal tests. The non-treponemal test performed by the Tennessee Department of Health (TDH) Laboratory is the Rapid Plasma Reagin test (RPR). Quantitative RPR results may be used to monitor therapy for *T. pallidum* infections.

Confirmation of reactive RPR screening test results is obtained with specific treponemal tests for syphilis. The *Treponema pallidum*-Particle Agglutination test (TP-PA) is the TDH Laboratory's primary confirmatory test for *T. pallidum*-specific antibody. Suspected biologically false-positive results sometimes produced in the RPR test may be investigated with a TP-PA test. The Fluorescent Treponemal Antibody-Absorption-Double Stain Test (FTA-ABS-DS) also detects *T. pallidum*-specific antibody. It is available in limited circumstances. The TP-PA and FTA-ABS-DS **are not screening procedures** and are only performed when required for proper patient management.

The Venereal Disease Research Laboratory (VDRL) test is a non-treponemal test used to test cerebrospinal fluids (CSF). Positive test results are quantitated to aid in monitoring therapy for neurosyphilis. The RPR, TP-PA and FTA-ABS-DS tests **are not performed** on CSF.

### Specimen Acceptance Policy

The TDH Laboratory performs serological procedures for syphilis in support of:

- The state prenatal law.
- The TDH Sexually Transmitted Disease Control Program.
- The private medical community for which the state laboratories serve as reference laboratories.
- Other State agencies for which the TDH Laboratory has contracted or agreed to perform tests.

Testing for syphilis, non-treponemal and treponemal-specific, is available to all health care providers.

### Tennessee does not require premarital testing for syphilis.

Syphilis screening tests will be performed for persons who intend to be married in a state requiring premarital syphilis testing. The TDH Laboratory will send appropriate premarital forms for the state in which the wedding will be performed with the results of the laboratory tests. Other states may not accept premarital syphilis testing performed by laboratories other than state public health laboratories such as the TDH Laboratory.

### Type of Specimen Required

For the tests performed at the TDH Laboratory, the specimen required and the application of the test refer to Chart V - 2 SEROLOGICAL TESTS FOR SYPHILIS.

**Syphilis Serology (Continued)**

**Chart V - 2  
 Serological Tests for Syphilis**

	Test	Specimen Required	Application of Test
Non-treponemal Tests	RPR	Whole, clotted blood, serum, or plasma *	Screening (for example, prenatal or STD clinics), monitoring treatment. Performed at Nashville, Knoxville and Jackson Labs.
	VDRL	Cerebrospinal fluid	Congenital syphilis, central nervous system involvement (neurosyphilis). Performed only at Nashville Lab.
Treponemal Antibody Tests**	TP-PA	Whole, clotted blood or serum	Detection of false-positive RPR results, monitoring of infants for possible congenital syphilis. Performed at Nashville, Knoxville and Jackson Labs.
	FTA-ABS-DS	Whole, clotted blood or serum	To aid in diagnosis of suspected primary syphilis when the RPR is reactive and the TP-PA test is non-reactive. Performed only at Nashville Lab.

\* Plasma can be tested with the RPR test, but plasma is not the preferred specimen. Serum is preferred because it is required for subsequent treponemal antibody tests that may need to be performed after the RPR test is completed. Also, plasma must be tested within 48 hours of collection or the risk of false RPR results is greatly increased.

\*\* Treponemal antibody tests will not routinely be performed on specimens that produce negative results on the screening test (RPR). An exception is that the TP-PA will be performed at the provider's request on specimens that may produce negative RPR results but are from patients (birth to 15-months-old) who may have congenital syphilis.

**Specimen Collection**

Draw only one syphilis serology blood tube on each patient, even for those requiring a confirmatory test. Additional tubes are unnecessary for two tests and add to the risk of identification errors.

**WHOLE, CLOTTED BLOOD OR SERUM**

- Using a 5 to 7 ml red-top vacuum tube, draw enough blood to completely fill the tube. Allow the tube to stand at room temperature to ensure complete clotting of blood. Blood should not be taken for 1 hour after a meal to avoid chylous serum.

## **Syphilis Serology (Continued)**

2. Store the specimen in a refrigerator (2 to 8°C) until it is sent to the laboratory. If serum is to be sent, separate the serum from the blood clot by centrifuging the whole, clotted blood at 1,500 to 2,000 rpm's at room temperature for 10 minutes. Pipette the serum into a new red-top vacuum tube or plastic screw-capped vial. Submit at least 2 ml of serum.

### **PLASMA**

Plasma is not a recommended specimen for syphilis testing. It may be submitted (1 to 2 ml) for the screening procedure for syphilis (RPR), but is not a suitable specimen for subsequent TP-PA or the FTA-ABS-DS procedures. Plasma must be tested within 48 hours from the time of collection to produce reliable RPR results.

### **CEREBROSPINAL FLUID (CSF)**

Submit 1 to 2 ml of CSF in a sterile, plastic screw-capped vial.

### **Specimen Identification**

1. **Complete all information on the Syphilis Serology Form PH-1578.** Mark the test requested and include pertinent clinical information with each specimen.
2. Label each specimen with the patient's name and the collection date. Attach the control number on the tear strip to the specimen and secure it with transparent tape. Those providers submitting electronic test requests should affix a label produced by Laboratory Order Entry (LOE) to the associated specimen. Unlabeled specimens or specimens containing information that does not exactly match the information on the accompanying test request form or electronic record **will not be tested.**
3. When requesting a TP-PA test, the results of an RPR or other screening procedure must be indicated. Previous TP-PA results must be indicated when requesting the FTA-ABS-DS test.

### **Shipment of Specimens**

1. Packing and shipping specimens to the state public health laboratory requires personnel trained in current regulations. Follow the shipping guidelines of your current carrier or shipping method.
2. Affix the mailing label (PH-0838), return address and other labeling required by pertinent regulations to the outer container.
3. Use first-class postage on packages shipped via US Postal Service (USPS).
4. Ship blood or serum specimens for the RPR or TP-PA to the TDH Laboratory in **Jackson, Knoxville,** or **Nashville.** Ship blood or serum specimens for the FTA-ABS-DS test or cerebrospinal fluid specimens for the VDRL test to the Laboratory in **Nashville.**

## Syphilis Serology (Continued)

### Interpretation of Laboratory Results

#### Screening (RPR)

Normal: Non-reactive  
Abnormal: Reactive

#### Confirmatory (TP-PA, FTA-ABS-DS)

Normal: Non-reactive,  
Abnormal: Reactive

Positive reactions will occur within 10 to 90 days following exposure or 7 to 10 days after onset of primary lesion.

Biological false-positive RPR results may occur. Possible causes for biological false-positive RPR results:

Narcotic addiction	Hepatitis
Aging	Leprosy
Terminal malignancy	Pregnancy
Viral diseases, e.g., chickenpox, measles, infectious mononucleosis, pneumonia, etc.	Rheumatoid arthritis
Malaria	Systemic lupus erythematosus

### Reporting Procedure and Interpretation

Results of the non-treponemal tests for syphilis performed on serum or plasma are available within 1 working day after receipt of the specimen. Results of the TP-PA tests are available within 3 working days. The FTA-ABS-DS results are available within 7 working days. Results of the VDRL test on cerebrospinal fluids are available within 7 working days after receipt of the specimen.

Results of Tests for Syphilis are Reported
Reactive (The RPR and VDRL are quantitated. These results are reported as dils.)
Non-reactive

The results of all specimen requests are reported to the provider who submitted the specimen. In addition, The TDH Sexually Transmitted disease (STD) control, the regional STD control representative and the health department in the county where the patient lives are sent reports on positive specimens.

For a premarital test, a premarital certificate for the specific state will be sent to the provider with the laboratory results. **Tennessee does not require a premarital syphilis test.**

**Syphilis Serology (Continued)**  
**Criteria for Unacceptable Specimens**

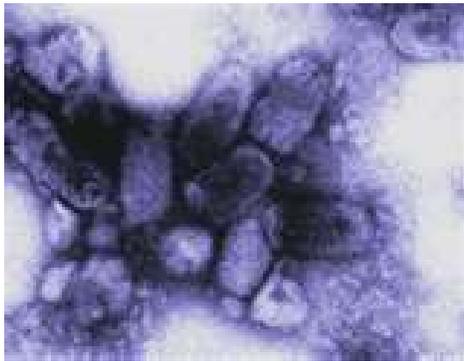
1. The specimen is not properly identified with required information.
2. The patient identifier on the specimen does not match that on test request form or electronic record.
3. The specimen is broken or leaked in transit.
4. The specimen is extensively hemolyzed, lipemic (chylous), extremely turbid, or grossly contaminated with bacteria.
5. Whole, clotted blood collected more than 7 days prior to receipt by the laboratory.
6. Plasma collected more than 48 hours prior to receipt by the laboratory.
7. The quantity of the specimen received is not sufficient to allow accurate completion of test requested. (QNS-Quantity Not Sufficient.)
8. Cerebrospinal fluid (CSF) shows evidence of contamination with blood or microbial growth.
9. No test request form or electronic record was received with the specimen, or no specimen was received with the test request form or electronic record.

**Syphilis Serology Form PH-1578**  
**FRONT**

SOCIAL SECURITY NO.		TENNACARE NO.		MCO		<b>SYPHILIS SEROLOGY</b>		B3020276		
MEDICARE NO.			RECORD FOLDER NO.			DATE REPORTED		DATE/TIME RECEIVED		LAB NO. ▼
PATIENT'S NAME - LAST, FIRST, MIDDLE					SPOUSE - FIRST NAME			COLLECTION DATE		TYPE OF SPECIMEN
STREET AND NUMBER						SERUM <input type="checkbox"/>		CSF <input checked="" type="checkbox"/>		
TOWN			STATE		ZIP		<b>PURPOSE OF SPECIMEN</b>			
DATE OF BIRTH		RACE	ETHNICITY	SEX	PHONE NO.		<input type="checkbox"/> SCREENING FOR: <input type="checkbox"/> ROUTINE, <input type="checkbox"/> TREATMENT, <input type="checkbox"/> PRENATAL <input type="checkbox"/> PREMARITAL, (For State of _____)			
COUNTY NO.		COUNTY NAME			SITE NO.		* <input type="checkbox"/> TP - PA ( <input type="checkbox"/> REACTIVE SCREEN, <input type="checkbox"/> NON-REACTIVE WITH CLINICAL SIGNS) * <input type="checkbox"/> FTA-ABS (TP-PA Results _____)			
<b>SEND REPORT TO</b>						† *SEE REVERSE SIDE		<b>TEST RESULTS</b>		
PLEASE FILL OUT SHADED AREA COMPLETELY		NAME		ADDRESS		RPR: <input type="checkbox"/> NON-REACTIVE, <input type="checkbox"/> REACTIVE (Titer) _____		AFFIX THIS NUMBER ON SPECIMEN TUBE  B3020276 SPECIMEN CONTROL NO.		
		CITY		STATE	ZIP CODE	TP-PA: <input type="checkbox"/> NON-REACTIVE, <input type="checkbox"/> REACTIVE				
		CITY		STATE	ZIP CODE	FTA-ABS: <input type="checkbox"/> NON-REACTIVE, <input type="checkbox"/> REACTIVE, <input type="checkbox"/> REACTIVE MINIMALLY **				
CITY		STATE	ZIP CODE	VDRL: <input type="checkbox"/> NON-REACTIVE, <input type="checkbox"/> REACTIVE (Titer) _____						
PH-1578 REV. 10/06		TENNESSEE DEPT. OF HEALTH LABORATORY SERVICES DR. DAVID L. SMALLEY, PhD, MSS, BCLD, DIRECTOR			<input type="checkbox"/> J LABORATORY PERFORMING EXAMINATION <input type="checkbox"/> K <input type="checkbox"/> N		EXAMINED BY: _____		RDA-1160	

REMOVE LINER TO EXPOSE ADHESIVE REMOVE LINER		<b>INSTRUCTIONS</b>		REMOVE LINER TO EXPOSE ADHESIVE REMOVE LINER	
1. Use 13 x 100 mm size vacutainer type tube with no additive for submitting syphilis serology specimen. If serum is sent, send the serum in a vacutainer type tube. At least 5 ml of clotted blood or 2 ml of serum should be submitted.					
2. Detach the specimen control number from the form and attach it to the specimen tube and print the patients name on the specimen tube.					
3. Completely fill out the shaded portions of the form.					
† = The VDRL test will be used to test CSF.					
* = The TP-PA and/or FTA-ABS tests will not be used as screening procedures and will be performed only on serum for which a screening procedures has been performed. The TP-PA test is this laboratory's primary test for confirmation of syphilis antibodies and will be performed before the use of the FTA-ABS test is considered.					
** = In the absence of historical or clinical evidence of treponemal infection, this test result should be considered equivocal. A second specimen should be submitted for serologic testing.					
<b>TESTING LABORATORY LOCATION CODES</b>					
J = JACKSON BRANCH LAB, 295 SUMMAR DRIVE, JACKSON, TN - DR. ORISTYNE E. WALKER, PhD, HCLD, DIRECTOR K = KNOXVILLE BRANCH LAB, 1522 CHEROKEE TRAIL, KNOXVILLE, TN - DR. DAVID L. SMALLEY, PhD, MSS, BCLD, DIRECTOR N = NASHVILLE REFERENCE LAB, 630 HART LANE, NASHVILLE, TN - DR. DAVID L. SMALLEY, PhD, MSS, BCLD, DIRECTOR					
ADHESIVE REMOVE LINER TO EXPOSE				TO EXPOSE ADHESIVE REMOVE LINER	

**BACK**



## Rabies Virus

(615) 262-6350

### Introduction

The direct fluorescent antibody procedure to detect rabies virus in brain material is performed at the Tennessee Department of Health Laboratories (TDH) in Jackson, Nashville and Knoxville. This testing service is available to state rabies control personnel, veterinarians licensed in the state of Tennessee and any health care provider licensed by and practicing in Tennessee. The mouse inoculation procedure to detect rabies virus is available for limited use at the Nashville laboratory.

### Specimen Acceptance Policy

Only animals that have potentially exposed a person, household pet, or livestock to rabies or animals of interest to rabies control personnel should be submitted. Exposure is defined as a bite or contamination of scratches, abrasions, open wounds, or mucous membranes with infectious saliva.

Dogs and cats are the only animals that should be kept alive and held 10 days for observation following a bite. Observation is of value because the period of time the virus can be excreted in the saliva prior to onset of signs can be predicted. It is known that dogs and cats can excrete rabies virus up to five days prior to onset of signs. The ten-day observation period for dogs and cats is twice that predicted time, allowing a margin of safety. If a dog or cat shows no clinical signs of rabies after 10 days of observation, it is safe to assume that the animal was not shedding rabies virus at the time of the bite. Conversely, if a dog or cat exhibits signs of rabies, it should be tested. Euthanize the animal and submit only the head to the laboratory for testing.

Unlike dogs and cats, the period of time that rabies virus can be excreted in the saliva of wild carnivores (such as foxes, skunks, raccoons, bobcats, etc.) before the animal shows signs of rabies cannot be predicted; therefore, an animal in this group should not be held for observation following a bite. If testing criteria have been met, these animals should be caught and euthanized immediately. Only the head should be sent to the laboratory for rabies virus detection. Do not destroy the brain.

Bats to be tested should be caught, euthanized and the entire animal should be submitted to the laboratory for rabies virus detection. Do not destroy the brain.

### Specimen Collection

Brain tissue is examined for the detection of rabies infection in animals. Therefore, only the animal's head should be submitted for diagnostic purposes. For bats, the entire DEAD animal should be submitted. Animals should be euthanized in a manner that will not destroy the brain. The animal's neck should be severed at the midpoint between the base of the skull and the shoulders. Specimens must not be frozen, fixed in formalin, or shipped on dry ice.

## Rabies Virus (Continued)

### Specimen Identification

1. Complete **all** the information on Rabies Form PH-1584.
2. Label the outside of the specimen container with the type of animal (dog, cat, cow, etc.) and the tear strip number from the accompanying Rabies Form PH-1584. Secure the label with transparent tape.

### Shipment of Specimen

1. Packing and shipping specimens to the state public health laboratory requires personnel trained in current regulations. Follow the shipping guidelines of your current carrier or shipping method.
2. Affix the mailing label (PH-0838), return address and other labeling required by pertinent regulations to the outer container.
3. Ship the specimen by the fastest means possible to the TDH Laboratory in **Jackson, Knoxville, or Nashville**. Transport by the provider's personal courier is preferred, but shipment by commercial couriers is acceptable, if permitted.
4. **It is against US postal regulations to send this type of specimen through the mail.**

### Reporting Procedure and Interpretation

Positive rabies test results will be reported immediately by telephone to the the State Rabies Control Officer or his representative. Unsatisfactory specimens will also be reported to the State Rabies Control Officer or his representative. All test results will be mailed to the provider. The health department of the county in which the animal specimen was obtained will be sent a report of all positive results via the State Rabies Control Officer or his representative.. Results are available within 24 to 36 hours after receipt of the specimen except for those specimens received on Friday afternoon.

Results of Fluorescent Rabies Antibody Tests Are Reported
Rabies virus found by FRA (Fluorescent Rabies Antibody)
Rabies virus not found by FRA (Fluorescent Rabies Antibody)

The mouse inoculation test, if needed, may take as long as 28 days before a result is available.

Results of Mouse Inoculation Tests Are Reported
Rabies virus found by mouse inoculation.
Rabies virus not found by mouse inoculation.

**Rabies Virus (Continued)**

**Criteria for Unacceptable Specimens**

1. The specimen is received without an accompanying Rabies Request Form, PH-1584.
2. The brain material has deteriorated or decayed to the extent that anatomical features of the brain are no longer distinguishable.
3. The brain has been mutilated to the extent that anatomical features (areas) of the brain can not be distinguished.
4. There is no brain evident in the head submitted.
5. The specimen is fixed in formalin.

NOTE: Frozen specimens are not necessarily unacceptable. Freezing and thawing of brain tissue is very damaging to the tissue. The acceptability of a frozen specimen will be decided once the specimen is thawed. Submitting a frozen specimen usually causes at least a one day delay for rabies testing.

**Rabies Form PH-1584  
 FRONT**

DO NOT DETACH

B102252

SOCIAL SECURITY NO.		TENNCARE NO.		MCO		<b>RABIES</b>			
MEDICARE NO.			RECORD FOLDER NO.			DATE REPORTED		LAB RECEIPT DATE/TIME	
PATIENTS NAME - LAST, FIRST, MIDDLE				SPOUSE - FIRST NAME				▼ LAB NO. ▼	
STREET AND NUMBER						KIND OF ANIMAL		DATE OF FIRST SYMPTOMS	
TOWN		STATE		ZIP				DATE OF DEATH	
DATE OF BIRTH		RACE	ETHNICITY	SEX	PHONE NO.		<input type="checkbox"/> DIED <input type="checkbox"/> KILLED    SYMPTOMS TYPE OF EXPOSURE    1 <input type="checkbox"/> HUMAN    2 <input type="checkbox"/> OTHER ANIMAL		
COUNTY NO.		COUNTY NAME			SITE NO.		3 <input type="checkbox"/> BITE    LOCATION _____ 4 <input type="checkbox"/> SCRATCH    5 <input type="checkbox"/> HANDLED    6 <input type="checkbox"/> CONTACT WITH SALIVA		
SEND REPORT TO						OWNER		WAS THE ATTACK PROVOKED?    1 <input type="checkbox"/> YES    2 <input type="checkbox"/> NO	
NAME _____ ADDRESS _____ CITY _____ STATE _____ ZIP CODE _____						OWNER'S ADDRESS		EXAMINATION RESULTS	
								1 <input type="checkbox"/> RABIES VIRUS FOUND BY FRA    2 <input type="checkbox"/> RABIES VIRUS NOT FOUND BY FRA 3 <input type="checkbox"/> RABIES VIRUS FOUND BY MOUSE INOCULATION    4 <input type="checkbox"/> RABIES VIRUS NOT FOUND BY MOUSE INOCULATION 5 <input type="checkbox"/> UNSATISFACTORY 6 <input type="checkbox"/> MOUSE INOCULATION TEST UNDERWAY. RESULTS WILL FOLLOW IN 4-5 WEEKS. 7 <input type="checkbox"/> SUBMITTED TO REFERENCE LABORATORY FOR EXAMINATION. RESULTS FORTHCOMING.	
PH-1584 REV 11/05		TENNESSEE DEPT. OF HEALTH LABORATORY SERVICES DR. DAVID L. SMALLEY PhD, MSS, BCLD, DIRECTOR				<input type="checkbox"/> J <input type="checkbox"/> K <input type="checkbox"/> N LABORATORY PERFORMING EXAMINATION		EXAMINED BY: _____	

NOTHING ON BACK OF FORM

# Virus Culture

(615) 262-6350



## Introduction

The Virology Unit is responsible for culturing and identifying viruses in clinical specimens. Virus culture provides a mechanism for the detection and identification of many human viruses that cause a wide variety of common illnesses. Specimens for culture of human viruses will be accepted from both public and private health care providers.

Virus culturing and identification that is not performed at the Tennessee Department of Health (TDH) Laboratory may be available at the Centers for Disease Control and Prevention (CDC) in Atlanta. **Consult with the Virology Unit prior to submitting specimens for testing for viruses other than those listed in Chart V-3.** According to CDC's guidelines, all specimens submitted to the CDC must come through the state laboratory or receive the state laboratory's approval for direct shipment from the provider to the CDC.

## Specimen Collection

Collect specimens for virus isolation during the early, acute, febrile phase of illness. Specimens collected more than one week after onset of symptoms usually do not yield live viruses. The source of the specimen collected must be carefully matched with the virus suspected. The virus isolation services available at the TDH Laboratory and the specimen of choice for each virus is described in Chart V - 3 VIRUSES FOR WHICH ROUTINE CULTURING IS AVAILABLE.

**Chart V - 3**  
**Viruses for Which Routine Culturing is Available**  
 Consult with the TDH Laboratory for additional tests  
 Which may be available at the CDC.

Virus	TEST METHOD	SPECIMEN SOURCE/TYPE
Adenovirus (Types 1-41)	Cell culture FA Neutralization	Throat washing or swab, nasopharyngeal wash or swab, conjunctival swab, feces, urine
Coxsackie virus (A & B)	Cell culture Neutralization	Throat swab, feces, CSF, pericardial fluid
Cytomegalovirus	Cell culture FA	Urine, throat swab, buffy coat, lung tissue, lung aspirate
Echovirus (Types 1-33)	Cell culture Neutralization	Throat swab, feces, CSF, pericardial fluid
Enterovirus (Types 68-71)	Cell culture Neutralization	Throat swab, feces, CSF, pericardial fluid, vesicle scraping
Herpes simplex virus (Types 1 & 2)	Cell culture FA	Vesicle scraping, brain biopsy, conjunctival swab, urogenital swab
Influenza virus (A & B)	Cell culture FA HA HI PCR with consultation	Throat washing or swab, nasopharyngeal washing or swab

**Virus Culture (Cont.d)**

<b>Virus</b>	<b>TEST METHOD</b>	<b>SPECIMEN SOURCE/TYPE</b>
Measles virus (Rubeola)	Cell culture FA	Throat washing or swab, nasopharyngeal washing or swab, conjunctival secretions
Mumps virus	Cell culture HAdI FA	Throat washing or swab, urine, CSF, buccal swab
Parainfluenza virus (Types 1,2,& 3)	Cell culture FA HAdI	Throat washing or swab, nasopharyngeal washing or swab
Poliovirus (Types 1,2,& 3)	Cell culture Neutralization	Throat washing or swab, feces, nasopharyngeal washing or swab, rectal swab
Respiratory syncytial virus	Cell culture FA	Nasopharyngeal washing or swab
Rubella virus	Cell culture FA	Nasopharyngeal washing or swab, CSF, urine
Varicella-zoster virus (Chickenpox- shingles)	DFA Requires consultation with a Public Health Investigation Team (PHIT)	Vesicle scraping, swabbing

**ABBREVIATIONS**

FA - Fluorescent antibody  
 DFA- Direct Fluorescent Antibody  
 HA - Hemagglutination

HI - Hemagglutination inhibition  
 HAdI - Hemadsorption inhibition  
 EIA – Enzyme Immunoassay

Collect the specimen aseptically and place it in one of the following environments immediately.

- (1) Refrigerate at 2 to 8°C if the specimen will be delivered to the laboratory within 48 hours.
- (2) If receipt of the specimen by the laboratory will be longer than 48 hours from the time of collection, freeze the specimen at -70°C or at the lowest temperature possible and ship to remain frozen during transport.

**NOTE: DO NOT FREEZE THE FOLLOWING (Ship with “cold packs” artificial refrigerant):**

Specimens for isolation of respiratory syncytial virus (RSV).  
 Specimens for isolation of cytomegalovirus (CMV).  
 Blood specimens for virus isolation.

**Autopsy or Biopsy:** Collect fresh, unfixed tissue from the probable sites involved using a separate sterile instrument for each sample. Place each specimen into a separate small sterile vial of virus transport medium.

Consult with the Virology Unit prior to submitting autopsy or biopsy specimens for virus isolation.

**Cerebrospinal Fluid (CSF):** Aseptically collect 2 to 3 ml of CSF and transfer it to a sterile vial.

**Feces:** Place a piece of feces 4 to 8 grams (about the size of a grape) into a sterile container.

## **Virus Culture (Continued)**

**Rectal Swab:** Generally, rectal swabs are less satisfactory than feces for the isolation of viruses. If used, obtain a rectal swab by inserting a dry dacron swab at least 5 cm into the anal orifice, rotating the plastic or aluminum wire shaft and then withdrawing it. Some fecal material must be visible on the swab. Break or cut the shaft only enough so that the swab will fit into the viral transport medium container.

**Throat Swab** Vigorously rub both tonsils and the posterior wall of the pharynx with a dry, sterile, dacron swab. The swab should not touch the tongue or buccal mucosa. Break or cut the shaft only enough so that the swab will fit into the viral transport medium container.

**Throat Washing:** The patient should gargle with approximately 8 ml of suitable washing fluid (such as, tryptose phosphate broth, Hank's balanced salt solution, veal infusion broth, or sucrose-phosphate buffer). Collect the fluid in a sterile container with a leak-proof top.

**Nasal Swab:** Insert a dry dacron/ polyester (not alginate) swab into the nostril parallel to the palate and leave in place for a few seconds. Slowly withdraw it with a rotating motion. Obtain specimens from both nostrils with the same swab. Break off the tip of the swab into a tube containing approximately 1.5 ml of viral transport medium.

**Nasal Washing:** Place the patient in a comfortable position with the head slightly tilted backward. Advise him to keep the pharynx closed by saying "K" while the washing fluid is applied to the nostril. With a transfer pipette, apply 1 to 1.5 ml of washing fluid to one nostril at a time. Ask the patient to tilt his head forward and let the washing fluid flow into a sterile beaker or petri dish. Repeat the process alternately with both nostrils until approximately 8 ml of the washing fluid has been used. Transfer the washings from the sterile catch container (the sterile beaker or petri dish) to a sterile container with a leak-proof top for transport to the laboratory.

**Nasopharyngeal Swab:** Take nasal and throat swabs as described above and place into the same vial of transport medium.

**Nasopharyngeal Washing:** Take nasal and throat washings as described above and place into the same vial of transport medium.

**Urine:** Collect clean-catch urine, preferably the first voided morning urine, in a sterile container.

**Vesicle:** Using a sterile instrument, open the fluid-filled vesicle. Using firm pressure, absorb the fluid with a sterile dacron swab and scrape the perimeter of the lesion obtaining cellular material on the swab tip. Avoid causing excessive bleeding. Break off the swab tip into a vial of virus transport medium.

**Tissue Culture Isolates:** The Virology Unit provides reference services for other virology laboratories throughout Tennessee. Viral isolates should be observed microscopically at the initial laboratory until 50% or more of the available cell sheet is exhibiting viral cytopathic effect (CPE). Once the cell sheet is exhibiting 50% CPE, send a tube of the infected cell culture (frozen or unfrozen) to the TDH Nashville Laboratory for identification and/or typing of the virus. If the specimen is to be transported at ambient temperature, the tube of infected cell culture should be filled with a cell-culture-maintenance medium. If the specimen is to be frozen for transport, no more than 1 ml of maintenance medium should be in the tube. Indicate the type of cell culture and the number of times the virus was passed through culture on the specimen tube. Indicate the suspected virus on the test request form.

**Virus Culture (Continued)**

**Specimen Identification**

1. Complete **all** the information on the Virology Form PH-1579. Include pertinent clinical information with each specimen.
2. Using indelible ink, label each specimen with the patient's first and last name and the date of collection. Attach the tear strip number from the test request form to the specimen and secure it with transparent tape. Those providers submitting electronic test requests should affix a label produced by Laboratory Order Entry (LOE) to the associated specimen. Unlabeled specimens or specimens containing information that does not exactly match the information on the accompanying test request form or electronic record **will not be tested**.

**Shipment of Specimens**

1. Specimens that are to be hand-carried to the laboratory within 48 hours of collection of the specimen should be packed and submitted in accordance with shipping requirements for Category B substances if the specimen is a clinical specimen. If a viral isolate is being submitted, it should be shipped as a Category A substance regardless of the means of transport. Specimens which will arrive at the testing laboratory within 48 hours of collection need not be frozen but may be submitted with enough artificial refrigerant to keep the specimen cold during transport.
2. Specimens that will arrive at the testing laboratory more than 48 hours after collection should be frozen as soon after collection as possible. Pack them with enough dry ice to last 48 hours longer than the expected time required for transport of the specimen to the laboratory. Pack specimens so that direct contact with the dry ice is prevented. Ship /transport specimens in accordance with all pertinent regulations.

Do not freeze specimens for isolation of respiratory syncytial virus (RSV) or cytomegalovirus (CMV) or blood specimens. Ship these specimens refrigerated.

3. Affix the mailing label (PH-0838), return address and other labeling required by pertinent regulations to the outer container.
3. Ship the specimen to the TDH Laboratory in **Nashville**.

**Location and Mailing Addresses**

Location and address for items shipped by UPS, Federal Express and carriers other than the US Postal Service	Postal address for non-specimen mail	Postal address for specimen mail US Postal Service
Tennessee Department of Health Laboratory Services 630 Hart Lane Nashville, TN 37216-2006	Tennessee Department of Health Laboratory Services 630 Hart Lane Nashville, TN 37243-1404	Tennessee Department of Health Laboratory Services P.O. Box 305130 Nashville, TN 37230-5130

## Virus Culture (Continued)

### Reporting Procedures and Interpretation

Reporting of Results for Virus Cultures
Positive for _____. The name of the virus isolated. (The type is included if appropriate.)
No virus isolated.

Turn-around time for negative cultures varies from 1 to 4 weeks. Cultures yielding virus isolates may require more time for identification of the virus depending upon the isolate involved. Failure to isolate a virus may be the result of a number of factors, including improperly collected specimens, specimens collected at a period in the disease when the patient is not shedding virus, improperly transported specimens, or a lack of sensitivity in the system being used for isolation. Failure to isolate virus should not rule out the virus as a cause of the clinical illness. Conversely, since people may asymptotically carry a variety of viruses, viruses may be isolated which are unrelated to the current clinical illness.

**Virus Culture (Continued)**

The results of all specimen requests are reported to the provider who submitted the specimen. In addition the TDH Communicable and Environmental Disease Services and the health department in the county where the patient lives are sent reports on all positive results.

**Criteria for Unacceptable Specimens**

1. The specimen is not properly identified with the required information..
2. The patient identifiers on the specimen do not exactly match those on the test request form or the electronic record.
3. The specimen is broken or leaked in transit.
4. The specimen is inappropriate for virus isolation.
5. The quantity of specimen received is not sufficient to perform the requested testing. (QNS - Quantity Not Sufficient.)
6. The specimen is received in a compromising condition (i.e., warm, delayed in transit) situation.

**Virology Form PH-1579  
 FRONT**

SOCIAL SECURITY NO.		TENN CARE NO.		MCO		<b>VIROLOGY</b>		<b>B096098</b>									
MEDICARE NO.				RECORD FOLDER NO.				DATE REPORTED		DATE/TIME RECEIVED		LAB NO.					
PATIENT'S NAME - LAST, FIRST, MIDDLE						SPOUSE - FIRST NAME						COLLECTION DATE		DATE OF ONSET		DATE OF BIRTH	
STREET AND NUMBER												SOURCE/TYPE OF SPECIMEN:					
TOWN				STATE		ZIP		DISEASE/VIRUS SUSPECTED:									
DATE OF BIRTH		RACE		ETHNICITY		SEX		PHONE NO.				CLINICAL INFORMATION:					
COUNTY NO.		COUNTY NAME						SITE NO.				EXAMINATION RESULTS					
<b>SEND REPORT TO</b>																	
RESPOND TO	NAME																
	ADDRESS																
	CITY				STATE		ZIP CODE										
PH-1579 REV 11/08		 TENNESSEE DEPT. OF HEALTH LABORATORY SERVICES 630 HART LANE • NASHVILLE, TN DR. DAVID L. SMALLEY, PH.D., M.S.E., B.C.C.O., DIRECTOR						EXAMINATION PERFORMED AT NASHVILLE REFERENCE LABORATORY				EXAMINED BY:		RDA-1160			
<input type="checkbox"/> UNSATISFACTORY <input type="checkbox"/> SUBMITTED TO REFERENCE LAB FOR EXAM. RESULTS FORTHCOMING.																	

**NOTE: VIROLOGY FORM HAS NO PRINTING ON BACK**