

Arizona 2016 Zika Summit

May 24th

Laboratory Breakout Session

Arizona State Public Health Laboratory

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ARIZONA
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ZIKA
SUMMIT

Arizona Zika Action Plan Summit
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Zika Virus Biosafety

- Zika virus should be handled under BSL-2 laboratory precautions
- Similar arboviruses:
 - Dengue: BSL-2
 - Chikungunya: BSL-3
- Aerosol generating protocols should be performed in a biological safety cabinet
- Pregnant workers or those seeking to become pregnant should consider moving to duties other than working with Zika virus

Zika Virus Testing

- Submission must be approved by the local health department prior to shipping
- Trioplex r-RT-PCR (Den/Chik/Zika)
- Specimen types: serum, CSF, urine and amniotic fluid
- MAC ELISA (Zika IgM)
- Serum, CSF
- PRNT @ CDC Plaque-reduction neutralization testing can be performed to measure virus-specific neutralizing antibodies and discriminate between cross-reacting antibodies in primary flavivirus infections.

Laboratory Assays

PCR

- Viral RNA detectable within first 7 days after onset of illness in serum (longer in urine)
- Viremia decreases over time – a negative PCR in a sample collected 5 – 7 days after onset does not exclude a flavivirus infection
- Triplex Assay – A CDC developed real-time multiplexed assay for DENV, CHIKV, and ZIKV

Laboratory Assays

IgM Mac-ELISA

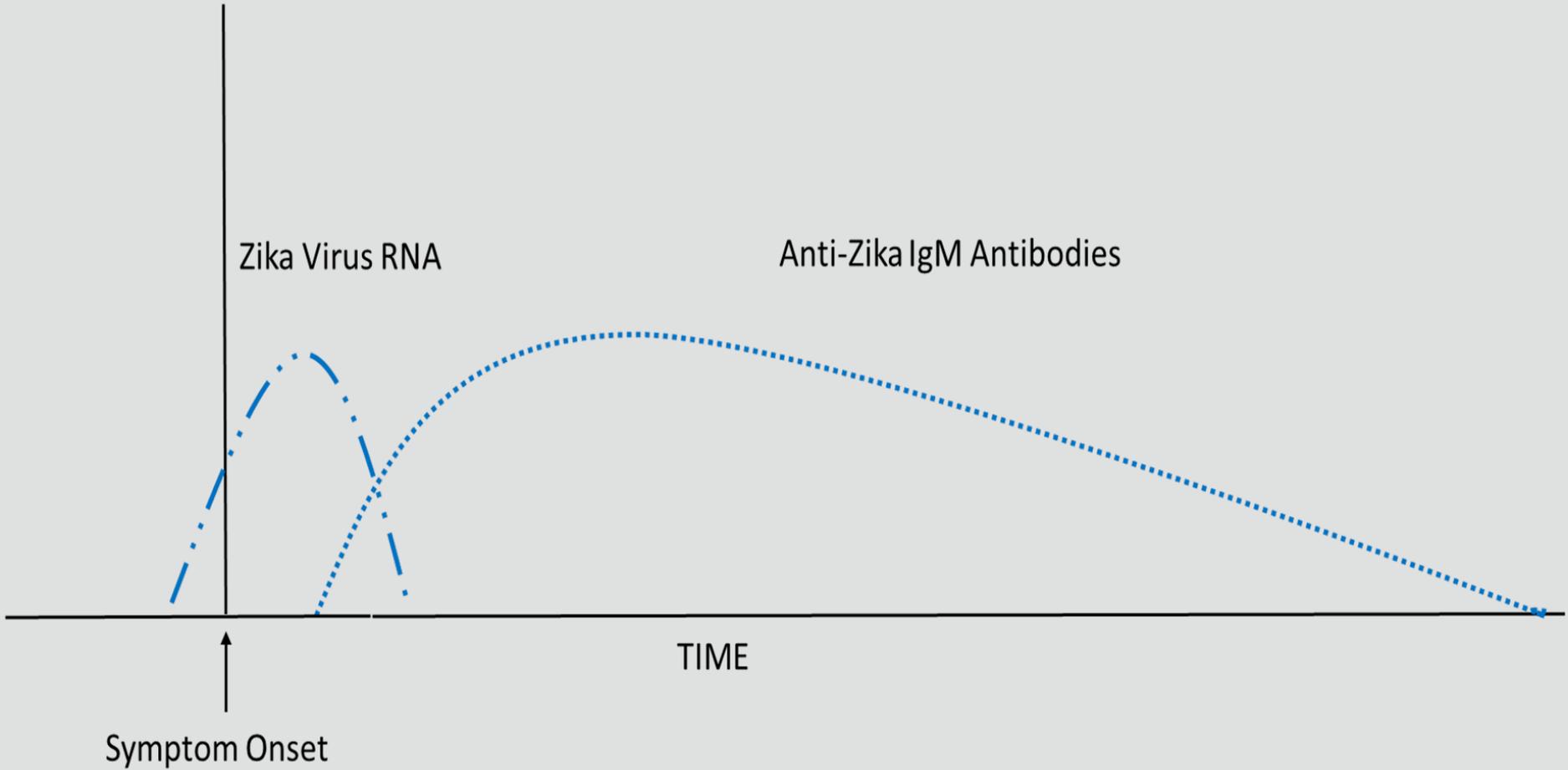
- Virus-specific IgM antibodies may be detectable ≥ 4 days after onset of illness
- Serum collected less than 7 days may not have detectable virus-specific antibodies
- IgM antibodies have strong cross-reactivity with other flaviviruses which may generate false positive results
- IgM positive result should be considered indicative of a recent flavivirus infection
- IgM antibodies persist for 2 – 12 weeks
- Positive results must be confirmed by testing for neutralizing antibodies

Laboratory Assays

Plaque Reduction Neutralization Test (PRNT)

- Measures virus-specific neutralizing antibodies
- May be able to determine the cause of a primary flavivirus infection
- Cross-reactive antibodies including those produced from vaccination (yellow fever / Japanese encephalitis) or previous infection with another flavivirus may make it difficult to determine cause of infection

DETECTING ZIKA VIRUS RNA AND ANTIBODIES



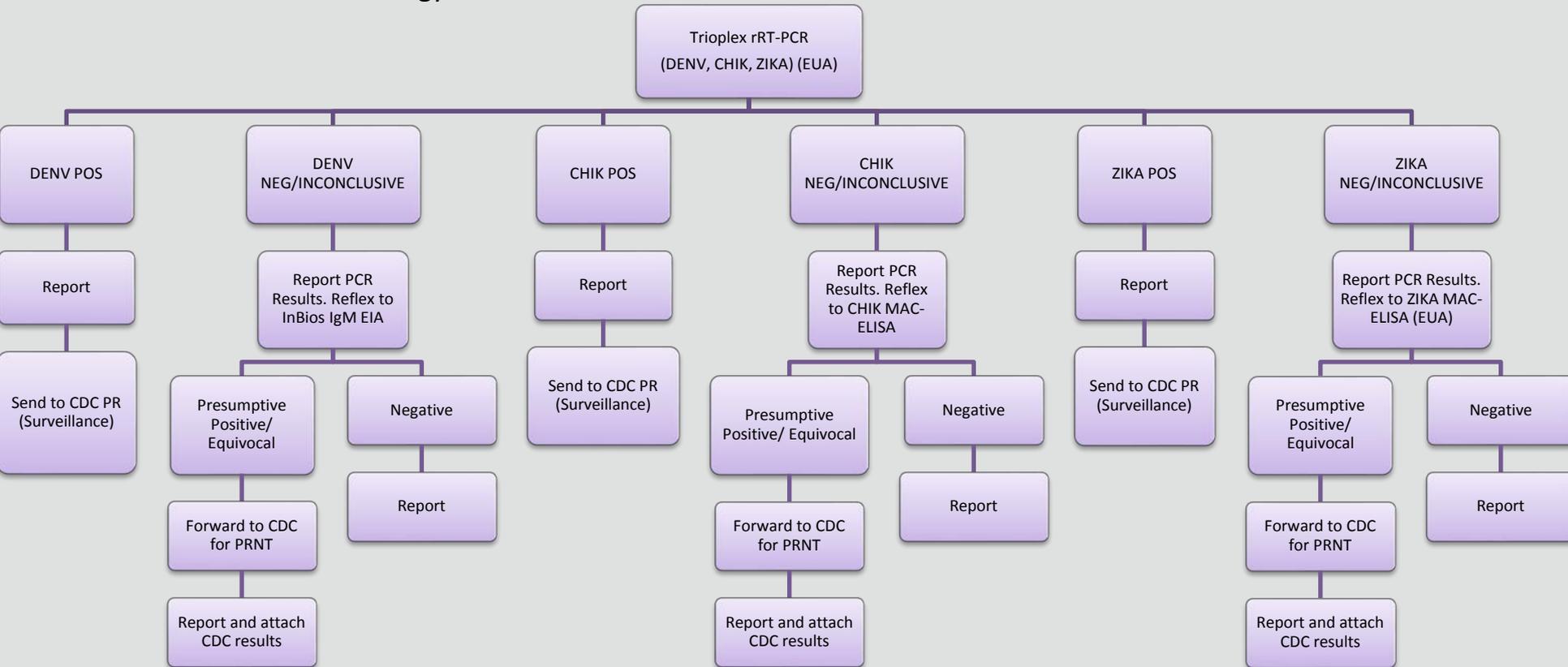
Suspect Zika:

Symptomatic Patient

Sample type: Serum, CSF

Window Period for Testing: <7 days post onset of symptoms

STARLIMS Module: Serology



Suspect Zika:

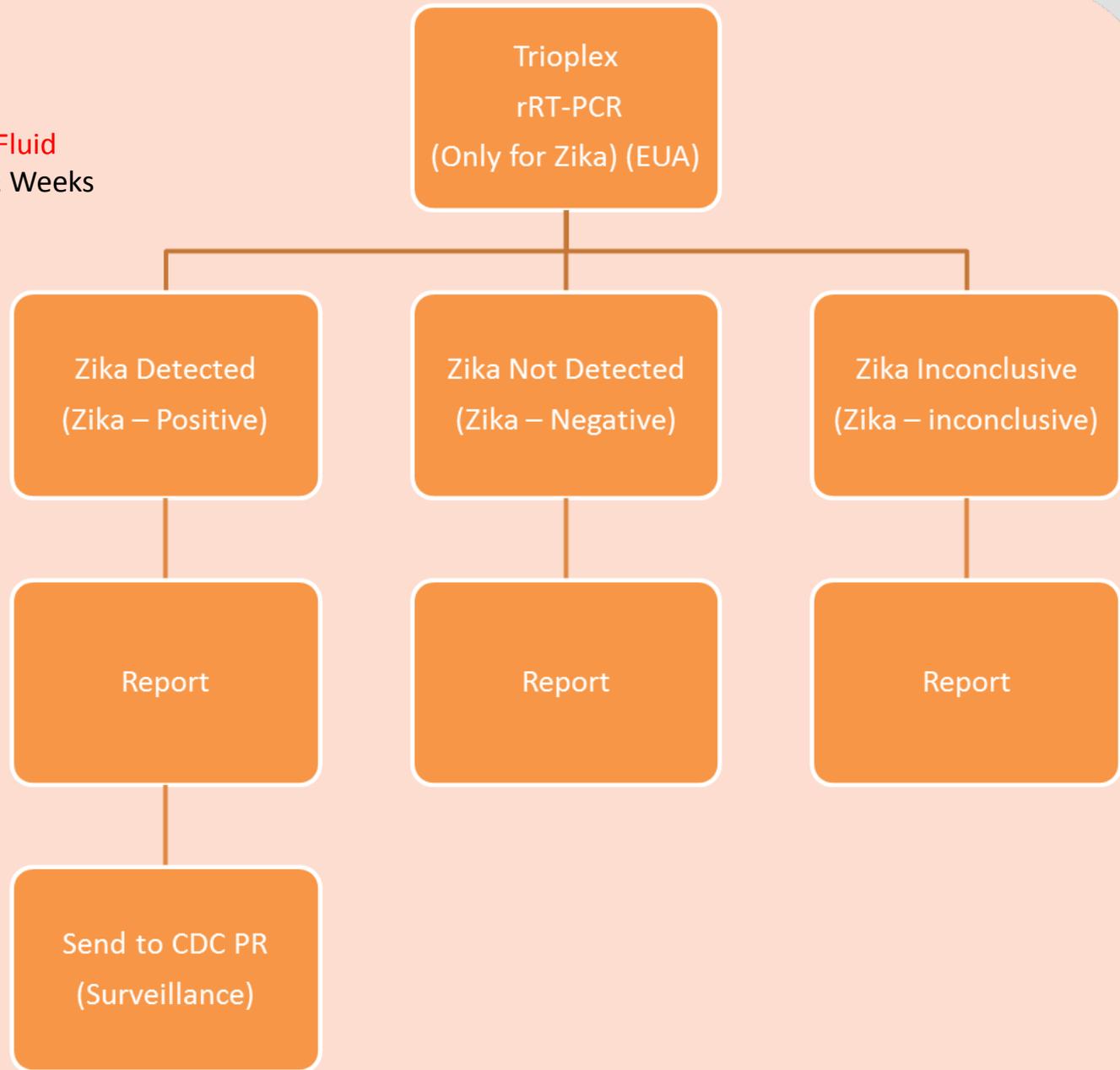
Symptomatic Patient

Sample type: Urine, Amniotic Fluid

Window Period for Testing: <2 Weeks

STARLIMS Module: Virology

Molecular Testing



Suspect Zika:

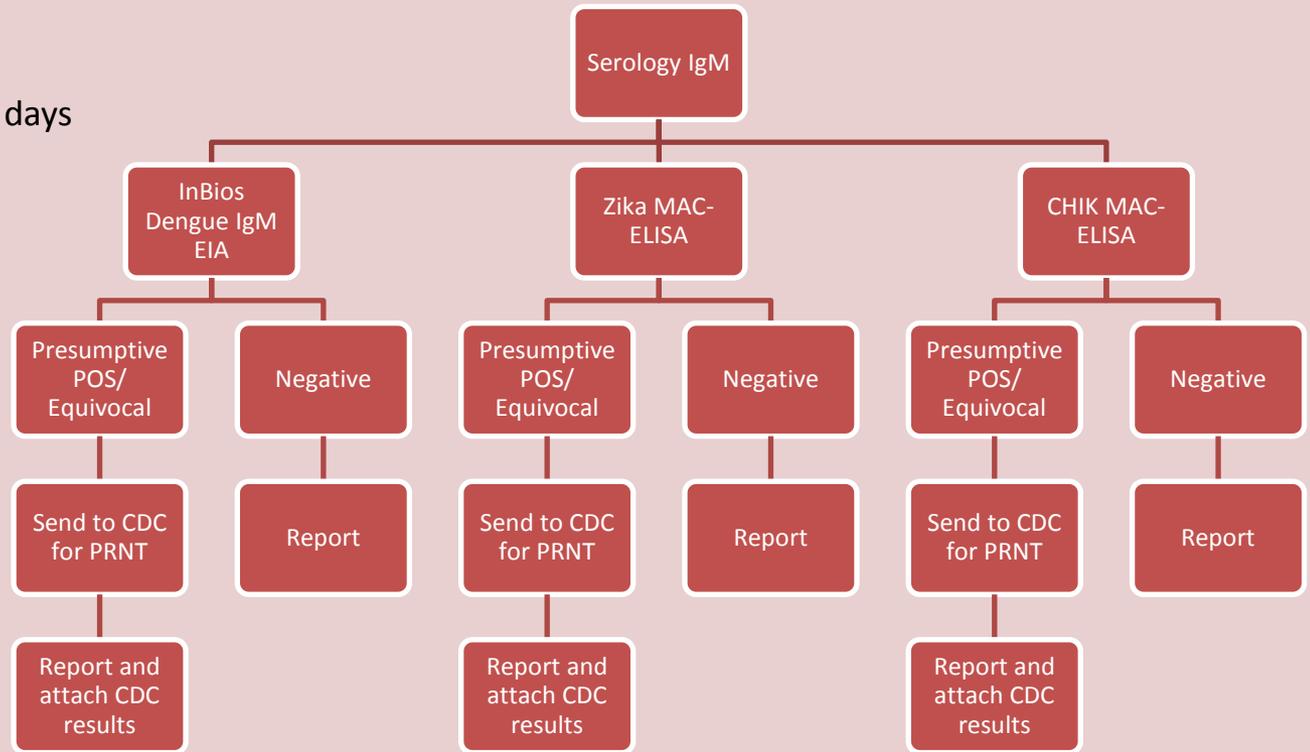
Symptomatic Patient

Sample type: Serum, CSF

Window Period for Testing: >7 days
post onset of symptoms

STARLIMS Module: Serology

Serology Testing



Suspect Zika:

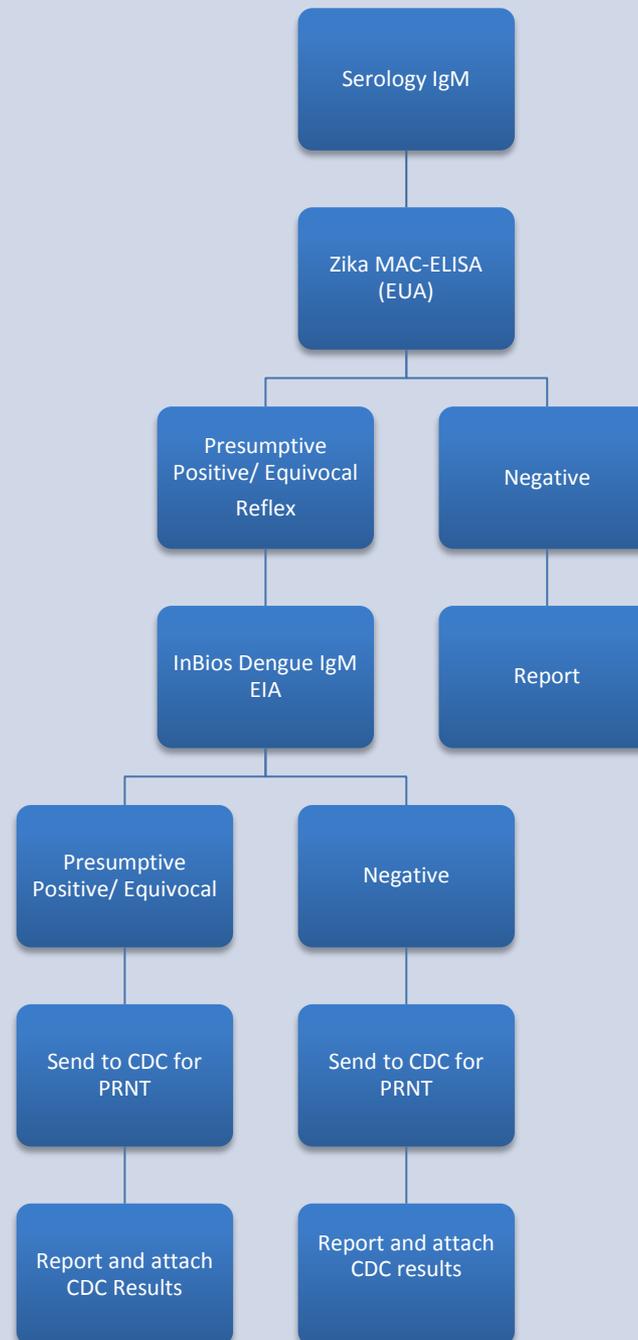
Asymptomatic Pregnant Women

Sample type: Serum

Window Period for Testing: travel 2 -12 weeks

STARLIMS Module: Serology

Serology Testing



Specimen Collection

To determine the appropriate testing algorithm and interpret results, it is necessary to collect the following information:

- Date of illness onset
- Date/s of specimen collection
- Specimen type
- Clinical symptoms
- Travel history
- Flavivirus vaccination history
- Submitter contact information

The ASPHL clinical submission form is located at

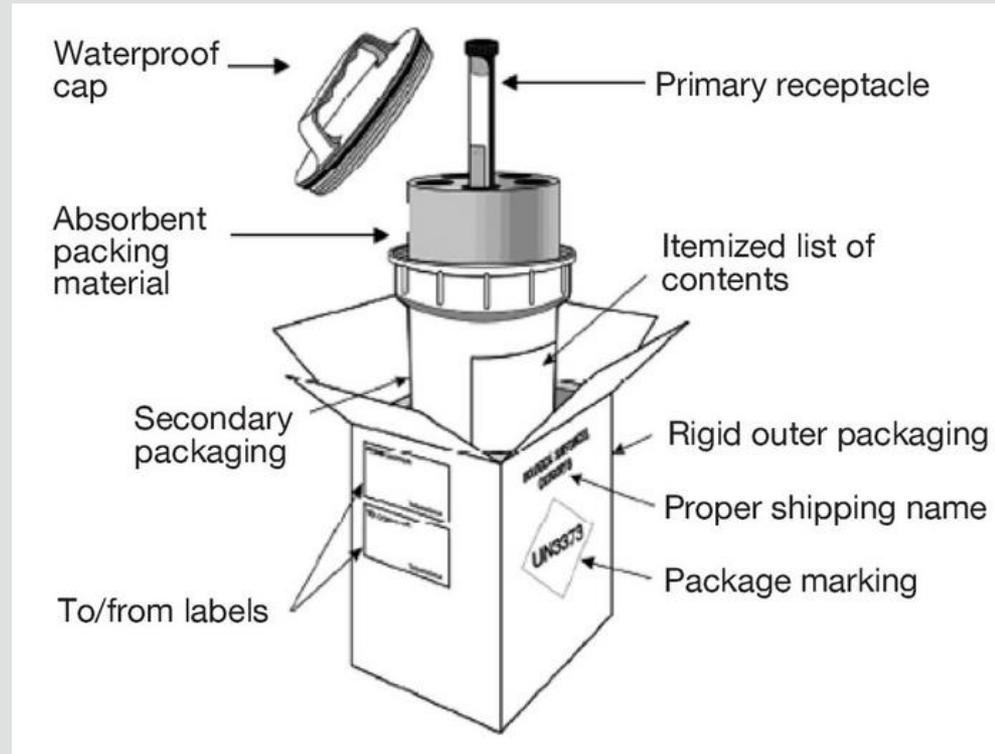
<http://www.azdhs.gov/documents/preparedness/state-laboratory/public-health-microbiology/clinical-microbiology-submission-form.pdf>

Specimen types

- A serum specimen must be collected
- Other specimen types include CSF, urine, amniotic fluid and tissues
- Alternative specimens including urine have demonstrated detectable levels of viral-specific RNA beyond the 7-day period seen in serum

Packaging & Shipping

- Category B packaging required under US DOT requirements
- Place in leak proof primary container, absorbent material and two secondary containers
- Remember to put the submittal form around the secondary container, not the primary container.



Additional Zika Virus Information

Additional information available at:

www.azdhs.gov/preparedness/state-laboratory/index.php#zika-virus



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Zika Virus

The Arizona State Public Health Laboratory (ASPHL) is providing the following guidance and information for the public health laboratory system partners. The ASPHL is working with our partners to ensure a coordinated response to the [Zika virus](#).

Specimens cannot be submitted to ASPHL until prior approval has been received. If you believe you have a suspect case of Zika Virus, you must contact your [local health department](#).

Zika Virus Specimen Submission and Testing

The logo features a light gray silhouette of the state of Arizona on the left. To its right, the text "ARIZONA 2016 ZIKA SUMMIT" is stacked vertically in a light gray, sans-serif font. The entire logo is set against a white background that is partially overlaid by a red banner at the top of the slide.

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Thank You

Shipping and Receiving – labreceiving@azdhs.gov or 602.542.1190

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