A PUBLIC HEALTH APPROACH TO ZIKA VIRUS

INFORMATION FOR PHYSICIAN’S RESEARCH NETWORK

New York City Department of Health and Mental Hygiene

September 10, 2016
Zika Virus

- First identified in a monkey in Uganda in 1947
- RNA virus in *Flavivirus* genus
- Transmission: primarily by mosquito
- Additional routes of transmission:
  - Maternal-fetal
  - Sexual
  - Blood transfusion
  - Laboratory exposure

Flavivirus: CDC.gov

Current epidemic nations
Zika Virus Vectors: Aedes Mosquitoes

- Aggressive day biters
- Lay eggs in domestic water holding containers
- Live in and around households
- Among Aedes species
  - *aegypti*
    - Most efficient vector
    - Not present in northeast US
  - *albopictus*
    - Potential vector
    - Present in northeast US

Aedes aegypti and Aedes albopictus Mosquitoes: Geographic Distribution in the United States

Left: Aedes aegypti  Right: Aedes albopictus
Zika Virus Infection in the Continental US

• Since 2011: laboratory-confirmed cases identified in travelers returning from areas with local transmission

• Current outbreak: travel-related cases are increasing

• Lab-confirmed cases of sexual transmission documented

• Imported cases have introduced virus & local spread into the Continental United States
  – Confirmed local transmission of Zika virus in Miami-Dade County, Florida¹

Reported Cases of Zika Virus in NYC

- New York City (9/7/2016)
  - Transmission – All travel-associated
    - 559 lab-confirmed cases of travel-associated infection
    - 59 were pregnant at the time of diagnosis
    - No locally-acquired vector-borne cases reported
    - 5 sexually transmitted associated with partner travel

- Outcomes
  - 3 Guillain-Barré Syndrome travel-associated cases
1st NYC Baby with Zika Related Microcephaly (July 2016)

- Born in NYC hospital
- Infant tested positive for the Zika virus
- Mother was in an area with active Zika transmission during pregnancy
- Infant is being followed closely; family is being connected to necessary services and care
Clinical Characteristics of Zika Virus Infection

• Incubation: 2 – 12 days

• Most infections (up to 80%) are asymptomatic

• When symptomatic: mild, self-limited, duration ≤ 1 week

• Common symptoms:
  – Maculo-papular rash
  – Fever
  – Non-purulent conjunctivitis
  – Arthralgias

• Adverse Outcomes:
  – Microcephaly, other birth defects
  – Guillain-Barré Syndrome
Zika Testing – Types, Interpretation

• **WHICH TESTS TO PERFORM**
  - **RT-PCR (serum and/or urine):** Detects Zika virus RNA, present during acute infection ONLY. Best performed within 7 days of illness onset.
  - **Serology (serum):** Detects antibodies, non-specific for Zika. Detects exposure to flaviviruses.
  - **PRNT (serum):** Plaque reduction neutralization test that requires paired serum specimens. Acute and convalescent. May discriminate between flaviviruses.

• **HOW TO INTERPRET TESTS**
  - Test result interpretation can be difficult. Providers can call the Health Department for assistance in interpreting results.

Provider Access Line: (866) 692-3641
**Zika Testing – Whom to Test, Where to Test**

- **Focus testing on pregnant women and those with Zika-compatible symptoms exposed to Zika through travel or sex**
  - NYC Health Dept. does not recommend testing non-pregnant travelers with no symptoms who returned from areas with active Zika transmission.

- **Use NYC’s Public Health Laboratory to test:**
  - All pregnant women, regardless of symptoms
  - Fetus or infant with suspected microcephaly or other neurologic abnormality whose mother may have been exposed to Zika
  - Patients with an unusual clinical presentation (e.g., Guillain-Barré Syndrome or other neurologic manifestation)
  - Patients with an unusual potential exposure risk (e.g., sexual transmission, transfusion, or suspected local mosquito transmission)

- **Use commercial labs for all other cases (all but pregnant women, infants and Guillain-Barré Syndrome patients)**

Obtaining Testing at the NYC Public Health Lab

To request Zika testing at the NYC Public Health Lab, call the:

**Provider Access Line: (866) 692-3641**

A Health Department representative will review case; if testing criteria are met, representative will:

- Collect the information needed, complete laboratory submission form
- Advise on the type(s) of specimen(s) to collect
- Email or fax you completed lab submission form(s) and instructions for specimen collection and handling within 30 minutes

Dengue and chikungunya testing should be sent to a commercial lab.
Contact Health Department to Report…

- All confirmed cases of Zika, especially pregnant patients
- Maternal confirmed/suspect Zika viral infection with impending pregnancy outcome
- Maternal history of Zika exposure and:
  - Prenatal findings of microcephaly, intracranial calcifications, or other brain or eye anomalies
  - Infants with findings possibly consistent with Zika virus infection
- Onset of Guillain-Barré Syndrome following travel to an area with active Zika virus transmission
- Suspect locally acquired case – mosquito or sexual transmission, lab accident or transfusion

Provider Access Line: (866) 692-3641
New York City Health Department’s Zika Response

- Increase public awareness
- Initiate and maintain *Aedes* control
- Monitor spread of Zika virus
- Educate providers, assist them with diagnosis
- Coordinate and perform laboratory testing
- Investigate suspect cases
- Monitor pregnant women with Zika infection
- Monitor infants born to Zika-infected women
Resources

- NYC DOHMH
  - nyc.gov/health/zika
  - Information for providers (including how to obtain testing, Health Alerts):

Provider Access Line: (866) 692-3641

- CDC

- PAHO