



NEW YORK CITY DEPARTMENT OF
HEALTH AND MENTAL HYGIENE
Oxiris Barbot, MD
Commissioner

2019 Health Advisory #29: Travel-Acquired Mosquito-Borne and Enteric Diseases

Please Share this Alert with Emergency Medicine, Family Medicine, Primary Care Physicians,
Infectious Disease, Travel Health, and Internal Medicine Staff

When residents return to New York City following international travel, consider the more common travel-associated diseases reported each year to the NYC Health Department:

- Mosquito-borne diseases such as dengue, chikungunya, Zika, and malaria
 - Dengue outbreaks are occurring in Mexico, Central America, the Caribbean and much of the Southern hemisphere
- Enteric diseases such as hepatitis A infection, typhoid fever, and paratyphoid fever
 - An outbreak of extensively drug-resistant typhoid fever is occurring in Pakistan; NYC has identified one travel associated case.

October 10, 2019

Dear Colleagues,

New York City has a large, diverse population. New Yorkers travelling to visit friends and family are at higher risk than tourists for some diseases as they often stay longer, eat local foods and fail to take preventive measures such as vaccination or malarial prophylaxis. Every year, hundreds of NYC residents are diagnosed with mosquito-, food- or waterborne infections after traveling to or coming from areas where diseases such as malaria, dengue, chikungunya, Zika, hepatitis A infection, typhoid fever, and paratyphoid fever are endemic. The Centers for Disease Control and Prevention (CDC) offers a [comprehensive disease list by country](#). Providers are encouraged to inquire about upcoming travel during scheduled appointments and to consider the following reportable travel-associated diseases in ill persons with a recent history of travel. Provider resources and personalized travel advice are available on the [Heading Home Healthy](#) website, a collaborative effort supported by CDC.

Mosquito Borne Diseases

Zika, dengue, and **chikungunya** viruses circulate in many of the same areas of the world. The diseases they cause are often difficult to differentiate clinically, and co-infections are possible. Of the three, dengue is the most frequently reported cause of acute febrile illness among returning U.S. travelers, with large outbreaks recently reported from the Caribbean, Central and South America. Following large outbreaks of chikungunya in 2015 and Zika virus infection in 2016-2017, few cases have been reported among NYC residents (see **Table 1**). Testing is commercially available for all three diseases. Polymerase chain reaction (PCR) testing is the optimal method for diagnosing patients tested within seven days of illness onset. Serology (IgM) should be done concurrently and performed for anyone tested more than seven days after illness onset. For Zika, any specimen with a positive IgM result from a commercial laboratory automatically will be forwarded for confirmatory testing (repeat IgM and plaque reduction neutralization testing) at Wadsworth Center at the New York State Department of Health. Patients with dengue should be told to avoid aspirin, aspirin-containing drugs, and other nonsteroidal anti-inflammatory drugs such as ibuprofen because of their anticoagulant properties.

Malaria is a leading cause of illness worldwide. It is common in tropical or subtropical areas of Africa, Asia, and Central and South America. Laboratory diagnosis can be made via microscopic examination of thick and thin blood smears. Antigen detection tests (also called rapid diagnostic tests) offer rapid results, but their use should be accompanied by microscopy to confirm results and, if positive, confirm the species and quantify parasitemia.

Providers can consult the [CDC's malaria treatment site](#) or hotline (770-488-7788 or 855-856-4713) for current anti-malarial preventive and treatment recommendations.

Enteric Diseases

Typhoid fever and **paratyphoid fever** are caused by *Salmonella* serotype Typhi and *Salmonella* serotype Paratyphi, respectively. Most typhoid fever and paratyphoid fever patients report international travel to Southern Asia (i.e., Bangladesh, India, and Pakistan). Relapse, reinfection, and chronic carriage can occasionally occur. Antibiotic treatment for typhoid fever and paratyphoid fever should be based on results from antimicrobial susceptibility testing. In the U.S., more than 90 percent of Typhi and Paratyphi infections in travelers to South Asia are fluoroquinolone-nonsusceptible or naladixic acid-resistant, therefore patients returning from South Asian with Typhi or Paratyphi infections should not be empirically treated with fluoroquinolones and other options such as azithromycin or third-generation cephalosporins should be considered. There is an ongoing outbreak of [extensively drug-resistant \(XDR\) typhoid fever in Pakistan](#). Currently XDR Typhi strains are susceptible to azithromycin or carbapenem.

Hepatitis A virus (HAV) infection should be considered for patients with compatible illness who traveled to the Caribbean, Central and South America, Africa, Eastern Europe, and parts of Asia. Commercial laboratories offer hepatitis A IgM testing in serum; a positive IgM with both a consistent clinical presentation and elevated liver enzymes indicates acute infection, whereas a positive IgG or total anti-HAV with a negative IgM indicates past infection or immunity. Patients with hepatitis A infections should avoid taking drugs that can cause liver damage, such as acetaminophen.

Vaccines are available to prevent hepatitis A and typhoid fever (visit [cdc.gov/travel](#) for a full list of recommended vaccines by country). The typhoid fever vaccine is not 100% effective and is not effective for preventing paratyphoid fever. For other indications for hepatitis A vaccine visit the [NYC Health Department](#) or [CDC](#) websites.

DISEASE	2014	2015	2016	2017	2018
Chikungunya	601	94	27	13	7
Dengue	40	75	96	32	22
Zika	0	0	1007	148	19
Malaria	204	199	242	228	203
Typhoid fever	39	40	22	37	42
Paratyphoid fever	12	10	14	13	14
Hepatitis A infection*	47	74	49	135	61

*Hepatitis A infection numbers include non-travel and travel cases

Resources:

CDC disease list by country [cdc.gov/travel](#).

CDC malaria treatment [cdc.gov/malaria](#)

XDR typhoid fever MMWR: visit [cdc.gov/mmwr](#) and search "XDR typhoid"

Hepatitis A vaccine: [nyc.gov/health](#) and search "hep A"

Adult Immunization schedule, CDC: [cdc.gov/vaccines/schedules](#)

Heading Home Healthy [headinghomehealthy.org](#)

Sincerely,



Demetre C. Daskalakis, MD, MPH
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