



2024 Health Advisory #10: Continued Increase in Leptospirosis Cases in New York City

- The number of human leptospirosis cases continues to trend upwards; twenty-four cases were reported in New York City (NYC) in 2023—the highest number in a single year.
- In 2024, 6 cases have been reported to date.
- Human leptospirosis infections in NYC are largely associated with exposure to environments and materials contaminated with rat urine.
- Consider leptospirosis in any patient presenting with compatible illness, especially when there is evidence of acute renal and hepatic failure, and possibly pulmonary hemorrhage.
- Diagnostic testing is available through most commercial laboratories and includes PCR testing on blood, urine, and CSF as well as serologic testing.

April 12, 2024

Dear Colleagues,

Leptospirosis is a zoonotic disease that is present globally and caused by several species of a spirochete bacteria of the genus *Leptospira*. In NYC, the primary species is *Leptospira interrogans*, serogroup Icterohaemorrhagiae which is associated with the Norway rat. Infected animals excrete the bacteria in their urine, and bacteria can persist in warm, moist environments for weeks. Transmission occurs through direct contact with infectious urine or urine contaminated water, soil, or food, entering the body through open wounds or mucous membranes.

Twenty-four people diagnosed with leptospirosis were reported in 2023. This exceeds the total number of cases reported to the NYC Department of Health and Mental Hygiene (NYC Health Department) in any prior year. For comparison, the average number of locally acquired cases during 2021 to 2023 was 15 per year, and 3 cases per year during 2001 to 2020 (Graph 1). This year, 6 cases have been reported as of April 10, 2024.

Among the 98 locally acquired cases reported from 2001 to 2023, the median case age was 50 years (range 20 to 80 years), usually male (94%) and, reported most often from the Bronx (37), followed by Brooklyn (19), Manhattan (28), Queens (10), and Staten Island (4). Clinically, cases presented with acute renal and hepatic failure, and occasionally severe pulmonary involvement; there were 6 deaths.

In NYC, locally acquired cases typically have a history of a residential or occupational exposure to rat urine or environments (including soil and water) and materials contaminated with rat urine (e.g., handling trash bags or bins containing food waste). Person-to-person transmission is rare. The NYC Health Department conducts inspections and works with property owners to remediate rat conditions, if indicated.

Clinically, there is a wide spectrum of illness. Symptoms may include fever, headache, chills, muscle aches, vomiting, diarrhea, cough, conjunctival suffusion, jaundice, and rash. The incubation period is usually 5–14 days, with a range of 2–30 days. If not treated, kidney failure, meningitis, liver damage, and respiratory distress can occur.

Leptospira bacteria are fragile and can die within minutes in dry heat or freezing temperatures. The cold winters of NYC likely limit the extent to which leptospires can survive in the environment. However excessive rain and unseasonably warm temperatures, factors associated with climate change, may support the persistence of leptospires in more temperate areas like NYC.¹ Last year, half of the locally acquired cases were reported in the months of June (5) and October (5), months that were warmer and wetter with excessive rain and unseasonably warm days compared to prior years.

Guidance for Providers Caring for Patients Suspected of Leptospirosis

- Consider leptospirosis in any patient presenting with compatible illness, especially when there is evidence of acute renal and hepatic failure.
- Ascertain exposure to rats, rat infested areas, or recent travel to a tropical or subtropical area.
- Pursue diagnostic testing, available through most commercial laboratories and which includes PCR on blood, urine, and CSF (preferably collected prior to the start of antibiotics) and serologic testing. It is best to submit as many specimen types as possible.
 - Antibodies for leptospirosis develop between 3-10 days after symptom onset. A negative serologic test from samples collected in the first week of illness does not rule out disease.
 - Leptospires are present in the blood for approximately the first 4–6 days of illness and may be shed intermittently in the urine starting around day 7 of illness onset. A negative PCR test does not rule out disease.

Timing of specimen collection relative to illness onset for patients suspected of leptospirosis	Diagnostic test and specimen type	
	Serology	PCR
First 7 days of illness	Serum	Whole blood
Day 7 or later following illness onset	Serum	+/- Urine

- Call the NYC Health Department’s Provider Access Line at 866-692-3641 for questions about testing or for assistance with additional diagnostic options including immunohistochemical testing and culture at NYS Wadsworth Center or CDC.
- Leptospirosis is treated with antibiotics, such as doxycycline or penicillin, which should be initiated as soon as possible. Per [CDC guidance](#):
 - For patients with mild symptoms, doxycycline is the drug of choice (100 mg orally, twice daily for 7 days), if not contraindicated.
 - Other options include azithromycin (500 mg orally, once daily), ampicillin (500-750 mg orally, every 6 hours), or amoxicillin (500 mg orally, every 6 hours).
 - For patients with severe disease, IV penicillin is the drug of choice (1.5 MU IV, every 6 hours). Other regimens include, doxycycline (100 mg IV twice daily), ceftriaxone (1 to 2 g IV once daily), or cefotaxime (1 g IV every six hours). The duration of treatment in severe disease is usually seven days.^{2,3}

Cases must be reported to the NYC Health Department within 24 hours online via [NYCMED](#) (preferred), as required by the NYC Health Code. You may also fax a completed [Universal Reporting Form](#) or call the Provider Access Line at 866-692-3641. Providers who do not have a NYCMED account can create one at the NYCMED link above. Once logged in, Reporting Central can be found in the 'My Applications' section. See the [Reporting Central New User Guide](#).

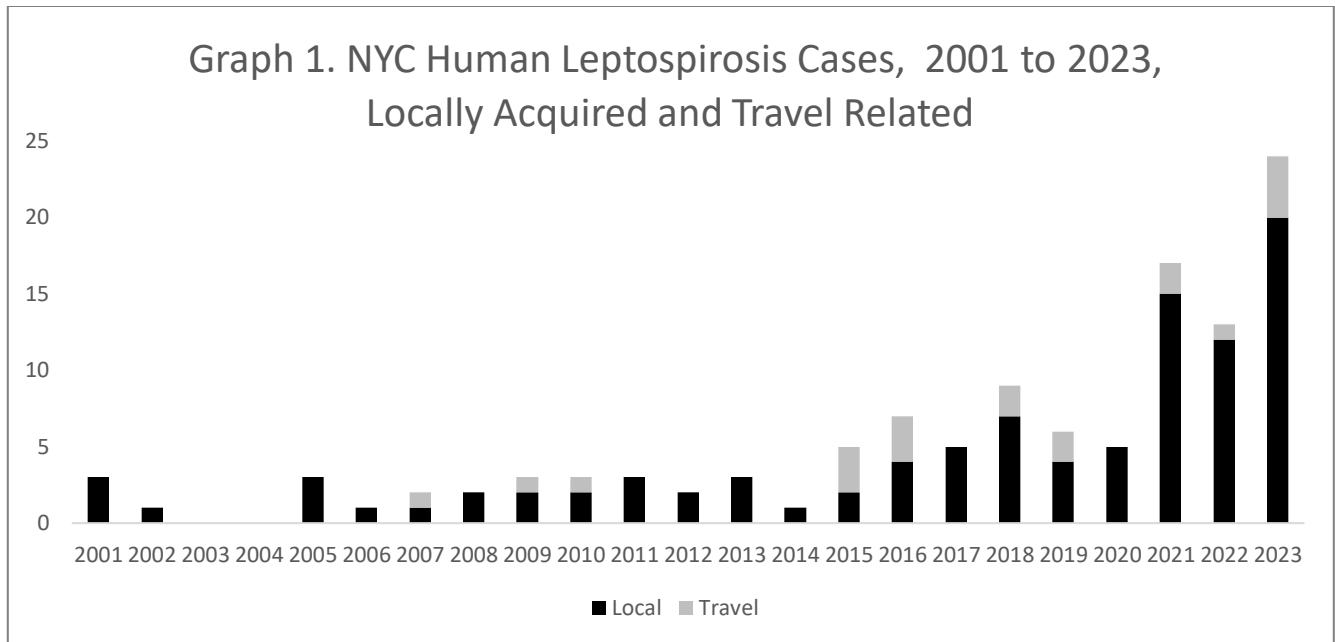
For more information about leptospirosis, visit the [NYC Health Department](#) and [CDC](#) websites.

As always, we appreciate your collaboration in improving the health of New Yorkers and helping us direct remediation efforts in New York City.

With much appreciation,



Celia Quinn, MD, MPH
Deputy Commissioner, Division of Disease Control



- 1 Colleen L. Lau, Lee D. Smythe, Scott B. Craig, Philip Weinstein, Climate change, flooding, urbanisation and leptospirosis: fuelling the fire?, *Transactions of The Royal Society of Tropical Medicine and Hygiene*, Volume 104, Issue 10, October 2010, Pages 631–638, <https://doi.org/10.1016/j.trstmh.2010.07.002>
- 2 Centers for Disease Control and Prevention.(n.d.) Leptospirosis Fact Sheet for Clinicians <https://www.cdc.gov/leptospirosis/pdf/fs-leptospirosis-clinicians-eng-508.pdf>
- 3 Day, Nick Leptospirosis: Treatment and prevention. Post TW, ed. UpToDate. Waltham, MA: UpToDate Inc. <https://www.uptodate.com/contents/leptospirosis-treatment-and-prevention>. (Accessed November 9, 2023)