BACKGROUND

Following Hurricanes Irma and Maria, the first cases of leptospirosis (n=1) and melioidosis (n=2) were identified in the U.S. Virgin Islands (USVI). Leptospirosis (lepto) and melioidosis (melo) are potentially fatal bacterial diseases caused by Leptospira species and Burkholderia pseudomallei, respectively; both are found in contaminated water/soil and outbreaks have been documented following extreme weather events in tropical and subtropical regions worldwide. The disease is associated with high mortality and diagnosis is difficult due to the variable presentation. As a Tier 1 select agent, it is known to be intrinsically resistant to many antibiotics, and treatment courses are complex and variable.

METHODS

Retrospective Case-finding: Medical Record Review

Paper and electronic medical records were screened at 2 hospitals for patients presenting with fever (temperature of >100.4°F or a recent history of subjective fever) and any of the symptoms consistent with lept/o/melio infection—jaundice, acute kidney injury, conjunctivitis, pneumonia, seizures, and ulcers/abscesses.

Leptospira species are gram-negative, pathogenic spirochetes often endemic to tropical and subtropical regions, and both are recognized as one of the leading global causes of zoonotic morbidity and mortality. B. pseudomallei is a gram-negative bacillus endemic to tropical regions worldwide. The disease is associated with high mortality and diagnosis is difficult due to the variable presentation. As a Tier 1 select agent, it is intrinsically resistant to many antibiotics, and treatment courses are complex and lengthy.

Evaluate the emergence of leptospirosis and melioidosis in the U.S. Virgin Islands as indicators of enhanced surveillance needs following extreme weather events, and to provide on-going education to at-risk populations in hurricane-prone regions.

OBJECTIVE

RESULTS

Clinical and Environmental Testing

Available patient blood samples underwent rapid diagnostic testing (RDT) for anti-Leptospira IgM and were sent to the U.S. Centers for Disease Control and Prevention (CDC) for confirmatory microscopic agglutination testing (MAT). A subset were tested with a B. pseudomallei antigen RDT, and water collected from sites of potential Leptospira-contamination were tested by PCR.

Outreach to Healthcare Providers

VIDOH/CDC epidemiologists reached out to at-risk personnel including those at the Department of Public Works, the Water and Power Authority, the Virgin Islands Waste Management Authority, and EDs Territory-wide. Education was provided regarding disease, prevention, and the proper use of personal protective equipment (PPE).

Environmetrical Testing

As of August 2018, there are 3 leptospirosis and 2 melioidosis confirmed cases in USVI.

Retrospective Case-finding:

2,358 total charts reviewed at Hospital 1:

– 7% (n=100) of patients were currently febrile (>100.4°F) or reported a recent history of fever
– 27% (n=27) of patients with fever had labs drawn
– 1 probable case interviewed and tested positive (Case 2-L)

2,868 total charts reviewed at Hospital 2:

– 8% (n=206) of patients were currently febrile (>100.4°F) or reported a recent history of fever
– 32% (n=66) of patients with fever had labs drawn

An initial query of VI-ArboNET yielded:

– 17 patients warranting testing
– 15 available patient samples were tested for lept/o/melio: all negative

Environmental Testing

– 1/3 water samples collected from sites associated with leptospirosis tested PCR-positive for Leptospira species
– 1/3 water samples collected tested PCR-negative for Leptospira species
– 1/3 water samples collected tested PCR-negative for B. pseudomallei

CONCLUSIONS

– As of August 2018, there are 3 leptospirosis and 2 melioidosis confirmed cases in USVI.
– 1/3 water samples collected tested PCR-positive for Leptospira species.
– Documentation of these first cases demonstrates how USVI’s surveillance system was adapted to establish ongoing leptospirosis/melioidosis surveillance.
– Although not confirmed by detection of B. pseudomallei in the environment, both leptospirosis and melioidosis may be endemic in the USVI.