429. Delayed Diagnosis of Leprosy in a Non-Endemic Area: Lessons From a Retrospective Case Series

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Background. While the epidemiology of Hansen’s Disease (leprosy) in endemic countries has been thoroughly investigated, similar studies in the United States are lacking, where fewer than 200 cases are diagnosed each year. We sought to assess the epidemiologic and clinical characteristics of leprosy cases seen at three large Boston teaching hospitals.

Methods. We conducted a retrospective analysis of all patients age ≥18 diagnosed with leprosy as defined by ICD codes at three academic medical centers from 1980 to 2017. Each record was independently reviewed for accuracy of the clinical and laboratory data were extracted and analyzed.

Results. In total, 116 records were reviewed; 27 cases of leprosy were identified. Mean age at presentation was 40 years (range, 19–62); 66% of patients were male. Forty-eight percent of patients were Hispanic, 22.2% were Asian, and 18.5% were African. Most patients were immigrants (68.9%), originating from South America (33.3%), the Caribbean (18.5%), Sub-Saharan Africa (18.5%), and South Asia (14.8%). Both cutaneous and neurologic involvement was commonly observed (59.2%). Diagnosis was made by skin or nerve biopsy in 67.7% of cases. A prior diagnosis of leprosy was present in 51.9%. Interestingly, for cases of newly diagnosed leprosy, 25.9% of diagnoses were made by dermatologists, 11.1% by neurologists, and 3.7% by infectious diseases physicians. Fifty-six percent of patients had been incorrectly diagnosed by other healthcare providers prior to their leprosy diagnosis, and the median time from symptoms to diagnosis was 25 months.

Conclusion. Though not endemic to the United States, leprosy remains a clinical problem, particularly in immigrant populations. We observed that a sizeable proportion of leprosy cases were initially misdiagnosed by physicians, frequently resulting in months-long delays in diagnosis. Clinicians should have a high index of suspicion for leprosy in immigrants from endemic countries with cutaneous lesions and neuropathy, and opportunities for enhanced clinician awareness, targeted education, and multidisciplinary management exist.

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430. The First Case Reports of Leptospirosis and Melioidosis in the Aftermath of Hurricanes Irma and Maria—Saint Thomas/Saint John District, US Virgin Islands, September–October 2017

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Background. Following Hurricanes Irma and Maria, the first cases of leptospirosis and melioidosis were identified in the US Virgin Islands (USVI). Leptospirosis and melioidosis 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.

Methods. Querying the USVI arbovirus syndromic surveillance system and Emergency Department (ED) records from two hospitals, we identified patients in the 25 months post-hurricanes demonstrating symptoms consistent with leptospirosis/melioidosis. Available patient blood samples underwent rapid diagnostic testing (RDT) for anti-Leptospira IgM and were sent to the US Centers for Disease Control Prevention 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.

Results. An initial query of the syndromic surveillance database yielded 17 patients warranting testing; 15 available patient samples were tested for leptospirosis and were negative (2 tested for melioidosis—negative). Following efforts to enhance this system to prospectively detect leptospirosis/melioidosis, 15 additional patient samples were obtained and tested for leptospirosis; one tested positive. We evaluated 5,200 ED charts, identifying six patients warranting testing; five available patient samples were tested for leptospirosis; one tested positive (1 tested for melioidosis—negative). Altogether, as of April 2018, there are three leptospirosis and two melioidosis confirmed in USVI. One of three water samples collected from sites associated with patients with leptospirosis tested PCR-positive for Leptospira species.

Conclusion. This investigation documents the first cases of leptospirosis and melioidosis in USVI and demonstrates how USVI’s surveillance system was adapted to enhance ongoing leptospirosis/melioidosis surveillance. Collectively, although not confirmed by detection of B. pseudomallei in the environment, both leptospirosis and melioidosis may be endemic in the USVI.

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431. Enhanced Malaria Surveillance in Greece, 2009–2017

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Background. During 2009–2012, sporadic locally acquired (LA) P. vivax malaria cases and clusters were reported in Greece, a malaria-free country. Evrots, an agricultural area in southern Greece with large migrant population from the Indian sub-continent, was the most affected area. In 2011–2017, we implemented enhanced malaria surveillance to timely detect and treat cases.

Methods. We applied the WHO case definitions for imported, LA, and introduced cases. We raised awareness among clinicians and investigated all reported cases. We actively screened for fever (i) the local population in the place of exposure of LA cases, and (ii) theweekly, the population migrant in Evrots, from April to November every year (active case detection, ACD). We distributed rapid diagnostic tests (RDTs) to enhance local diagnostic capacity. In 2015–2017, we established enhanced malaria surveillance in refugee/migrant hosting centers (RMHC).

Results. In 2009–2017, 662 malaria cases were reported (67% P. vivax); 561 were imported, including 442 (79%) in migrants from endemic countries and 119 in travelers. The median annual number of imported cases in migrants increased from 32 (range 12–64) in 2009–2014 to 85 (range 65–91) in 2015–2017. In 2015–2017, 23% (n = 55) of all cases in migrants were points of entry. 42 and 20 LA P. vivax cases were reported in Greece, including 36 and 10 cases in Evrots, respectively, while in 2013–2017, the annual median number of LA P. vivax cases decreased to 6 (range 0–8); all were introduced cases. RDTs contributed to the diagnosis in almost 100% of cases in Evrots. In 2013 and 2014, 96% of cases in RMHC or points of entry. In Evrots, during ACD, time from disease onset to diagnosis decreased from 6 days in 2011 to 0.5 days in 2017.

Conclusion. Following the 2011–2012 peak of LA cases and the implementation of PH measures, the number of LA cases decreased substantially, despite the increased migrant influx. However, the presence of local competent vectors, combined with cases from malaria-endemic countries, heightens the risk of re-introducing malaria in receptivemalaria-free areas. Although resource demanding, enhanced malaria surveillance contributed to minimizing the transmission risk and should be continued.

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432. Hold That Buzz: Timely Malaria Medication Access in New Orleans, Louisiana

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Background. Malaria is a global health concern. Given increasing global travel and migration, hospitals may struggle to meet immediate malaria treatment needs resulting in serious and potentially fatal outcomes. New Orleans is a mid-size city with a significant, large immigrant population, large tourism industry, major academic centers with international faculty and many international industries with a diversity of medical systems. Assessing malaria medication accessibility across various clinical settings would address major gaps in treatment capacity and efficacy.

Methods. Inpatient pharmacy directors and formularies at three New Orleans-area hospitals (an academic medical center, a large safety-net hospital and a community hospital) were queried about their first-line antimalarial agents in stock within the hospital pharmacy; time needed to obtain both IV and PO first-line antimalarial agents, and barriers to expanding the formulary (including cost, number of cases, side effects, and shelf life of medications). The queries were carried out using a medications order system survey.

Results. First-line IV medications could not be provided in <24 hours at any of hospitals surveyed; however, all provided a form of first-line antimalarial coverage in the hospital pharmacy. Two of three hospitals provided oral artemisinin-based combination therapies (ACTs) on their hospital formulary available in <24 hours and all three provided ACTs on their outpatient formularies. All hospitals surveyed could obtain intravenous ACTs from the CDC within 24–48 hours. Barriers identified for availability of oral ACTs and other antimalarials included the number of cases seen reported by all three hospitals) and cost of medication (reported by one hospital).

Conclusion. Oral first-line malaria treatments including ACTs could be obtained in the surveyed hospitals within 24–48 hours and all hospitals could obtain IV ACTs from the CDC within 24–48 hours. The main barrier preventing hospitals from providing appropriate and timely malaria treatment informative and procedures, and design systems to track malaria diagnosis and treatment.

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