

Notes from the Field

Imported Cases of Malaria — Puerto Rico, July–October 2015

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On July 16 2015, the Puerto Rico Department of Health (PRDH) was notified of a case of malaria, diagnosed by a hospital parasitology laboratory in a student who had traveled to Punta Cana, Dominican Republic, during late June for a school-organized graduation trip. Malaria is a mosquito-borne parasitic infection, characterized by fever, shaking chills, headaches, muscle pains, nausea, general malaise, and vomiting (1). Malaria can be clinically difficult to distinguish from other acute febrile illnesses, and a definitive diagnosis requires demonstration of malaria parasites using microscopy or molecular diagnostic tests. The student's initial diagnosis on July 10 was suspected dengue virus infection. Puerto Rico eliminated local malaria transmission during the mid-1950s (2); however, reintroduction remains a risk because of the presence of a competent vector (*Anopheles albimanus*) and ease of travel to areas where the disease is endemic, including Hispaniola, the island shared by the Dominican Republic and Haiti, and the only island in the Caribbean with endemic malaria (3). During 2014, the Dominican Republic reported 496 confirmed malaria cases and four associated deaths; Haiti reported 17,662 confirmed cases and nine deaths (4). During 2000–2014, Puerto Rico reported a total of 35 imported malaria cases (range = 0–7 per year); three cases were imported from Hispaniola. During June–August 2015, eight confirmed malaria cases among travelers to the Dominican Republic

were reported to CDC's National Malaria Surveillance System (CDC, unpublished data, 2015).

After the student's diagnosis of malaria, an epidemiologic investigation was undertaken by PRDH to identify additional cases among the 90 school trip participants. A suspected malaria case was defined as the occurrence of any symptoms consistent with malaria (i.e., fever, shaking chills, headaches, muscle pains, nausea, general malaise, and vomiting) occurring in a school trip participant ≥ 9 days after travel to the Dominican Republic. During interviews with participants, investigators learned that a second Puerto Rico school group (n = 44) had visited the same resort during the same time; thus, the investigation was expanded from 90 to 134 participants. To help find other suspected cases, PRDH released a health alert notice on July 17 to all health care providers in Puerto Rico; public health counterparts in the Dominican Republic were also informed.

Seven suspected cases were identified among school trip participants, and during July 16–August 21, health care providers in Puerto Rico sent 102 additional patient specimens to PRDH for evaluation by smear microscopy. Among the 109 total patient samples, 27 (25%) met the suspected case definition and were sent to CDC for testing by photo-induced electron transfer fluorogenic real-time polymerase chain reaction. *Plasmodium falciparum* malaria was diagnosed in five patients, including two from the first school group, two from the second school group, and one in an independent traveler from Puerto Rico (Table). Microsatellite loci evaluation indicated genetic similarity among isolates from the five patients as well as with previous malaria cases from Hispaniola. The five malaria patients were successfully treated. Two subsequent cases of *P. falciparum* malaria among self-organized travelers from Puerto Rico to Punta Cana were reported during September and October 2015.

This cluster of imported malaria cases highlights the importance of malaria surveillance in areas where the disease is not endemic to detect imported cases. Travelers should be informed

TABLE. Characteristics of patients with confirmed *Plasmodium falciparum* malaria who had traveled to the Dominican Republic — Puerto Rico, June–July, 2015

Patient no.	Age (yrs)	Sex	Travel dates to Dominican Republic	Travel type*	Date of symptom onset	Date first sought medical care	Date of hospital admission	Initial diagnosis suspected	Date reported to PRDH
1	18	Male	June 22–June 26	School trip 1	July 10	July 14	July 15	Dengue	July 16
2	17	Female	June 22–June 26	School trip 1	July 9	July 13	July 15	Dengue	July 17
3	18	Male	June 22–June 26	School trip 2	July 10	July 14	July 14	Viral syndrome	July 20
4	47	Male	June 22–June 27	Self-organized	July 8	July 13	July 13	Dengue	July 21
5	17	Female	June 22–June 26	School trip 2	July 11	July 13	July 14	Viral illness	July 20

Abbreviation: PRDH = Puerto Rico Department of Health.

* Epidemiologic investigation revealed cases resulting from two overlapping school trips to the same hotel in the Dominican Republic. An independent traveler staying at a different hotel in the region was also identified.

of risks before visiting locations where malaria is endemic and take recommended precautions, including avoiding exposure to mosquitoes, using mosquito repellent, and taking recommended chemoprophylaxis (<http://www.cdc.gov/malaria/travelers/index.html>). Physician awareness of malaria symptoms and patient travel histories is critical for timely diagnosis and effective patient care. Febrile travelers from areas where malaria is endemic should be promptly evaluated by thin and thick smear microscopy for malaria infection, and public and private health institutions should maintain the ability to test for and report confirmed cases of malaria to public health authorities.

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