NYC Health

Epi Data Brief

July 2025, No. 147

Malaria in New York City, 2013 to 2024

Malaria is a serious disease caused by *Plasmodium* species parasites. Female *Anopheles* mosquitoes can pick up malaria parasites when they bite an infected person and spread the parasites to other people during subsequent blood meals. Rarely, malaria can also be transmitted through blood transfusion, sharing needles, organ transplant, or from mother to child in utero. Malaria can be fatal or lead to complications if not diagnosed and treated with the right medications in a timely manner.[1] Children under five years old and pregnant women are at higher risk of severe disease.[2] Malaria can be prevented by avoiding mosquito bites and taking preventive antimalarial medications.

There are five *Plasmodium* species that can infect humans: *Plasmodium falciparum*, *Plasmodium malariae*, *Plasmodium vivax*, *Plasmodium ovale* and *Plasmodium knowlesi*. Identifying the infecting species and the geographic area where the infection was acquired is necessary to determine the appropriate treatment for each patient. Most malaria infections are caused by *P. falciparum* and occur mainly in sub-Saharan Africa, which accounted for 94% of the 263 million malaria cases reported globally in 2023. Malaria also occurs in parts of Mexico, the Caribbean, Central and South America, Asia, and Oceania, where *P. vivax* is the predominant species.[2]

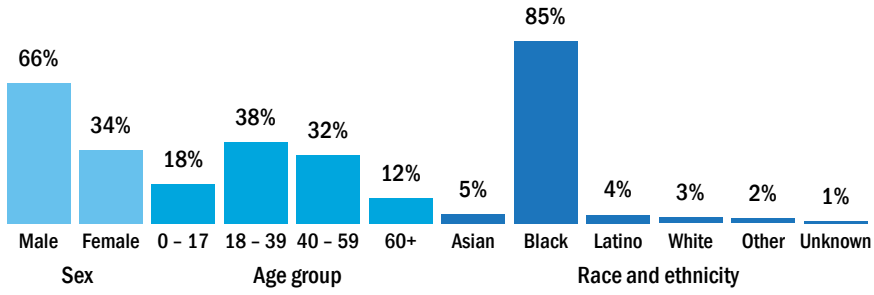
Malaria was eradicated in the U.S. in the 1950s. People from the U.S. are typically infected while in endemic countries (areas where malaria routinely occurs), although there are rare cases of local transmission, mostly in southern U.S. states.[1] The last case of locally acquired malaria in New York City (NYC) was in 1993.

The NYC Health Department investigates reports of people diagnosed with malaria. Here we summarize surveillance findings for 2,609 NYC patients from 2013 to 2024. Findings from 2004 to 2012 were previously summarized in Epi Data Brief No. 29, July 2013.

Malaria was most common among adult, Black, and male patients

- From 2013 to 2024, an average of 217 malaria patients were reported per year, ranging from a low of 58 in 2020 due to fewer people traveling during the COVID-19 pandemic, to 346 in 2023 which coincided with a large influx of new immigrant arrivals to NYC.
- Most patients were male (66%), Black (85%), and ages 18 to 59 years old (70%).

Malaria patients by sociodemographic characteristics, New York City, 2013 – 2024



White, Black, Asian, Other, and Unknown race categories exclude Latino ethnicity. Latino includes Hispanic or Latino of any race. Other race includes people who identified as multiracial or did not identify with any race listed above.

Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease, 2013 – 2024

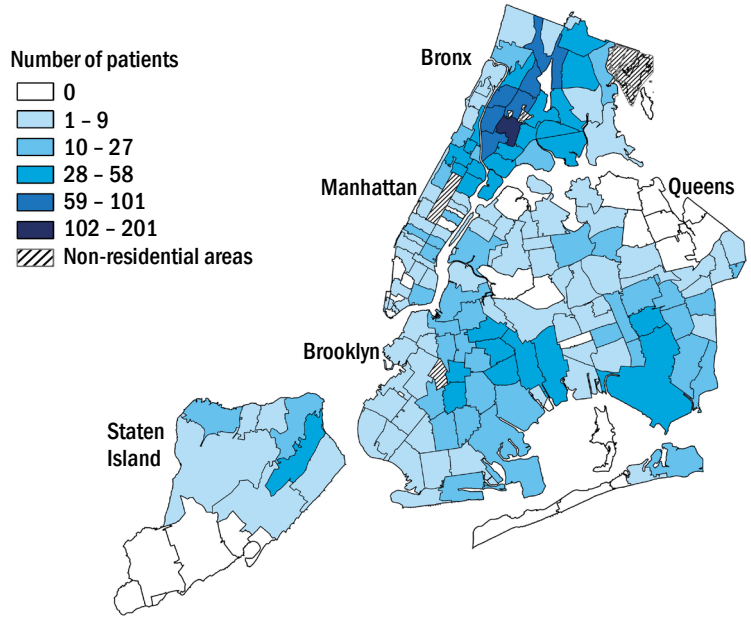
Definitions: **Patients:** People with illness onset or diagnosis (if no onset date) in 2013 – 2024 who lived in NYC at the time of malaria diagnosis, regardless of U.S. residency status.
Race/ethnicity: Data were collected by self-report, chart review, or lab report. For this publication, Latino includes people of Hispanic or Latino origin regardless of reported race. Black, white, Asian, and Other race categories do not include people of Latino origin. Other race includes people who identified as multiracial or did not identify with any race listed above.
Data Source: **NYC Malaria disease data 2013 – 2024:** The NYC Health Code mandates reporting of malaria diagnoses by laboratories and health care providers to the Health Department, which investigates reports of malaria by interviewing patients and providers and reviewing medical records. Data from 2024 are preliminary as of May 31, 2025, and subject to change.

Health equity is attainment of the highest level of health and well-being for all people. Not all New Yorkers have the same opportunities to live a healthy life. Achieving health equity requires focused and ongoing societal efforts to address historical and contemporary injustices such as discrimination based on race/ethnicity, and other identities. For more information, visit the World Health Organization's Health Equity webpage.

The Bronx and Brooklyn were the boroughs with the most malaria patients

- Most malaria patients resided in the Bronx (44%) or Brooklyn (21%).

Malaria patients by New York City neighborhood,^ 2013 – 2024



^Neighborhood boundaries defined by modified ZIP Code Tabulation Area.
Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease. 2013 – 2024.

Definitions:
NYC based: Patients who lived in NYC prior to travel to or through one or more malaria-endemic countries.
Non-NYC based: Patients who, prior to coming to the U.S., lived in or passed through one or more malaria-endemic countries at the time of their exposure. This includes students, visitors, and recently arrived refugees and immigrants.
West Africa: Referring to 16 countries in the western region of Africa: Benin, Burkina Faso, Cape Verde, Côte D'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo.

Most patients spent time in West Africa and traveled to visit friends and relatives

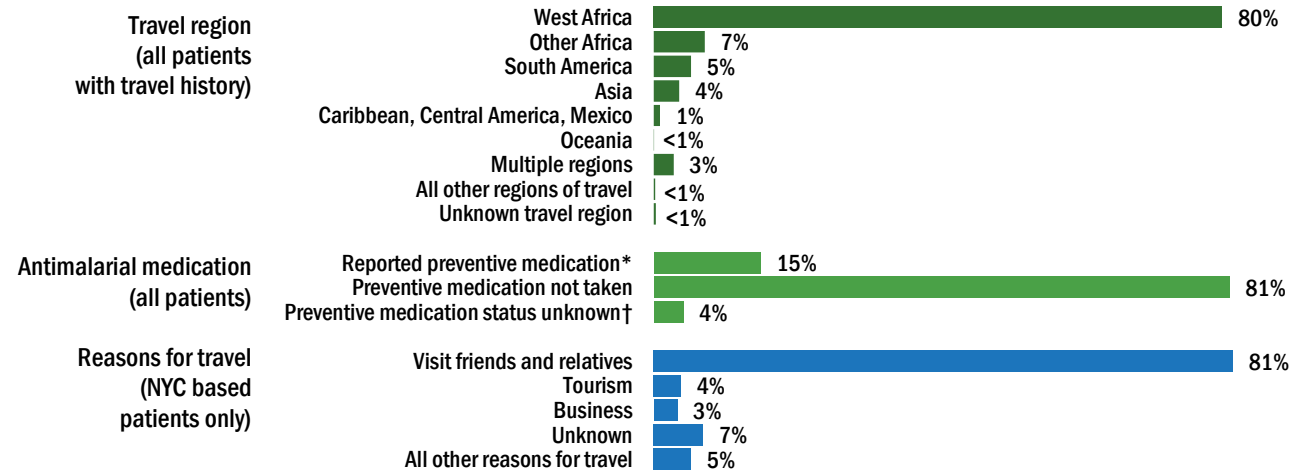
- All but two of 2,609 patients were infected with malaria in endemic countries outside the U.S., most often in West Africa (80%). While there were no locally acquired mosquito-transmitted infections, one patient acquired malaria through congenital transmission and one from an occupational exposure. Thirty-nine patients (1%) were infected with malaria more than once.
- Most patients (79%) were NYC based and traveled to an endemic country. The majority (81%) of NYC based patients reported visiting friends and relatives as their reason for travel.
- Twenty-one percent of patients reported in NYC were non-NYC based and traveled from or passed through an endemic country. The most frequently reported countries were in West Africa (62%), followed by South America (16%).

Most patients with malaria were infected with *P. falciparum*, hospitalized, and did not take preventive medication

- Most malaria patients (82%) were infected with *P. falciparum*, followed by *P. vivax* (9%), *P. ovale* (6%), *P. malariae* (2%), and *P. knowlesi* (0.04%); one percent of patients were infected with 2 different species.
- Seventy-five percent of patients were hospitalized. Among hospitalized patients with a discharge date available (81%), the average length of hospital stay was 4 days (range: 1-249 days).
- A blood parasitemia level (the percent of red blood cells infected with malaria parasites) greater than or equal to 5% is an indication of severe malaria. Three hundred nineteen (13%) patients had a blood parasitemia level greater than or equal to 5% among the 2,471 for whom it was reported.
  - This included 24 (27%) of 88 patients less than 5 years old and three (5%) of 56 pregnant patients.
- Nine patients died from malaria (age range: 9 to 69 years); all were infected with *P. falciparum,* and their blood parasitemia levels ranged from 2% to 35%.
- Most patients (81%) reported not taking preventive medication. Of the 389 (15%) who reported starting preventive medication, 202 (52%) reported not following the recommended dosage.

- Reasons for not being able to take all doses included forgetting, discontinuing early due to side effects, and not being able to obtain enough medication for their entire trip.
- Verification was not possible for the 165 (42%) who reported completing the full course of preventive medication but still developed malaria.

Malaria patients by travel to regions of possible exposure and other risk factors, New York City, 2013 to 2024

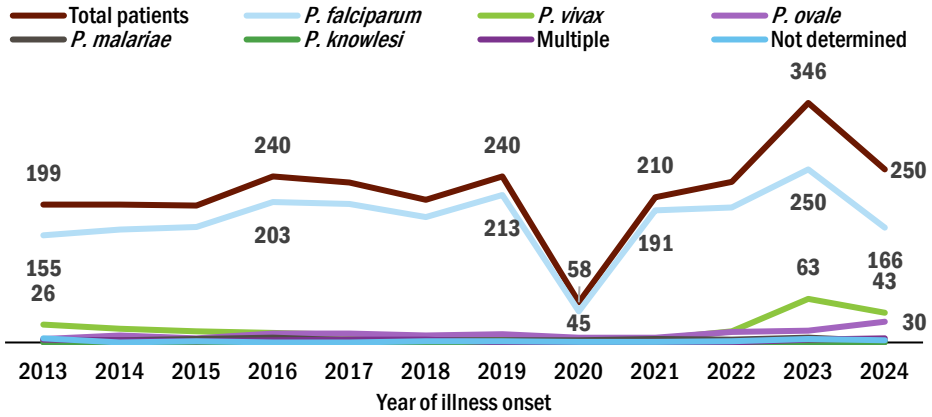


"Other Africa" represents all countries and territories on the continent of Africa excluding the 16 countries grouped as "West Africa." "Unknown travel region" represents patients who traveled outside of the U.S. but the specific country they traveled to or from was not available. "All other regions" represents patients who traveled to or from regions with limited malaria transmission. Travel region does not necessarily represent the region where the patient was infected with malaria.
"Visit friends and relatives" are NYC based patients who travel back to their former or familial home to visit friends and relatives. "Other reasons for travel" include all other reported reasons for travel and excludes visiting friends and relatives, tourism, and business. *Not all patients who received preventive antimalarial medication completed or followed the medication course. †There is no information on if the patient did or did not receive preventive antimalarial medication.
Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease, 2013 – 2024.

In 2023, there was a record high number of malaria patients reported and a steep increase in *P. vivax* infections

- There were 346 malaria patients in 2023, a 72% increase compared with the average of 201 patients per year from 2013 to 2022.
- The proportion of patients with *P. vivax* infection tripled to 18% in 2023, compared with an average of 6% of patients per year from 2013 to 2022. While the number of malaria patients declined in 2024, the proportion with *P. vivax* infections remained elevated.

Annual number of malaria patients by *Plasmodium* species, New York City, 2013 to 2024



"Multiple" includes patients who were infected with two *Plasmodium* species. "Not determined" includes patients who had malaria, but the species could not be determined from the test type used.
Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease, 2013 – 2024

- In 2023 – 2024, 18% of malaria patients had *P. vivax* infections; most reported being in countries where *P. vivax* is the predominant species, including Ecuador (28%) and Venezuela (24%).
- From 2023 to 2024, the proportion of patients with *P. vivax* was higher among non-NYC based patients (93%) than NYC based patients (7%). Twenty-one percent of non-NYC based patients with *P. vivax* resided in China, where malaria is not endemic, all of whom reported traveling through endemic countries in Central and South America to the U.S.

Implications

NYC reports more malaria patients each year than any other jurisdiction in the U.S. The increasing number of NYC patients with travel-associated malaria corresponds to an increase in international travel and migration in recent years. Most patients reported no or limited use of preventive medication, and 75% of patients required hospitalization, which can be costly and keep people out of work. This highlights the need for improved outreach and support for travelers - especially people visiting friends and relatives in endemic areas - to encourage strategies to prevent mosquito bites and identify barriers to access and use of anti-malaria medication.In addition, with the growing number of patients with *P. vivax* infections, it is important to recognize their potentially different clinical presentation and medical management compared with patients with *P. falciparum*. Due to the usually milder nature of *P. vivax* malaria, patients may not seek medical attention early or at all. For the same reason, a provider may also miss the diagnosis. Untreated or inadequately treated malaria can lead to complications and the possibility of the parasite becoming dormant and causing illness months or years later.

A small number of *Anopheles* mosquito species capable of transmitting malaria are found in NYC. Shifting precipitation and temperature patterns resulting from climate change contribute to the geographic spread of mosquito species, increased mosquito reproduction rates, and increased rates of parasite development in mosquitoes. Mosquito surveillance is necessary to monitor existing populations and detect newly emerging species capable of transmitting malaria. The increasing trend in the number of malaria cases in NYC, along with climate factors that facilitate increased mosquito populations may increase the risk of malaria transmission by local mosquitoes. In 2023, locally acquired cases of *P. vivax* were detected in Florida, Texas, and Arkansas and of *P. falciparum* in Maryland[3].

The NYC Health Department has been working to increase malaria awareness among New Yorkers and health care providers. Programs have included distribution of health information, insect repellent and other prevention tools, especially in communities most affected by malaria. Racial and structural inequities can lead to limited access to health care, particularly for recent immigrants, asylum seekers, people with limited English proficiency, and people with unstable housing, making it challenging to ensure prompt diagnosis and treatment. Policies and programs that facilitate access to health care regardless of ability to pay or immigration status help ensure the most vulnerable populations receive support and appropriate health care and helps protect the health of all New Yorkers.

Preventive measures: Travelers to malaria endemic regions can prevent or reduce their risk of malaria infection while abroad by taking preventive medications and applying measures to prevent mosquito bites which may include: utilizing insecticide-treated bed nets, EPA-registered insect repellents, wearing long sleeve shirts and pants to prevent bites, and using an air conditioner or ceiling fans to keep mosquitoes outside. Visit NYC.gov/health and search Mosquitoes.

More information on malaria

- Heading Home Healthy
- Centers for Disease Control and Prevention: Malaria

Authors: Mike Antwi, Renee King, Asha Abdool, Sally Slavinski

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References:

1.Tan K, Abanyie F. CDC. Malaria | CDC Yellow Book 2024. wwwnc.cdc.gov. https://wwwnc.cdc.gov/travel/yellowbook/2024/infections-diseases/malaria. Accessed November 19, 2024.

2.World Health Organization. World malaria report 2024. World Health Organization; 2024. https://www.who.int/publications/i/item/9789240104440. Accessed February 6, 2025.

3.Important Updates on Locally Acquired Malaria Cases Identified in Florida, Texas, and Maryland. https://emergency.cdc.gov/han/2023/han00496.asp. Accessed December 2, 2024.

Epi Data Tables

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Data Tables

Data Sources

NYC Malaria disease data 2013 – 2024 The NYC Health Code mandates reporting of malaria diagnoses by laboratories and health care providers to the Health Department, which investigates reports of malaria by interviewing patients and providers and reviewing medical records. Data from 2024 are preliminary as of May 31, 2025, and subject to change.

Table 1. Characteristics of New York City patients with malaria, 2013 – 2024

Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease , 2013 – 2024

	2013 – 2024	
	N	%
Overall		
Total patients	2609	100%
Sex		
Male	1710	66%
Female	899	34%
Age group (years)		
0-17	478	18%
18-39	991	38%
40-59	832	32%
60+	308	12%
Borough of residence		
Bronx	1159	44%
Brooklyn	544	21%
Manhattan	431	17%
Queens	376	14%
Staten Island	99	4%
Race and ethnicity[§]		
Asian	118	5%
Black	2224	85%
Latino	107	4%
Other	60	2%
Unknown	27	1%
White	73	3%

§ **Race and Ethnicity**: White, Black, Asian, Other, and Unknown race categories exclude Latino ethnicity. Latino includes Hispanic or Latino of any race. Other race includes people who identified as multiracial or did not identify with any race listed above.

Table 2. Risks and outcomes among New York City patients with malaria, 2013 – 2024

Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease , 2013 – 2024

	N	%
Overall		
Total patients	2609	100%
Reasons for travel[§]		
Visit friends and relatives	1657	64%
Tourism	78	3%
Business	69	3%
Other reasons for travel	107	4%
Unknown	151	6%
Not collected	545	21%
Not applicable (congenital and occupational exposure)	2	0%
Region of travel[†]		
West Africa	2078	80%
Other Africa	188	7%
South America	136	5%
Asia	96	4%
Caribbean, Central America or Mexico	22	1%
Oceania	1	0%
Multiple regions	73	3%
Unknown travel region	8	0%
All other regions	5	0%
Not applicable (congenital and occupational exposure)	2	0%
High risk patient groups		
Children < 5 years	88	3%
Pregnant (among 435 female patients 15 - 45 years)	56	13%
Preventive medication use		
Reported preventive medication*	389	15%
Reported completion of preventive medication course (n=389)	165	42%
Preventive medication not taken	2105	81%
Preventive medication status unknown**	115	4%
Parasitemia[§§]		
High (≥ 5%)	319	12%
Low (< 5%)	2152	82%
Not reported	138	5%
Hospitalization		
Yes	1951	75%
No	658	25%
Fatal		
Yes	9	0%
No	2600	100%

§**Reasons for travel** is self-reported by NYC based patients and is defined as the reason they traveled from NYC to their destination outside of the United States. Non-NYC based patients do not report their reason for travel. To summarize the most reported travel reasons, they are categorized into three groups. “Visit friends and relatives” are NYC based patients who travel back to their former or familial home to visit friends and relatives. “Other reasons for travel” include all other reported reasons for travel and excludes visiting friends and relatives, tourism and business. “Not collected” includes all non-NYC based patients whose reasons for travel are not captured. “Not applicable” represents patients who did not acquire their malaria infection while traveling outside the U.S. or via mosquito transmission locally.

†**Regions of travel** is defined by the geographic location of the self-reported country/countries or territories patients traveled to or from. Regions are categorized into eight groups. “West Africa” represents 16 countries in the western region of Africa: Benin, Burkina Faso, Cape Verde, Côte D'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo. “Other Africa” represents all countries and territories on the continent of Africa excluding the 16 countries grouped as “West Africa.” “Multiple Regions” represents all patients who reported travel to more than one region. “Unknown travel region” represents patients with travel outside of the United States but the country they traveled to or from was not reported. “All other regions” represents patients who traveled to or from countries with limited malaria transmission. “Not applicable” represents patients who did not acquire their malaria infection while traveling outside the U.S. or via mosquito transmission locally.

*Not all patients who received antimalarial medication completed or followed the medication course.

**There is no information on if the patient did or did not receive preventive antimalarial medication.

§§**Parasitemia** is the percent of red blood cells infected with malaria parasites; levels greater than or equal to 5% is an indication of severe malaria.

Table 3. Malaria among New York City patients by *Plasm*

Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease , 2013 – 2024

	2013		2014		2015		2016		2017		2018		2019		2020		2021		2022		2023		2024	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Overall																								
Total patients	199	100%	199	100%	198	100%	240	100%	231	100%	206	100%	240	100%	58	100%	210	100%	232	100%	346	100%	250	100%
Species																								
P. falciparum	155	78%	163	82%	167	84%	203	85%	200	87%	181	88%	213	89%	45	78%	191	91%	195	84%	250	72%	166	66%
P. vivax	26	13%	20	10%	16	8%	14	6%	11	5%	6	3%	9	4%	2	3%	5	2%	16	7%	63	18%	43	17%
P. ovale	5	3%	10	5%	6	3%	13	5%	13	6%	10	5%	12	5%	7	12%	7	3%	15	6%	17	5%	30	12%
P. malariae	3	2%	3	2%	5	3%	7	3%	3	1%	3	1%	3	1%	3	5%	5	2%	4	2%	7	2%	2	1%
P. knowlesi	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Multiple	4	2%	3	2%	2	1%	3	1%	4	2%	4	2%	0	0%	0	0%	1	0%	0	0%	4	1%	6	2%
Not determined	6	3%	0	0%	2	1%	0	0%	0	0%	2	1%	2	1%	1	2%	1	0%	2	1%	5	1%	3	1%

§ **Species** is the *Plasmodium* species that the patient was infected with. While there are only *Plasmodium* species that infect humans, here species are categorized into seven groups. *P. falciparum, P. vivax, P. ovale, P. malariae, and P. knowlesi* are the five species that infect humans. "Multiple" includes patients who were infected with two *Plasmodium* species. "Not determined" includes patients who had malaria, but the species was not determined from the test type used.

Table 4. Malaria among New York City patients by Modified Zip Code Tabulation Area, 2013–2024

Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease , 2013 – 2024

Modified Zip Code Tabulation Area (MODZCTA) are ZIP Code Tabulation Areas (ZCTA) which are modified to have populations of at least 3,000 people. ZCTAs are defined for every census block and take the value of the plurality zip code recorded by respondents to the Census from that block. As such, every census block is assigned to a unique ZIP Code and blocks with the same value are aggregated into a ZCTA.

Modified Zip Code Tabulation Area (MODZCTA)	N
Overall	
Total patients	2609
Bronx	
10451	70
10452	101
10453	73
10454	30
10455	58
10456	202
10457	89
10458	80
10459	55
10460	47
10461	9
10462	29
10463	10
10465	1
10466	51
10467	66
10468	31
10469	42
10470	4
10471	2
10472	37
10473	34
10474	14
10475	24
Brooklyn	
11201	3
11203	27
11204	3
11205	10
11206	11
11207	30
11208	44
11209	1
11210	23
11211	10
11212	41
11213	22
11214	2

Table 4. Malaria among New York City patients by Modified Zip Code Tabulation Area, 2013–2024

Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease , 2013 – 2024

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Modified Zip Code Tabulation Area (MODZCTA)	N
11215	5
11216	16
11217	7
11218	18
11219	2
11220	5
11221	28
11222	5
11223	4
11224	8
11225	49
11226	43
11228	1
11229	1
11230	16
11231	4
11232	1
11233	32
11234	13
11235	10
11236	24
11237	4
11238	18
11239	3
Manhattan	
10001	6
10002	11
10003	7
10005	2
10006	2
10009	7
10010	6
10011	2
10013	1
10016	17
10017	10
10018	3
10019	7
10021	12
10022	2
10023	3

Table 4. Malaria among New York City patients by Modified Zip Code Tabulation Area, 2013–2024

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Modified Zip Code Tabulation Area (MODZCTA)	N
10024	3
10025	14
10026	51
10027	50
10028	1
10029	29
10030	36
10031	20
10032	7
10033	1
10034	3
10035	28
10036	13
10037	14
10038	2
10039	45
10040	4
10044	3
10128	8
10280	1
Queens	
11004	4
11101	14
11102	4
11103	1
11104	1
11106	2
11109	1
11354	8
11355	12
11356	1
11365	2
11366	3
11367	7
11368	22
11369	4
11370	2
11372	3
11373	7
11374	3
11375	3

Table 4. Malaria among New York City patients by Modified Zip Code Tabulation Area, 2013–2024

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Modified Zip Code Tabulation Area (MODZCTA) are ZIP Code Tabulation Areas (ZCTA) which are modified to have populations of at least 3,000 people. ZCTAs are defined for every census block and take the value of the plurality zip code recorded by respondents to the Census from that block. As such, every census block is assigned to a unique ZIP Code and blocks with the same value are aggregated into a ZCTA.

Modified Zip Code Tabulation Area (MODZCTA)	N
11377	4
11385	3
11411	2
11412	16
11413	24
11414	1
11415	2
11417	3
11418	6
11419	12
11420	8
11421	1
11422	24
11423	15
11426	2
11427	4
11428	2
11429	10
11432	14
11433	32
11434	33
11435	15
11436	11
11691	19
11692	9
Staten Island	
10301	13
10302	8
10303	12
10304	41
10305	5
10306	5
10310	9
10314	6

Table 5. Malaria among New York City patients by country or territory of travel, 2013 – 2024

Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease , 2013 – 2024

† **Region of travel** is defined by the geographic location of the self-reported country/countries patients traveled to or from. Regions are categorized into eight groups. "West Africa" represents 16 countries in the western region of Africa: Benin, Burkina Faso, Cape Verde, Côte D'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo. "Other Africa" represents all countries and territories on the continent of Africa excluding the 16 countries grouped as "West Africa." "Multiple Regions" represents all patients who reported travel to more than one region. "Unknown travel region" represents patients with travel outside of the United States but the country they traveled to or from was not reported. "All other regions" represents patients who traveled to or from countries with limited malaria transmission.
*Excludes 2 patients who did not acquire their malaria infection while traveling outside the U.S. or via mosquito transmission locally.

Region of Travel†	N
Overall	
Total patients*	2607
West Africa	
Benin	18
Burkina Faso	106
Côte d'Ivoire	299
Gambia	28
Ghana	268
Guinea	372
Guinea-Bissau	10
Liberia	75
Mali	86
Mauritania	5
Niger	5
Nigeria	470
Senegal	66
Sierra Leone	130
Togo	89
West Africa: multiple countries	
Benin, Gambia, Senegal	1
Benin, Ghana	1
Burkina Faso, Cote d'Ivoire	1
Burkina Faso, Ghana	1
Burkina Faso, Togo	1
Cote d'Ivoire, Gambia, Senegal, Sierra Leone	1
Cote d'Ivoire, Ghana	1
Cote d'Ivoire, Ghana, Liberia, Nigeria, Sierra Leone	1
Cote d'Ivoire, Guinea	9
Cote d'Ivoire, Nigeria	1
Cote d'Ivoire, Senegal	1
Gambia, Guinea	1
Gambia, Guinea, Nigeria, Sierra Leone	1
Ghana, Guinea	2
Ghana, Liberia	1
Ghana, Nigeria	3
Ghana, Togo	2
Guinea, Liberia	2
Guinea, Mali	3
Guinea, Nigeria, Sierra Leone	1
Guinea, Senegal	5

Table 5. Malaria among New York City patients by country or territory of travel, 2013 – 2024

Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease , 2013 – 2024

† **Region of travel** is defined by the geographic location of the self-reported country/countries patients traveled to or from. Regions are categorized into eight groups. "West Africa" represents 16 countries in the western region of Africa: Benin, Burkina Faso, Cape Verde, Côte D'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo. "Other Africa" represents all countries and territories on the continent of Africa excluding the 16 countries grouped as "West Africa." "Multiple Regions" represents all patients who reported travel to more than one region. "Unknown travel region" represents patients with travel outside of the United States but the country they traveled to or from was not reported. "All other regions" represents patients who traveled to or from countries with limited malaria transmission.
*Excludes 2 patients who did not acquire their malaria infection while traveling outside the U.S. or via mosquito transmission locally.

Region of Travel†	N
Guinea, Sierra Leone	5
Guinea-Bissau, Senegal	1
Liberia, Sierra Leone	3
Mali, Senegal	2
Other Africa	
Angola	1
Burundi	2
Cameroon	44
Central African Republic	5
Chad	19
Congo	16
Democratic Republic of the Congo	2
Djibouti	3
Equatorial Guinea	3
Ethiopia	2
Gabon	14
Kenya	8
Malawi	3
Morocco	1
Mozambique	3
Namibia	1
Rwanda	2
South Africa	1
South Sudan	3
Sudan	13
Tanzania	3
Uganda	19
Zambia	1
Other Africa: multiple countries	
Angola, South Africa	1
Chad, Ethiopia	1
Chad, Sudan	2
Congo, Equatorial Guinea	1
Congo, Rwanda	1
Congo, Uganda	1
Democratic Republic of the Congo, Rwanda, Uganda	1
Egypt, Sudan	3
Kenya, Mozambique, South Africa	1
Kenya, South Africa, Sudan	1
Kenya, Uganda	1

Table 5. Malaria among New York City patients by country or territory of travel, 2013 – 2024

Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease , 2013 – 2024

† **Region of travel** is defined by the geographic location of the self-reported country/countries patients traveled to or from. Regions are categorized into eight groups. "West Africa" represents 16 countries in the western region of Africa: Benin, Burkina Faso, Cape Verde, Côte D'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo. "Other Africa" represents all countries and territories on the continent of Africa excluding the 16 countries grouped as "West Africa." "Multiple Regions" represents all patients who reported travel to more than one region. "Unknown travel region" represents patients with travel outside of the United States but the country they traveled to or from was not reported. "All other regions" represents patients who traveled to or from countries with limited malaria transmission.
*Excludes 2 patients who did not acquire their malaria infection while traveling outside the U.S. or via mosquito transmission locally.

Region of Travel†	N
Malawi, Mozambique	1
Morocco, Tanzania	1
Sudan, Uganda	1
Tanzania, Uganda	2
South America	
Brazil	2
Colombia	7
Ecuador	34
Guyana	49
Peru	12
Venezuela	32
Asia	
Afghanistan	2
Bangladesh	4
China	21
Cyprus	1
Hong Kong (China)	1
India	21
Indonesia	2
Nepal	1
Pakistan	36
Saudi Arabia	1
Yemen	4
Asia: multiple countries or territories	
Hong Kong (China), Indonesia, Singapore	1
India, United Arab Emirates	1
Caribbean, Central America, Mexico	
Bahamas	1
Dominican Republic	8
Guatemala	2
Haiti	9
Panama	1
Caribbean, Central America, Mexico: multiple countries	
Cuba, Mexico	1
Oceania	
Papua New Guinea	1
Multiple regions	
Multiple regions	73
Unknown travel region	
Unknown	8

Table 5. Malaria among New York City patients by country or territory of travel, 2013 – 2024

Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease , 2013 – 2024

† **Region of travel** is defined by the geographic location of the self-reported country/countries patients traveled to or from. Regions are categorized into eight groups. “West Africa” represents 16 countries in the western region of Africa: Benin, Burkina Faso, Cape Verde, Côte D'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo. “Other Africa” represents all countries and territories on the continent of Africa excluding the 16 countries grouped as “West Africa.” “Multiple Regions” represents all patients who reported travel to more than one region. “Unknown travel region” represents patients with travel outside of the United States but the country they traveled to or from was not reported. “All other regions” represents patients who traveled to or from countries with limited malaria transmission.
*Excludes 2 patients who did not acquire their malaria infection while traveling outside the U.S. or via mosquito transmission locally.

Region of Travel†	N
All other regions	
France	1
Greece	1
Italy	1
Kyrgyzstan	1
Spain	1

Table 6. Malaria among New York City patients by *Plasmodium* species, comparing 2013 – 2022 to 2023 – 2024

Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease , 2013 – 2024

	2013 – 2022			2023 – 2024	
	N	%		N	%
Overall					
Total patients	2013	100%	Total patients	596	100%
Species			**Species**		
P. falciparum	1713	85%	*P. falciparum*	416	70%
P. vivax	125	6%	*P. vivax*	106	18%
P. ovale	98	5%	*P. ovale*	47	8%
P. malariae	39	2%	*P. malariae*	9	2%
P. knowlesi	1	0%	*P. knowlesi*	0	0%
Multiple	21	1%	Multiple	10	2%
Not determined	16	1%	Not determined	8	1%

§Species is the *Plasmodium* species that the patient was infected with. While there are only *Plasmodium* species that infect humans, here species are categorized into seven groups. *P. falciparum, P. vivax, P. ovale, P. malariae, and P. knowlesi* are the five species that infect humans. “Multiple” includes patients who were infected with two *Plasmodium* species. “Not determined” includes patients who had malaria, but the species was not determined from the test type used.

Table 7. Malaria among New York City patients by country or territory of travel, comparing 2013 – 2022 to 2023 – 2024

Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease , 2013 – 2024

† **Region of travel** is defined by the geographic location of the self-reported country/countries patients traveled to or from. Regions are categorized into eight groups. "West Africa" represents 16 countries in the western region of Africa: Benin, Burkina Faso, Cape Verde, Côte D'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo. "Other Africa" represents all countries and territories on the continent of Africa excluding the 16 countries grouped as "West Africa." "Multiple Regions" represents all patients who reported travel to more than one region. "Unknown travel region" represents patients with travel outside of the United States but the country they traveled to or from was not reported. "All other regions" represents patients who traveled to or from countries with limited malaria transmission. *Excludes 2 patients who did not acquire their malaria infection while traveling outside the U.S. or via mosquito transmission locally.

	2013 – 2022		2023 – 2024	
	N	%	N	%
Overall				
Total patients*	2011	100%	596	100%
Region of Travel†				
West Africa				
Benin	15	1%	3	1%
Burkina Faso	90	4%	16	3%
Côte d'Ivoire	218	11%	81	14%
Gambia	21	1%	7	1%
Ghana	227	11%	41	7%
Guinea	265	13%	107	18%
Guinea-Bissau	10	0%	0	0%
Liberia	62	3%	13	2%
Mali	77	4%	9	2%
Mauritania	2	0%	3	1%
Niger	4	0%	1	0%
Nigeria	410	20%	60	10%
Senegal	41	2%	25	4%
Sierra Leone	100	5%	30	5%
Togo	73	4%	16	3%
West Africa: multiple countries				
Benin, Gambia, Senegal	1	0%	0	0%
Benin, Ghana	1	0%	0	0%
Burkina Faso, Cote d'Ivoire	0	0%	1	0%
Burkina Faso, Ghana	1	0%	0	0%
Burkina Faso, Togo	1	0%	0	0%
Cote d'Ivoire, Gambia, Senegal, Sierra Leone	0	0%	1	0%
Cote d'Ivoire, Ghana	1	0%	0	0%
Cote d'Ivoire, Ghana, Liberia, Nigeria, Sierra Leo	1	0%	0	0%
Cote d'Ivoire, Guinea	5	0%	4	1%
Cote d'Ivoire, Nigeria	1	0%	0	0%
Cote d'Ivoire, Senegal	1	0%	0	0%
Gambia, Guinea	1	0%	0	0%
Gambia, Guinea, Nigeria, Sierra Leone	1	0%	0	0%
Ghana, Guinea	2	0%	0	0%
Ghana, Liberia	2	0%	0	0%
Ghana, Nigeria	2	0%	1	0%

Table 7. Malaria among New York City patients by country or territory of travel, comparing 2013 – 2022 to 2023 – 2024

Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease , 2013 – 2024

† **Region of travel** is defined by the geographic location of the self-reported country/countries patients traveled to or from. Regions are categorized into eight groups. "West Africa" represents 16 countries in the western region of Africa: Benin, Burkina Faso, Cape Verde, Côte D'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo. "Other Africa" represents all countries and territories on the continent of Africa excluding the 16 countries grouped as "West Africa." "Multiple Regions" represents all patients who reported travel to more than one region. "Unknown travel region" represents patients with travel outside of the United States but the country they traveled to or from was not reported. "All other regions" represents patients who traveled to or from countries with limited malaria transmission. *Excludes 2 patients who did not acquire their malaria infection while traveling outside the U.S. or via mosquito transmission locally.

	2013 – 2022		2023 – 2024	
	N	%	N	%
Ghana, Togo	1	0%	1	0%
Guinea, Liberia	1	0%	0	0%
Guinea, Mali	2	0%	1	0%
Guinea, Nigeria, Sierra Leone	1	0%	0	0%
Guinea, Senegal	4	0%	1	0%
Guinea, Sierra Leone	4	0%	1	0%
Guinea-Bissau, Senegal	1	0%	0	0%
Liberia, Sierra Leone	2	0%	1	0%
Mali, Senegal	2	0%	0	0%
Other Africa				
Angola	1	0%	0	0%
Burundi	2	0%	0	0%
Cameroon	37	2%	7	1%
Central African Republic	3	0%	2	0%
Chad	7	0%	12	2%
Congo	13	1%	3	1%
Democratic Republic of the Congo	2	0%	0	0%
Djibouti	3	0%	0	0%
Equatorial Guinea	3	0%	0	0%
Ethiopia	1	0%	1	0%
Gabon	5	0%	9	2%
Kenya	7	0%	1	0%
Malawi	3	0%	0	0%
Morocco	0	0%	1	0%
Mozambique	2	0%	1	0%
Namibia	0	0%	1	0%
Rwanda	2	0%	0	0%
South Africa	1	0%	0	0%
South Sudan	2	0%	1	0%
Sudan	11	1%	2	0%
Tanzania	2	0%	1	0%
Uganda	15	1%	4	1%
Zambia	1	0%	0	0%
Other Africa: multiple countries				
Angola, South Africa	1	0%	0	0%
Chad, Ethiopia	1	0%	0	0%
Chad, Sudan	2	0%	0	0%

Table 7. Malaria among New York City patients by country or territory of travel, comparing 2013 – 2022 to 2023 – 2024

Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease , 2013 – 2024

† **Region of travel** is defined by the geographic location of the self-reported country/countries patients traveled to or from. Regions are categorized into eight groups. "West Africa" represents 16 countries in the western region of Africa: Benin, Burkina Faso, Cape Verde, Côte D'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo. "Other Africa" represents all countries and territories on the continent of Africa excluding the 16 countries grouped as "West Africa." "Multiple Regions" represents all patients who reported travel to more than one region. "Unknown travel region" represents patients with travel outside of the United States but the country they traveled to or from was not reported. "All other regions" represents patients who traveled to or from countries with limited malaria transmission. *Excludes 2 patients who did not acquire their malaria infection while traveling outside the U.S. or via mosquito transmission locally.

	2013 – 2022		2023 – 2024	
	N	%	N	%
Congo, Equatorial Guinea	1	0%	0	0%
Congo, Rwanda	1	0%	0	0%
Congo, Uganda	1	0%	0	0%
Democratic Republic of the Congo, Rwanda, Uga	1	0%	0	0%
Egypt, Sudan	2	0%	1	0%
Kenya, Mozambique, South Africa	1	0%	0	0%
Kenya, South Africa, Sudan	1	0%	0	0%
Kenya, Uganda	1	0%	0	0%
Malawi, Mozambique	1	0%	0	0%
Morocco, Tanzania	1	0%	0	0%
Sudan, Uganda	1	0%	0	0%
Tanzania, Uganda	1	0%	1	0%
South America				
Brazil	2	0%	0	0%
Colombia	3	0%	4	1%
Ecuador	4	0%	30	5%
Guyana	41	2%	8	1%
Peru	11	1%	1	0%
Venezuela	7	0%	25	4%
Asia				
Afghanistan	0	0%	2	0%
Bangladesh	0	0%	4	1%
China	0	0%	21	4%
Cyprus	1	0%	0	0%
Hong Kong (China)	1	0%	0	0%
India	21	1%	0	0%
Indonesia	1	0%	1	0%
Nepal	0	0%	1	0%
Pakistan	33	2%	3	1%
Saudi Arabia	1	0%	0	0%
Yemen	3	0%	1	0%
Asia: multiple countries or territories				
Hong Kong (China), Indonesia, Singapore	1	0%	0	0%
India, United Arab Emirates	1	0%	0	0%
Caribbean, Central America, Mexico				
Bahamas	0	0%	1	0%
Dominican Republic	6	0%	2	0%

Table 7. Malaria among New York City patients by country or territory of travel, comparing 2013 – 2022 to 2023 – 2024

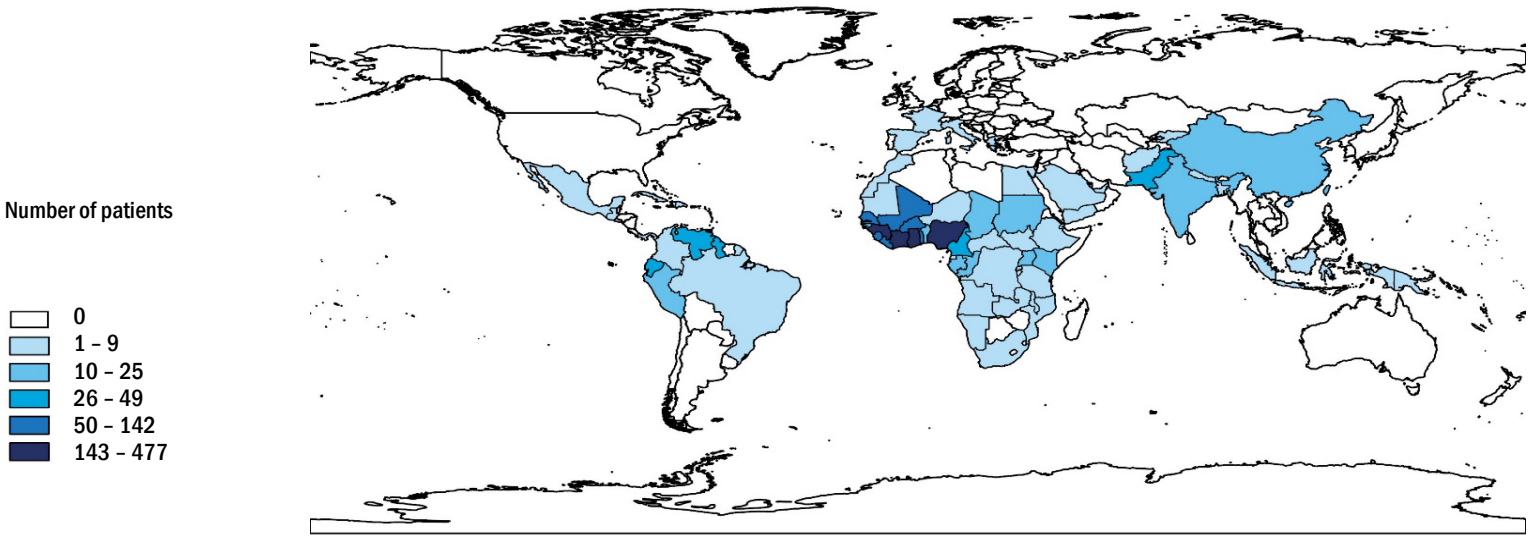
Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease , 2013 – 2024

† **Region of travel** is defined by the geographic location of the self-reported country/countries patients traveled to or from. Regions are categorized into eight groups. "West Africa" represents 16 countries in the western region of Africa: Benin, Burkina Faso, Cape Verde, Côte D'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, Togo. "Other Africa" represents all countries and territories on the continent of Africa excluding the 16 countries grouped as "West Africa." "Multiple Regions" represents all patients who reported travel to more than one region. "Unknown travel region" represents patients with travel outside of the United States but the country they traveled to or from was not reported. "All other regions" represents patients who traveled to or from countries with limited malaria transmission. *Excludes 2 patients who did not acquire their malaria infection while traveling outside the U.S. or via mosquito transmission locally.

	2013 – 2022		2023 – 2024	
	N	%	N	%
Guatemala	2	0%	0	0%
Haiti	8	0%	1	0%
Panama	1	0%	0	0%
Caribbean, Central America, Mexico: multiple countries				
Cuba, Mexico	1	0%	0	0%
Oceania				
Papua New Guinea	1	0%	0	0%
Multiple regions				
Multiple regions	57	3%	16	3%
Unknown travel region				
Unknown	6	0%	2	0%
All other regions				
France	1	0%	0	0%
Greece	1	0%	0	0%
Italy	1	0%	0	0%
Kyrgyzstan	0	0%	1	0%
Spain	1	0%	0	0%

Map 1. New York City patients with malaria by country or territory of travel,[1] 2013 – 2024

Source: NYC Department of Health and Mental Hygiene, Bureau of Communicable Disease, 2013 – 2024



[1]The sum of patients across countries or territories (n=2612) exceeds the total number of patients who traveled (n=2607) because 73 NYC based patients traveled to >1 country or territory within the same region. The distribution of the number of countries and territories within the same region per NYC based travelers was 1 (n=1903 patients), 2 (n=64 patients), 3 (n=6 patients), 4 (n=2 patients), 5 (n=1 patient). For 545 non-NYC based patients and 13 patients with an unknown residence base, only a single country of origin was captured, which might not necessarily represent the country where malaria was acquired. Excludes 71 NYC based patients and 2 patients with an unknown residence base who traveled to multiple regions and 8 patients who traveled but country was unknown.