

Malaria

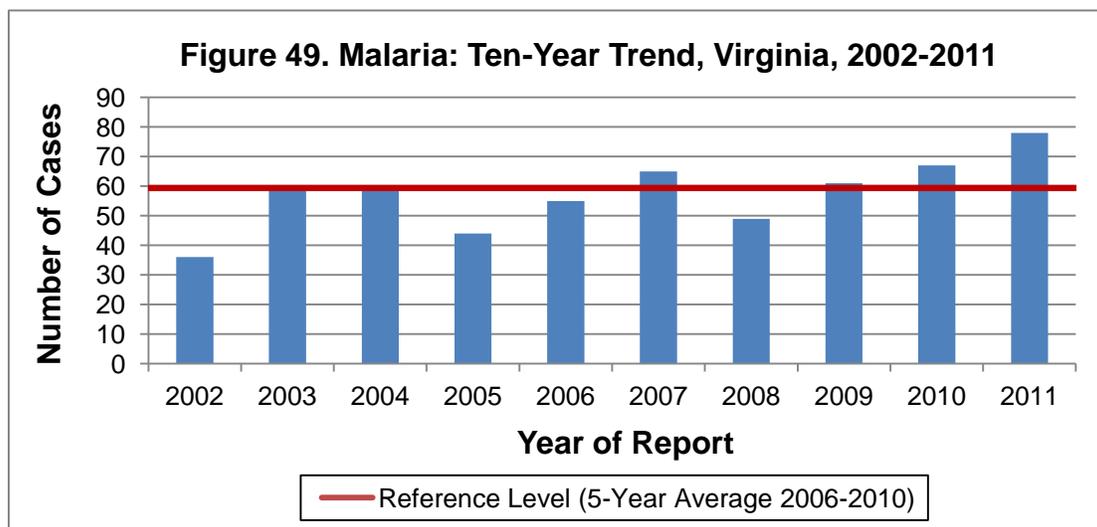
Agent(s): Four different species of protozoan parasites: *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium ovale*, and *Plasmodium malariae*

Mode of Transmission: Transmission through the bite of an infected female *Anopheles* mosquito. Transmission might also occur from infected mother to child during pregnancy or delivery, by blood product transfusion or through transplanted organs from infected donors. Humans and certain *Anopheles* mosquito species are the only natural reservoirs for malaria.

Signs/Symptoms: Typically, high fevers, chills, sweats, severe headache, muscle and joint pain, anorexia, nausea, flu-like illness, anemia and an enlarged spleen. *P. falciparum* infections may progress to severe malaria if not treated promptly; symptoms include acute alteration of brain structure and function (i.e., cerebral malaria), severe anemia, jaundice, renal failure and coma.

Prevention: Appropriate medication for malaria prophylaxis should be taken by travelers when traveling to malaria-endemic countries. Anopheline mosquitoes bite only at dusk, dawn or during night-time hours and tend to enter buildings. Control measures include staying in structures with adequate screening and equipped with bed nets, and when outdoors, wearing long-sleeved, loose-fitting, light-colored clothing and mosquito repellents.

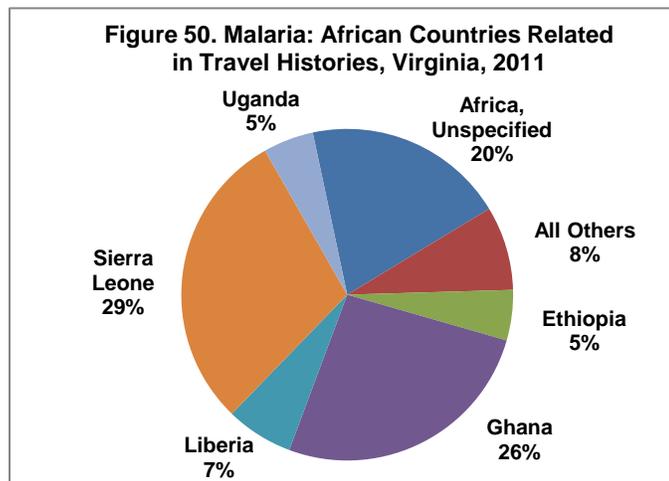
Other Important Information: Almost all infections reported in Virginia occur in persons who were infected in other countries. Although malaria is not endemic to Virginia, it may be brought to this region by travelers or immigrants with dormant or inapparent infections. Malaria might also arrive in Virginia by infected mosquitoes transported in aircraft or ships arriving from foreign destinations. Two potential mosquito vectors for malaria are present in Virginia: *Anopheles quadrimaculatus* and *An. punctipennis*.



During 2011, 78 cases of malaria were reported in Virginia. This is a 16% increase from the 67 cases reported in 2010, and a 31% increase from the five-year average of 59.4 cases per year (Figure 49).

Incidence rates were highest in the 30-39 and 40-49 year age groups (2.2 and 1.3 per 100,000, respectively). Race was reported as unknown for 32% of cases. Where race was reported, incidence in the black population (2.5 per 100,000) was substantially higher than rates for the “other” race category (0.3 per 100,000) and the white population (0.2 per 100,000). Incidence was higher among males than among females (1.4 and 0.6 per 100,000, respectively). The majority of cases (70%) were reported from the northern region. Cases occurred throughout the year, with the largest proportion (32%) occurring during the second quarter. However, because cases of malaria are usually acquired outside the United States, observed seasonality patterns are likely to be related to patterns of travel to endemic countries.

All but two cases reported a history of travel outside of the United States within the two years prior to disease onset. Travel history was unknown for the other two cases. The majority of those with travel outside the U.S. (78%) had previously visited countries on the African continent. The African countries most frequently referenced in the travel histories for 2011 included Sierra Leone (18 cases), Ghana (16 cases), Africa, unspecified (12 cases), Liberia (4 cases), Ethiopia and Uganda (3 cases each), Nigeria and Kenya (2 cases each) and Tanzania (1 case) (Figure 50). Other countries mentioned in travel histories included India (7 cases), Afghanistan (3 cases), and Bangladesh, Honduras, Indonesia, Pakistan and Peru (1 case each).



Information on malaria prophylaxis usage was obtained for 67 (86%) of the reported cases. Of these, 21 (27%) reported receiving prophylaxis for malaria, although 14 of the 21 individuals reported missing at least one dose. There were no known deaths due to malaria reported in 2011.