

## Malaria

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

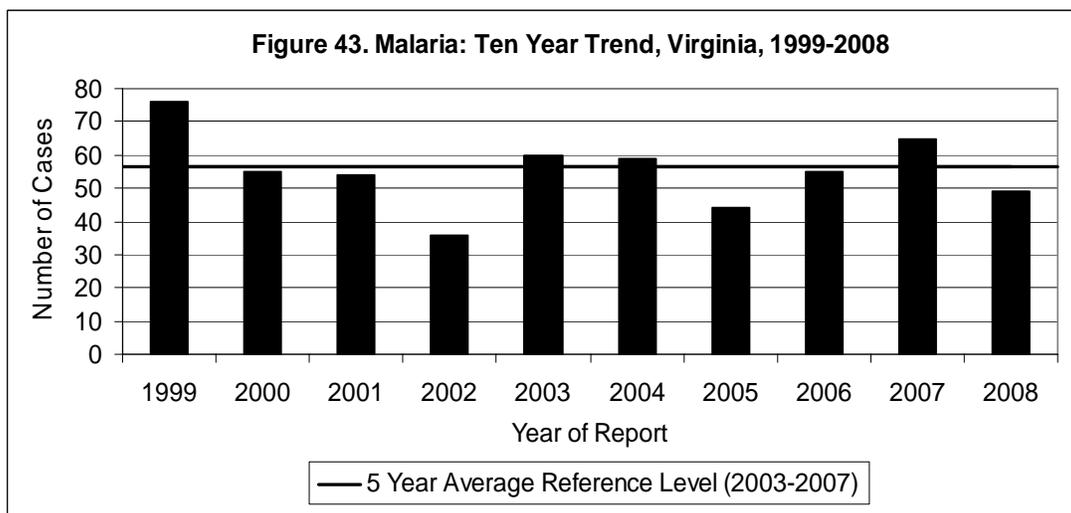
Mode of Transmission: Malaria is transmitted through the bite of an infected, female *Anopheles* mosquito. Malaria may also be transmitted from infected mother to child during pregnancy or delivery, by blood transfusion or through transplanted organs from infected donors. Humans and certain *Anopheles*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

Signs/Symptoms: Typically, high fevers, shaking, 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, severe anemia, jaundice, renal failure and coma.

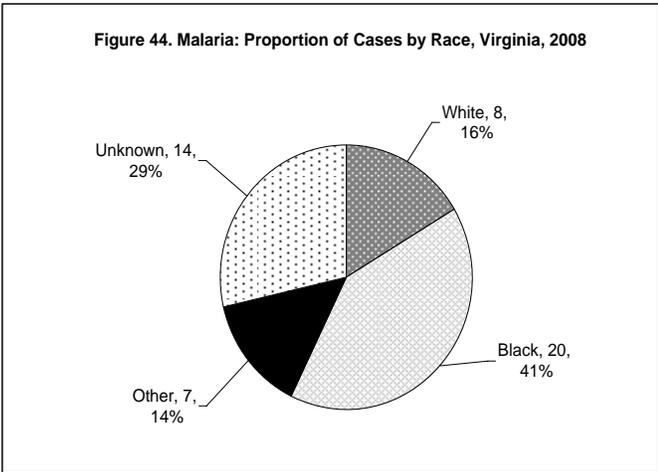
Prevention: Appropriate medication for malaria prophylaxis should be taken by travelers to malaria endemic countries. Anopheline mosquitoes bite only at dusk, dawn or during night-time hours and tend to enter buildings. Avoid mosquito bites at these times by staying in structures with adequate screening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

Other Important Information: Almost all infections reported in Virginia occur in individuals 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 unapparent infections. Malaria might also arrive in Virginia carried by infected mosquitoes transported in aircraft arriving from foreign destinations. There are two potential mosquito vectors for malaria in Virginia: *Anopheles quadrimaculatus* and *An. punctipennis*.

In 2008, 49 cases of malaria were reported in Virginia. This is a 25% decrease from the 65 cases reported in 2007, and a 13% decrease from the five year average of 56.6 cases per year (Figure 43).



Incidence rates were highest for the 30-39 year age group (1.6 per 100,000), followed by the 40-49 year age group (0.9 per 100,000). Race was missing for 29% of reported malaria cases (Figure 44). Among cases for which race was reported, more than half occurred in the black population; however, the incidence rate among the black and “other” populations was the same (1.3 per 100,000), and was thirteen times the incidence in the white population (0.1 per 100,000).



Incidence in males was more than twice the rate among females (0.9 and 0.4 per 100,000, respectively). Among regions, the northern region had the highest incidence rate (1.4 per 100,000). Rates in other regions ranged between 0.3 and 0.7 per 100,000, and no cases were reported from the southwest region. No deaths due to malaria were reported in 2008.

All cases reported a history of travel outside of the United States within the four years prior to disease onset. Among cases where specific travel information was provided, more than half of the infections occurred in persons arriving from or returning from Africa. Information on malaria prophylaxis usage was obtained for 43 cases (88%). Of these, 17 (35%) reported receiving prophylaxis for malaria, although six of these cases reported missing at least one dose. The largest proportion of 2008 cases (41%) occurred in the third quarter of the year, which is a pattern historically seen in Virginia. However, cases of malaria are usually acquired outside of this country and any seasonality would be related to travel patterns to endemic countries where the disease is more common.