

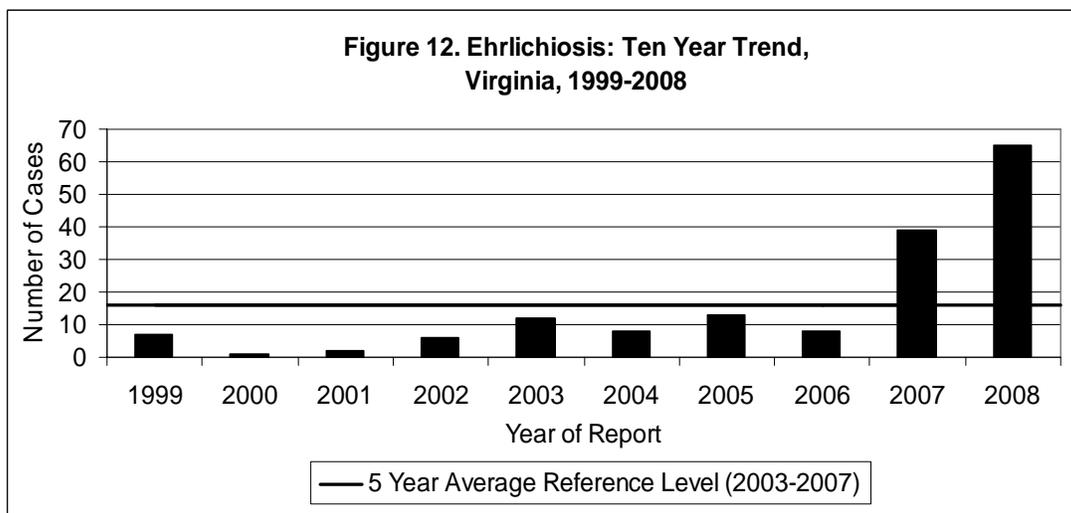
## **Ehrlichiosis**

**Agent(s):** Bacteria belonging to the family *Anaplasmataceae*. *Ehrlichia chaffeensis* infects monocytes and causes an illness called human monocytic ehrlichiosis (HME). *Anaplasma phagocytophilum* infects granulocytes, causing an illness called human granulocytic anaplasmosis (HGA). *E. ewingii* also infects granulocytes and causes a disease referred to as *E. ewingii* infection.

**Mode of Transmission:** Through the bite of an infected tick. *Ehrlichia chaffeensis* and *E. ewingii* may infect adult or occasionally nymphal stage lone star ticks. *Anaplasma phagocytophilum* may infect nymphal stage blacklegged ticks (formerly known as deer ticks). Transmission of these pathogens occurs when an infected tick bites a person and stays attached while feeding for a period of more than 24 hours.

**Signs/Symptoms:** Symptoms are usually non-specific, but commonly include fever, headache, nausea, anorexia, vomiting, and muscle pain. Blood work may be characterized by anemia, leukopenia, thrombocytopenia, or elevated hepatic transaminases. Untreated infections may result in prolonged fever, renal failure, respiratory distress, seizures, coma and death. Inflammation of the brain and the lining around the brain and spinal cord develops in 20% of patients with HME, but is very rare with HGA.

**Prevention:** Avoid being bitten by ticks. Avoid likely tick habitats such as humid forest environments with dense undergrowth or heavy leaf litter, and tall weeds along forest margins, tree lines, forest trails and forest clearings. When in tick-prone habitats, wear light-colored clothing with pants legs tucked into socks. Apply permethrin-based repellents to clothing, socks and shoes and DEET, Picaridin, or Oil of Lemon Eucalyptus-based repellents to exposed areas of skin prior to entering tick habitats. Thoroughly check your body for ticks after visiting tick habitats and remove attached ticks as soon as possible.



Sixty-five cases of ehrlichiosis were reported in Virginia during 2008. This is a 67% increase from the 39 cases seen in 2007 and a 306% increase from the five year average of 16 cases per year (Figure 12). The reason for this considerable increase is not known, but one factor may be increases in deer populations resulting from the encroachment of

suburban development on farms and forests where deer populations were previously kept in check by hunting. In addition, more people may seek medical care and laboratory testing when bitten by a tick because of increased awareness of tick-borne diseases. Adult lone star ticks and blacklegged ticks both depend on deer blood for their reproduction. Among cases reported in 2008, 63 were specified as HME, and 2 were specified as HGA.

Ehrlichiosis incidence was highest in the 60 year and older age group (2.3 per 100,000) and decreased with age. This is similar to the expected age pattern for ehrlichiosis seen in other endemic areas of the United States. Typically, most cases are in persons over the age of 50 years. The white population had higher incidence (0.5 per 100,000) than the “other” population (0.2 per 100,000) or the black population (0.1 per 100,000). The rate in females was less than half the rate in males (0.5 and 1.2 per 100,000, respectively).

Cases occurred in all regions of the state. The highest incidence occurred in the southwest region (1.4 per 100,000), followed closely by the northwest region (1.3 per 100,000). Other regions in the state had rates ranging from 0.4 to 0.8 per 100,000. The vast majority of cases (93.8%) had onsets in the second and third quarters.