Rocky Mountain Spotted Fever

Rocky Mountain Spotted Fever (RMSF) is a Class C disease. It must be reported to the state within five business days.

As of January 1, 2010, cases of RMSF are reported under a new category called Spotted Fever Rickettsiosis (including Rocky Mountain spotted fever). This change was made to better reflect the scope of cases being reported under the previous heading of RMSF, as many of those cases were not identified as being specifically caused by *R. rickettsii*.

Epidemiology

Rickettsia rickettsii, a bacterial organism spread to humans by the bite of ixodid (hard) ticks, is the etiologic agent of RMSF. The two major vectors of RMSF in the U.S. are the American dog tick, *Dermacentor variabilis* and the Rocky Mountain wood tick, *Dermacentor andersoni*. Other domestic tick species have been shown to be infected with *Rickettsia rickettsii* or have been identified as experimental vectors in laboratory studies. Some domestic ticks have no role in transmission in the U.S. but are considered important vectors in Central and South America. Although the vector of RMSF is the tick, exposure to ticks or tick-infested habitats is only reported in 60% of the cases.

The rickettsial organism is maintained in nature in a complex life cycle involving ticks and mammals. The tick acts as both vector and reservoir of the disease. Humans are accidental hosts and do not play a role in the natural transmission cycle. Even in areas from which most human cases are reported, only about 1% to 3% of the tick population carries the organism, therefore the risk of exposure is relatively low.

The disease is endemic in areas of North, Central and South America. Other closely related organisms cause different types of spotted fevers worldwide. Over half of the U.S. cases are reported from the south Atlantic region (which extends from Delaware south to Florida). Infection also occurs in the Pacific coastal region and the west south-central region, (which includes Arkansas, Louisiana, Oklahoma and Texas). Although initially identified in the Rocky Mountain states in 1896, a very small percentage of cases has recently been reported from this area.

Laboratory confirmation is usually done by serology. Several well validated serologic assays are available, but the reference standard is indirect immuno-fluorescence (IFA). PCR and isolation of the organism from tissues are other means of diagnosis. Early infections, which are often difficult to diagnose, are characterized by sudden onset of fever, headache and myalgia, followed by rash. Early diagnosis can be difficult. Without prompt, appropriate antibiotic therapy, the disease can be fatal. If epidemiological and clinical clues lead to a high degree of suspicion, therapy should never be delayed while waiting for laboratory confirmation. While the number of reported cases has increased, the case fatality rate in persons who become ill from RMSF has declined to a low of less than 0.5%.

No licensed vaccine providing immunity to RMSF is available. Limiting exposure to ticks is an important method of prevention. Since elimination of all activities resulting in tick exposure

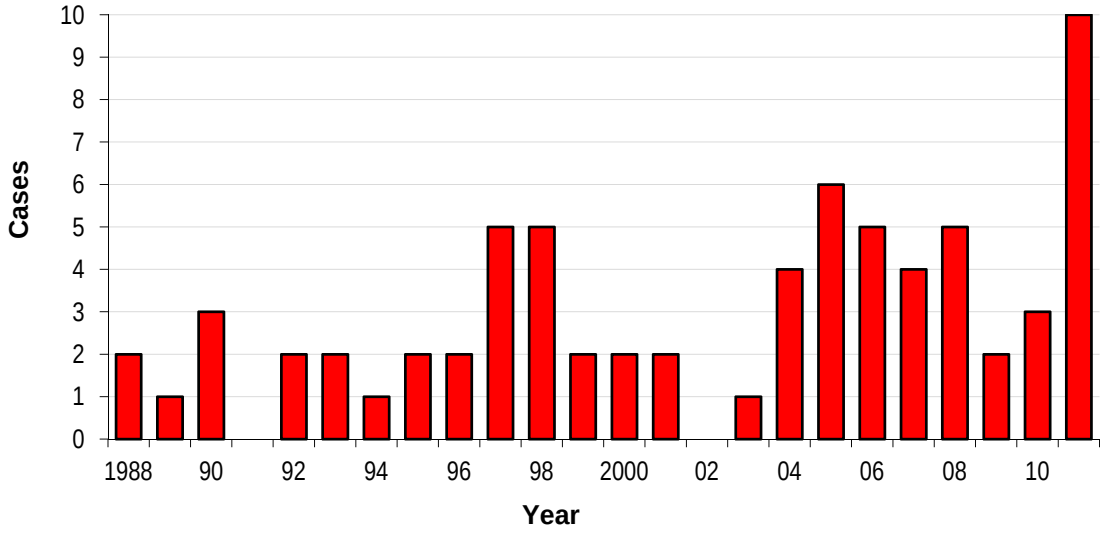
is impossible, protective measures such as wearing light colored clothing, tucking pant legs into socks and applying appropriate repellents to clothing and skin should be employed. Prompt inspection and removal of ticks are also very important. As in many tick-transmitted diseases, the tick must be attached for several hours before transmission takes place, thus the importance of tick removal.

Cases

In 2011, ten cases were reported in Louisiana. Reported occurrence of RMSF in the state ranges from zero to ten cases per year from 1988 to 2011. Since 2000, cases have been classified as confirmed or probable based on the level of diagnosis determined in each circumstance.

The number of cases over the past ten years has increased by 68% compared to the previous ten-year period. This increase reflects the national trend that is particularly influenced by increased numbers of cases reported from suburban areas, presumably due to human migration into naturally pristine or forested areas (Figure 1).

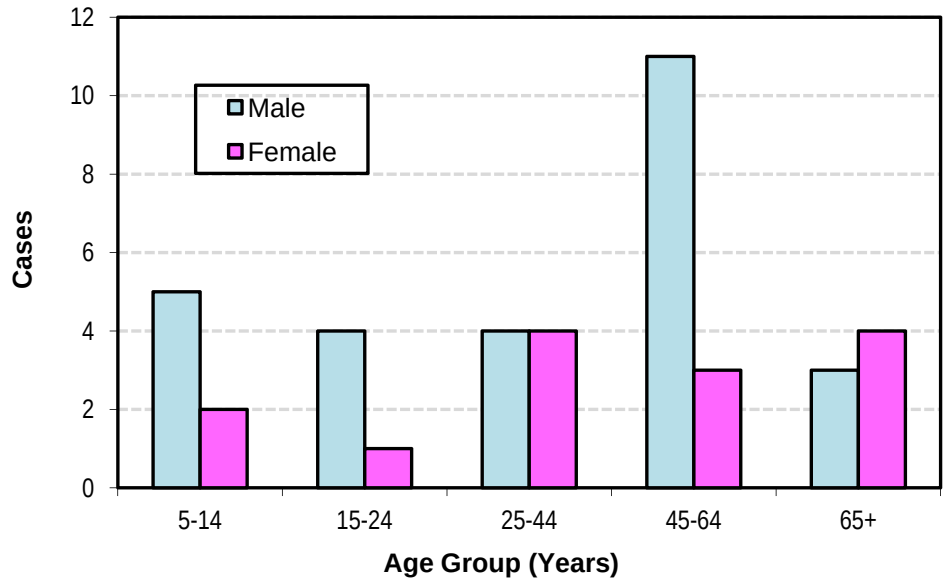
Figure 1: RMSF reported cases, (including both confirmed and probable)
Louisiana, 1988-2011



Gender and Age

More cases were reported among males (66%) than females. However, males and females had the same number of cases in the 25 to 44-year-old age group (Figure 2).

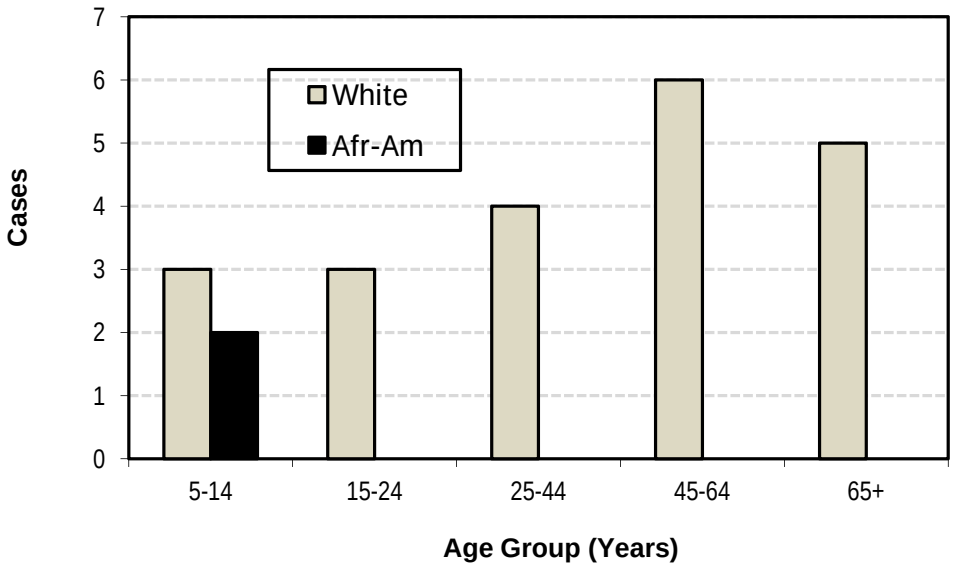
Figure 2: RMSF cases by age and gender, (including both confirmed and probable) Louisiana, 2002-2011



Race and Age

Nationally the frequency of RMSF is highest in males, American Indians, and people aged 50-69. In Louisiana, no cases were reported among American Indians. Whites comprised 50% of all reported cases, and 5% were black. All other cases were reported as other races or unknown from 2002 to 2011 (Figure 3).

Figure 3: RMSF cases by age and race, (including both confirmed and probable) Louisiana, 2002-2011



Geography

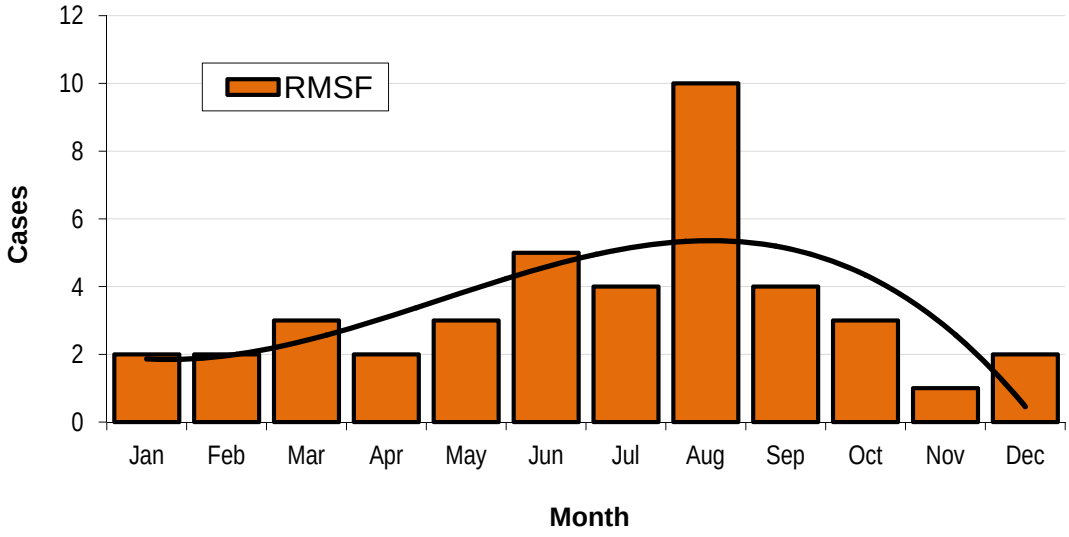
Table 1: RMSF reported cases by parish, (including both confirmed and probable) Louisiana, 2002-2011

Region	Parish	Cases	Region	Parish	Cases
1	Orleans	0	6	Concordia	0
1	Jefferson	1	6	Grant	0
1	Plaquemines	0	6	La Salle	0
1	St. Bernard	0	6	Rapides	0
2	E. Baton Rouge	3	6	Vernon	0
2	W. Baton Rouge	0	6	Winn	0
2	Ascension	0	7	Bienville	0
2	E. Feliciana	0	7	Bossier	4
2	Iberville	0	7	Caddo	4
2	Pointe Coupee	0	7	Claiborne	0
2	W. Feliciana	0	7	De Soto	1
3	Assumption	0	7	Natchitoches	0
3	Lafourche	0	7	Red River	0
3	St. Mary	0	7	Sabine	0
3	St. John	0	7	Webster	2
3	St. Charles	2	8	Caldwell	0
3	St. James	0	8	E. Carroll	0
3	Assumption	1	8	W. Carroll	0
4	Acadia	0	8	Franklin	0
4	Evangeline	0	8	Jackson	0
4	Iberia	0	8	Lincoln	0
4	Lafayette	6	8	Madison	0
4	St. Landry	0	8	Morehouse	0
4	St. Martin	0	8	Ouachita	1
4	Vermilion	2	8	Richland	0
5	Allen	1	8	Union	0
5	Beauregard	0	8	Tensas	0
5	Calcasieu	3	9	Livingston	2
5	Cameron	1	9	St. Helena	1
5	Jefferson Davis	0	9	St. Tammany	1
6	Avoyelles	0	9	Tangipahoa	3
6	Catahoula	0	9	Washington	3

Seasonality

In the United States over 90% percent of patients with RMSF are infected from April to September. In Louisiana, 68% of the cases occur between April and September (Figure 4). Louisiana's sub-tropical climate likely fosters a longer period of tick activity.

Figure 4: RMSF reported cases, (including both confirmed and probable) by month of onset Louisiana, 2002-2011



The peak in U.S. cases of RMSF occurs in June and July, but in Louisiana the peak month is August followed by June, July, and September. There was a significant four-month peak from June to September (p=0.024), in past years.