

Vector-Borne & Zoonotic Disease: 5-Year Report 2012-2016

One HEALTH



Diseases contained in this report represent Maricopa County residents who were either laboratory-confirmed and/or exhibited clinically compatible illnesses in the years 2012-2016. Those vector-borne and zoonotic diseases that did not have confirmed or probable cases reported in the years 2012-2016 are not included in this report. Not all diseases were acquired within Maricopa County but were instead associated with travel.



Zoonotic Diseases:

Animal Related

Diseases of animals that have the capability of being transmitted to humans. Animals do not have to be sick in order to transmit disease.

	2012 Confirmed or Probable	2013 Confirmed or Probable	2014 Confirmed or Probable	2015 Confirmed or Probable	2016 Confirmed or Probable
Amebiasis	5	7	17	0	2
Brucellosis	4	1	6	1	0
Cysticercosis	4	2	1	0	2
Hantavirus	0	0	0	0	1
Leptospirosis	0	1	1	0	0
Psittacosis	0	1	0	0	0
Q Fever	4	6	5	3	3
Taeniasis	1	0	0	1	1
Tularemia	0	0	0	1	0

Brucellosis



What: Bacterial disease caused by the *Brucella* species

Where: Found worldwide. Higher-risk areas include Eastern Europe, South & Central America, Asia, Africa, and the Middle East.

How: From contact with infected animals or consumption of contaminated animal products, like consuming unpasteurized cheese or milk. Most commonly found in cattle, sheep, goats, pigs and dogs. Individuals may also become infected through inhalation or contamination of skin wounds.

Signs and Symptoms: Fever, sweats, body aches, weakness, headaches, chills, arthralgia, depression.

Severe infection may also infect the liver, spleen, heart or central nervous system.

Treatment: Antibiotics - typically a combination of doxycycline and rifampin.

Prevention: Avoid undercooked meats and unpasteurized dairy products, such as raw milk. People who frequently come into contact with animal tissues should wear protective equipment like gloves, goggles, and aprons.

What: Bacterial disease caused by the *Leptospira* species

Where: Most prevalent in tropical and sub-tropical regions, islands, and low lying areas prone to flooding.

How: The bacteria is spread in the urine of infected animals, and people and dogs can be infected through contact with infected urine or water or wet soil contaminated with urine.

Treatment: Antibiotics - Doxycycline.

Dogs

S/S: Low energy, loss of appetite, fever, red eyes, vomiting and diarrhea, and in severe cases liver or kidney failure.

Prevention: Talk to your veterinarian about vaccinations. Also reduce your dog's exposure to anything contaminated with urine such as grass, food, or bedding and limit contact with rodents, wildlife, or infected dogs.

People

S/S: Vary but can include flu-like symptoms and may progress to liver or kidney failure.

Prevention: Use antibacterial cleaning solution such as 1:10 bleach solution to clean up urine in addition to wearing gloves. Always wash your hands when done. Additionally, designate an area for your dog to urinate away from areas where other people or dogs frequently go and away from standing water.

Leptospirosis

Human cases have been rare in Maricopa County, and all have been travel associated. In 2016, there was an increase in the number of cases in dogs, but no human cases were identified.





Vector-borne Diseases:

Mosquito-borne

Diseases that need a vector, specifically a mosquito, to be transmitted to humans.

	2012 Confirmed or Probable	2013 Confirmed or Probable	2014 Confirmed or Probable	2015 Confirmed or Probable	2016 Confirmed or Probable
Chikungunya	0	0	12	18	4
Dengue	7	4	15	10	12
Malaria	15	22	16	13	31
St. Louis Encephalitis	0	0	0	22	0
West Nile Virus	90	52	93	62	63
Zika Virus	0	0	0	0	36

Zika virus



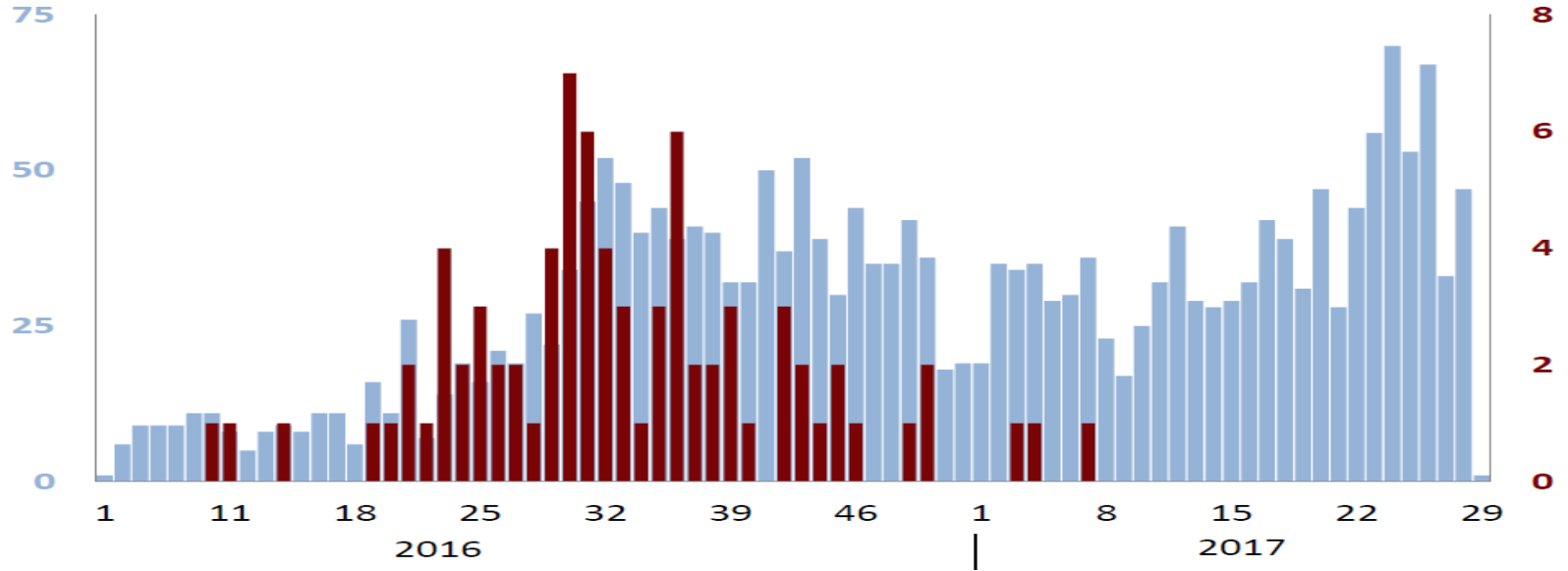
What: Mosquito borne virus typically spread by the *Aedes aegypti* mosquito, however transmission from mother to baby during pregnancy or birth, or through sexual contact with an infected person.

Where: Zika is common in parts of Africa, Asia, Central and South America, Mexico, and the Caribbean. Within the United States, the virus has previously been found in Brownsville, Texas and Miami-Dade County, Florida but there is currently no ongoing spread in either state. To date, Maricopa County has only identified cases of Zika that individuals caught in other places. However, *Aedes aegypti* mosquitos are very common in Maricopa County so steps need to be taken to prevent local spread.

S/S: Zika can cause mild illness in adults but may cause severe birth defects in babies if the mother is infected with Zika during pregnancy. Symptoms of Zika may include fever, rash, headache, red eyes, joint pain, and muscle pain, however only 1 in 5 people infected show symptoms.

Treatment: There is no specific treatment for Zika; only supportive care can be given.

The number of individuals evaluated for potential Zika virus exposure has increased over time, while the number of true cases peaked in August and has decreased since the end of 2016.



Travel Precautions

Pregnant women should not travel to areas with risk of Zika (i.e., with documented or likely Zika virus transmission).

If your partner is pregnant and you live in or travel to areas where Zika virus spread is ongoing, abstain from sexual activity or use condoms for at least six months or for the duration of the pregnancy, whichever is longer.

For more information call (602) 506-6767



Vector-borne Diseases:


Tick-borne & Other Arthropod

Diseases that need a tick to be transmitted to humans and animals.

	2012 Confirmed or Probable	2013 Confirmed or Probable	2014 Confirmed or Probable	2015 Confirmed or Probable	2016 Confirmed or Probable
Babesiosis	0	2	0	0	0
Chagas	1	1	1	0	4
Ehrlichiosis	1	0	0	2	2
Lyme Disease	3	16	10	2	5
Rocky Mountain Spotted Fever	1	1	1	0	0
Tick Borne Relapsing Fever	1	1	0	1	0

Preventing tick bites

- Use insect repellents containing 10-35% DEET when camping or hiking.
- Wear light-colored long pants and long sleeved clothing so that ticks are easier to spot before they attach to the skin
- Remove attached ticks promptly



Although Lyme disease is not endemic in Arizona, there are still cases in Maricopa County from residents who have traveled from or relocated to Arizona from an endemic area.

What : Bacterial disease caused by *Rickettsia rickettsii*

Where: Most cases of Rocky Mountain Spotted Fever (RMSF) occur in the southeast and south central regions of the United States between the months of April and September; however, RMSF is also found in Northern Arizona during the same months.

How: Tick bites, most commonly the American dog tick or Rocky Mountain wood tick.

S/S: Symptoms usually present in 3-14 days usually with a sudden onset of moderate to high fever, deep muscle pain, severe headache, chills, weakness, and conjunctival infection. A maculopapular rash usually appears on the extremities around the 3rd to 5th day and spreads rapidly to the trunk of the body. With prompt treatment death is rare, however, more recently the fatality rate in the United States has ranged from 3-5%.

Treatment: Antibiotics - typically doxycycline twice daily for 5-10 days.

Rocky Mountain Spotted Fever



Tick Borne Relapsing Fever



What: Bacterial disease *Borrelia hermsi*, *B. turicata* and *B. parkeri*

Where: Tick Borne Relapsing Fever (TBRF) occurs primarily in the western U.S., including Arizona. In Arizona, infections due to *B. hermsi* are most likely to occur in higher elevation areas (above 5,000 ft) in northern and eastern Arizona. Infections due to *B. turicata* have been documented in lower elevations in southern Arizona.

How: Tick bites from from “soft ticks” (genus Genus Ornithodoros Family Argasidae) which are typically active at night. Rodents are the primary hosts for soft ticks, but people may be exposed to soft tick bites when staying overnight in rustic cabins or in caves in which rodents have invaded and built nests.

S/S: Symptoms usually present 2-18 days after exposure, and include sudden onset of high spiking fevers, chills, sweats, body aches, and sometimes rash. Febrile periods of 2-7 days may be followed by afebrile periods, and many relapses can occur over a period of many weeks until treatment.

Treatment: Antibiotics - doxycycline is the recommended treatment, however a temporary worsening of symptoms (Jarisch-Herxheimer reaction) can occur after initiation of treatment.

Note: TBRF infections can cross react with other spirochetal infections and can cause false positive results for Lyme disease.

Prevention: Rodent proofing cabins and homes in rustic areas, doing soft tick specific pest control and by not staying overnight in rodent infested cabins and caves.