

# Vector-Borne & Zoonotic Disease: 5-Year Report 2016-2020

# 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 2016-2020. Those vector-borne and zoonotic diseases that did not have confirmed or probable cases reported in the years 2016-2020 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.

	2016	2017	2018	2019	2020
Amebiasis	2	7	15	12	2
Brucellosis	0	6	3	2	4
Cysticercosis	2	0	0	2	5
Hantavirus	1	0	0	0	0
Leptospirosis	0	0	0	0	1
Lymphocytic Choriomeningitis	0	1	0	0	0
Melioidosis	0	0	0	1	0
Psittacosis	0	0	0	1	0
Q Fever	3	2	2	3	1
Taeniasis	1	0	0	0	0
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 *Chlamydia psittaci*

**Where:** Worldwide; it is primarily an infection of birds.

**How:** People may become infected after exposed to infected birds. Infected birds do not always seem sick. Both sick birds and birds without signs of illness shed the bacteria in their droppings and respiratory secretions. People may breathe in the bacteria from dried secretions. Less commonly, birds infect people through bites and beak-to-mouth contact. In general, people do not spread psittacosis to other people.

**Treatment:** Antibiotics

## Birds

**S/S:** Poor appetite, inflamed eyes, breathing difficulty, and diarrhea.

**Prevention:** Keep cages clean; clean cages and food water bowls daily. Position cages so that food, feathers, and droppings cannot spread between them. Avoid over-crowding. Isolate and treat infected birds.

## People

**S/S:** Fever and chills, headache, muscle aches, and dry cough may develop within 1-4 weeks of exposure.

**Prevention:** Use water or disinfectant to wet surfaces before cleaning bird cases or surfaces contaminated with bird droppings. Avoid dry sweeping or vacuuming. Wash your hands with running water and soap after contact with birds or their droppings. Use gloves and appropriate masks when handling infected birds or cleaning their cages.

## Psittacosis





# Vector-borne Diseases:

## Mosquito-borne

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

	2016	2017	2018	2019	2020
Chikungunya	4	0	0	1	1
Dengue	12	3	7	13	4
Malaria	31	21	19	27	7
St. Louis Encephalitis	0	5	0	8	6
West Nile Virus	63	93	24	155	3
Zika Virus	36	3	2	0	0

## West Nile virus



[FightTheBiteMaricopa.org](http://FightTheBiteMaricopa.org)

**What:** Mosquito-borne virus typically spread by the *Culex* mosquitoes. Mosquitoes become infected when they feed on infected birds that have migrated into an area. The mosquitoes then bite people who may or may not become infected.

**Where:** West Nile virus (WNV) is widespread in Africa, North America, Europe, the Middle East, India, southeast Asia, Australia, the Caribbean and Central and South America. Although it is now widespread in the United States, WNV was not present in Arizona until 2003. WNV is now considered endemic in Maricopa County and is expected to be a public health concern indefinitely. WNV surveillance season begins April 1st and ends November 30<sup>th</sup>; however, in Arizona the majority of cases occur between the months of June and October.

**How:** Primarily through mosquito bites, but also infected blood transfusions or organ transplants.

**S/S:** The majority (~80%) of people infected with WNV will show no symptoms at all. For those that are symptomatic (~20%), symptoms will appear 2-14 days after receiving the mosquito bite. Symptomatic cases are characterized by the acute onset of fever, headache, joint pain, muscle pain, and sometimes accompanied by a maculopapular rash or swollen lymph nodes. Rarely do symptoms get more severe; however 1-3% of symptomatic infections will develop a form of the disease that affects the brain and spinal cord.

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

## Mosquito Bite Prevention

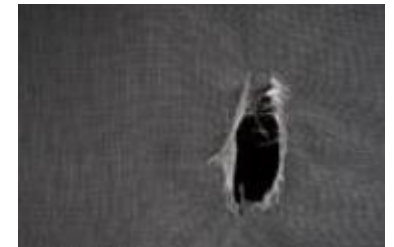
### Apply Repellent



### Drain Standing Water



### Install/Repair Screens





# Vector-borne Diseases:

## Flea, Insect, or Tick-borne

Diseases that need a flea, insect, or tick to be transmitted to humans and animals.

	2016	2017	2018	2019	2020
Babesiosis	0	2	0	0	0
Chagas	4	3	2	3	3
Ehrlichiosis	2	2	2	1	0
Lyme Disease	5	14	1	1	0
Rocky Mountain Spotted Fever	0	0	2	4	2
Tick Borne Relapsing Fever	0	3	0	1	0
Typhus Fever	0	0	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



## Chagas Disease



University of Arizona

**What:** parasitic disease caused by *Trypanosoma cruzi*

**Where:** The Americas, primarily rural parts of Mexico, Central America, and South America.

**How:** Primarily through contamination of mucous membranes or breaks in the skin (including a bug bite wound) with infected triatomine bug feces. People can also become infected through contaminated food, from a pregnant woman to her unborn child, or infected blood transfusions or organ transplants.

**S/S:** Most people will have no symptoms. Some may have symptoms of fever, headache, body aches, fatigue, rash, and swelling develop 5-14 days after being bitten by an infected bug. About 1 in 4 people infected with the parasite will develop long lasting (chronic) symptoms affecting their heart and gastrointestinal system later in life.

**Treatment:** Medication to kill the parasite (e.g. Benznidazole, Nifurtimox) can be used for acute and chronic infections.

**Prevention:** Protect yourself when travelling by sleeping indoors in well-constructed facilities and use bed nets treated with insecticides. Around the home, install/maintain screens on windows and doors, change outside lights to yellow bulbs, keep your yard clear of clutter, and prevent pack-rats from nesting. Consult with a pest control company for any structures infested with triatomine bugs.