America's Blood Centers®
It's About Life.

Safeguarding the Blood Supply Against Tick and Mosquito-Borne Illnesses

Ensuring the safety of the nation's blood supply is the top priority for community blood centers and the entire blood community. Multiple layers of safety are in place to protect those who rely on blood transfusions. This includes donor education, a comprehensive donor health questionnaire, rigorous infectious disease testing protocols, and collaboration with national surveillance programs.

Tick and mosquito-borne diseases impact millions of Americans each year. While not a common occurrence, some tick and mosquito borne diseases can be transmitted through blood transfusions. Given this, blood centers have targeted interventions to ensure the safety of the blood supply. Donors, too, play a role in maintaining a safe blood supply. Individuals should donate blood if they are healthy and feeling well. Individuals should contact their local blood center for additional information about eligibility requirements in their local areas. It is important to recognize that the response by the blood community varies by the type of tick and mosquito-borne disease:

Babesiosis

Babesiosis is a disease caused by the Babesia parasite that is spread to humans through tick bites (deer tick). The parasite invades and destroys red blood cells and may lead to life-threatening illness in certain individuals. Since the parasites reside in red blood cells, it may be transmitted through blood transfusions.

The Food and Drug Administration (FDA) requires nucleic acid testing (NAT) on every blood donation in states where the Babesia pathogen is prevalent. Individuals testing positive for Babesia through NAT screening are deferred from donating blood for a minimum of two years. In states that are not required to test for Babesia, donors must be asked if they have a history of a positive Babesia test. The FDA also allows for the use of pathogen reduction technology (PRT) to inactivate Babesia in plasma products and apheresis platelets. Donors with a history of Babesia must be deferred for a minimum of two years from the date of the positive test. Donors who were previously deferred may be eligible to resume donations if they meet eligibility criteria and have not had a positive test result for the preceding two years.

Lyme Disease

Lyme disease is caused by the Borrelia bacteria and is spread to humans through the bite of an infected deer tick. Despite its prevalence, there is no documented evidence supporting the transmission of Lyme disease through blood transfusions.

Individuals with symptoms and/or undergoing treatment for Lyme disease with antibiotics are temporarily deferred from donating blood. Individuals who have completed their antibiotic regimen for this disease are eligible to donate blood if they also meet all other eligibility criteria.

Anaplasmosis

Anaplasmosis is a tick-borne disease caused by the Anaplasma bacteria. The disease is spread to humans through the bite of infected blacklegged ticks of the Ixodes species and is most commonly reported in the Northeastern and upper Midwestern states. Although rare, the disease may be transmitted by blood transfusions or solid organ transplantations.

Individuals with symptoms (fever, malaise, etc.) and/or undergoing treatment for anaplasmosis with antibiotics are temporarily deferred from donating blood. Once treatment is completed, individuals may be eligible to donate blood if they also meet all other eligibility requirements.

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West Nile Virus

West Nile Virus (WNV) circulates in nature between mosquitos and birds. The route of infection to humans is through the bite of a mosquito that has fed on an infected bird. Although the virus does not spread from humans to humans through mosquito bites, in rare instances it may be transmitted through blood transfusions, organ transplantations and from mother to baby.

To prevent transmissions of WNV through blood transfusions, the FDA requires that all blood donors be screened for the virus. Samples are tested using a highly sensitive FDA licensed nucleic acid test (NAT). Donors who test positive are deferred for 120 days from the positive result. This effort has significantly reduced the number of WNV transfusion transmitted cases. In fact, there have been no reported cases of WNV transmission through a blood transfusion since 2012.

Dengue

Dengue is a mosquito-borne disease found in many parts of the world including the Americas, Africa, the Middle East, Asia, and the Pacific Islands. Frequent outbreaks occur in popular travel destinations in the Caribbean, Central and South America, Mexico, the Pacific Islands, and Southeast Asia. Most cases in the United States are travel related, however, there have been a few local outbreaks in the continental U.S. The virus spreads from infected mosquitoes (Aedus species) to humans and from mother to baby. Although rare, it can be transmitted through blood transfusions or organ transplantations.

Individuals with any signs of an infection (fever, malaise, nausea, etc.) or are currently being treated for an infection are deferred from donating blood. There is no FDA-licensed blood donor screening test available specifically for the dengue virus.

Eastern Equine Encephalitis

Eastern Equine Encephalitis (EEE) is a mosquito-borne illness caused by the EEE virus that is circulated in the environment by mosquitos and avian hosts. The virus is primarily found in the Eastern and Gulf Coast states with only a few cases of infections reported each year. Although the virus does not spread from human to human through mosquito bites, in rare instances it may be transmitted through blood transfusions, organ transplantations and from mother to baby.

Individuals diagnosed with EEE are temporarily deferred from donating blood. Guidelines recommend that these individuals wait 120 days from the onset of their illness before resuming donating blood. There is no FDA-licensed blood donor screening test available specifically for EEE today.

Malaria

Malaria is a mosquito-borne parasitic infection caused by any of the five Plasmodia species. The parasite is transmitted to humans through the bite of an infected mosquito (Anopheles species). The parasite invades and develops in a person's red blood cells and eventually causes the red cells to rupture and release invasive merozoites (the infectious forms of the parasites) into the bloodstream. These merozoites invade other red blood cells and the cycle continues exasperating the inflammatory process leading to symptoms of fever, rigors, and other flu-like symptoms. The severity of the symptoms and course of disease depends on the species and the immunological state of the patient. In rare occasions, malaria may also be spread through blood transfusions, organ transplants, sharing infected needles or syringes, and from mother to baby.

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Malaria is not endemic in the United States and most cases diagnosed in the U.S. are in those who have traveled to or from where malaria is endemic. Locally acquired malaria through mosquitos is a rare occurrence in the U.S.

Even though transfusion-transmitted-malaria (TTM) is an uncommon event, estimated at about 1 case every 2 years, the FDA requires blood centers to have measures in place to safeguard the blood supply. Donors who have traveled to malariaendemic areas must wait 3 months from their return to donate. The FDA also allows for the use of pathogen reduction technology (PRT) to inactivate the malaria pathogen(Plasmodium falciparum) in plasma productsand apheresis platelets in donors who have visited malaria endemic areas. Donors who were former residents of malaria endemicareas must wait 3 yearsfrom their departure to donate. Individuals who have been diagnosed with malaria must wait 3 years after the completion of their treatment and must be free of symptoms of malaria.

Chikungunya Virus Disease (Chikungunya)

Chikungunya Virus Disease (Chikungunya) is a mosquito-borne disease spread to humans through the bite of infected mosquitoes (Aedus species). The virus may also be transmitted through blood transfusions, organ transplants, and mother to baby.

Donors who have symptoms of chikungunya (fever, malaise, etc.) are temporarily deferred from donating blood. There is no FDA-licensed blood donor screening test available specifically for chikungunya.

Zika Virus Disease

Zika Virus Disease (Zika) is a mosquito-borne disease that is spread to humans through the bite of mosquitos (Aedus species) infected with the Zika virus. The virus can also be passed from person to person through blood transfusions, organ transplants, sexual contact, and mother to baby.

Testing of blood donations for the Zika Virus is not currently required by the FDA and there have been no confirmed cases of Zika virus being spread by blood transfusion in the United States. Individuals that have been diagnosed with Zika should wait 4 months before donating blood. In addition, the FDA also allows for the use of pathogen reduction technology (PRT) to inactivate the Zika virus in plasma products and apheresis platelets.

Questions about blood donor eligibilty? Contact your local community blood center to learn more.