Which Areas are Prone to Mosquitoes?

Mosquitoes can be more than just a nuisance – they can also cause serious diseases. Therefore, it makes sense to want to avoid areas that are prone to mosquitoes. Unfortunately, while there are some areas where you can be fairly certain to find mosquitoes, mosquitoes really can be found just about anywhere.

Mosquitoes need water to breed. Anywhere you find standing water, you'll also find mosquitoes. The water source can be as small as a puddle in your backyard or as big as a local lake. Some mosquitoes breed in salt water, while others need fresh water to reproduce. Some mosquitoes even lay their eggs on damp ground and wait for a flood to occur to hatch the eggs. Traditional mosquito repellents can help protect you from these pests, but if you'e going to be out in the sun, you might want to try one of the newer products that combines an insect repellent with sunscreen.

If you need to avoid mosquitoes, stay away from wetlands, swamps, marshy land, creeks and rivers. Sometimes, all it takes is a small eddy to provide a place for mosquitoes to breed. Avoid areas where it looks like water has been standing, like a bird bath, an abandoned tire or a run-off ditch. Koi ponds aren't usually a problem because any pond that's stocked with fish will likely see the fish munching on mosquito eggs or larvae.

And when it comes to crowds, humans exhale carbon dioxide and release lactic acid when we exercise or eat certain foods. In fact, these two chemicals are used in many mosquito traps to attract mosquitoes. Anywhere you find people in large numbers – especially if they're eating or sweating – you'll find mosquitoes. Overall, this is less likely during the day – although there are some mosquitoes that like to be out and about during the day – and more likely at dawn and dusk.

Mosquitoes also like the smell of animals. In fact, most mosquitoes are more content to bite a smaller, more compliant mammal than to bite a human, where they'll likely be swatted at. You'll find some mosquitoes at the zoo, but if you have a pet dog, check out his dog house and you may be surprised at the number of mosquitoes you find.

Another draw for mosquitoes is sweet smells, like those found on flower and fruits. To avoid mosquitoes, stay away from outdoor flower beds and orchards. Avoid using products that smell sweet, like scented shampoo, body wash and perfume. There are certain flowers you can plant that mosquitoes specifically don't like, including marigolds. If you want to be outside to enjoy your garden, think about including some of these plants to make it more hospitable.

Movement and color can also catch a mosquito's eye. They like dark colors and dark foliage, so avoid those things to avoid mosquitoes. If you'll be attending an outdoor concert at night, be sure to pack your repellent – the combination of the crowd, darkness and movement may make the event a virtual mosquito smorgasbord.

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Mosquito Diseases

Mosquitoes are major contributors of several diseases throughout the world. Mosquitoes can pass along these diseases to humans by biting them. Only female mosquitoes bite to nourish their eggs and only certain species of mosquitoes carry diseases. The best defense is to become educated about these diseases and find ways to control the mosquito population.

West Nile Virus

Probably one of the diseases that is of most concern for those living in the United States is the West Nile virus. The West Nile virus has actually been around for decades. The disease was first recognized in a woman in the West Nile District of Uganda in 1937, thus the origin of its name.

There have been millions of cases of the disease reported from the Western Mediterranean and Africa through the Middle East. In 1996 the West Nile virus spread to Europe and in 1999 was found in New York City. Out of 62 confirmed cases in New York, seven deaths were reported. So far, West Nile virus has spread to 41 states and Washington D.C.

One of the most common mosquitoes, the Culex species, is known to carry the West Nile virus. A person bitten by an infected Culex mosquito can contract the West Nile virus. The virus itself causes severe human meningitis or encephalitis, which is inflammation of the spinal cord and brain.

Eastern Equine Encephalitis

Eastern equine encephalitis (EEEV) is as its name implies, primarily caused by a virus that infects horses. This mosquito-borne viral disease also infects humans and some species of birds. The virus received its name after a major outbreak occurred in horses in the coastal areas of Delaware, Maryland, New Jersey, and Virginia in 1933. Additional outbreaks occurred in Virginia and North Carolina in 1934 and 1935. There have been approximately 220 confirmed human cases of Eastern equine encephalitis (EEEV) in the United States between 1964 and 2004. States with the largest number of cases are Florida, Georgia, Massachusetts and New Jersey.

Mosquitoes were first determined to be potential carriers of EEEV in 1934. Various mosquito species of Aedes and Culex can transmit the virus to humans. EEEV transmission is most common in and around freshwater swamps in the Atlantic and Gulf Coast states and the Great Lakes region. Cases of human infection are less likely because the primary transmission occurs in swampy areas where the mosquitoes live, but most humans don't. Once infected with the virus, many humans have no apparent symptoms. However, some develop symptoms ranging from mild flu-like to inflammation of the brain, coma and death.

Japanese Encephalitis Virus

The Japanese encephalitis virus is a mosquito-borne virus, which can be potentially fatal to humans. The virus has spread throughout eastern Asia, including India, Japan, China and Southeast Asia. The virus has also cropped up in Australia in 1995.

The virus is transmitted through the Culex species of mosquito. Culex mosquitoes become infected by feeding on domestic pigs and wild birds infected with the Japanese encephalitis virus. Infected mosquitoes then transmit the Japanese encephalitis virus to humans and animals during the feeding process. Once infected a person might experience a mild infection with a fever with headache. More severe infection is marked by quick onset, headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, occasional convulsions and spastic paralysis.

La Crosse Encephalitis

La Crosse encephalitis virus is transmitted by the Aedes species of mosquito. It occurs in the Appalachian and Midwestern regions of the United States. The virus was first discovered in La Crosse, Wisconsin in 1963. Since then the virus has been detected in several Midwestern and Mid-Atlantic states. There are usually 75 cases of La Crosse encephalitis reported to the Centers for Disease Control every year. Most cases occur in Minnesota, Wisconsin, Iowa, Illinois, Indiana and Ohio. Recently more cases have been reported in West Virginia, Virginia, North Carolina, Alabama and Mississippi.

Symptoms of the disease include nausea, headache, and vomiting. In more serious cases the symptoms can be seizures, coma, paralysis and permanent brain damage.

St. Louis Encephalitis

The St. Louis encephalitis virus is related to the Japanese encephalitis virus. This virus mostly affects the United States and occasional cases in Canada and Mexico. The origin of the virus began in 1933 when an encephalitis epidemic broke out in vicinity of St. Louis, Missouri. More than 1,000 cases were reported.

The virus is transmitted via the Culex mosquitoes that become infected by feeding on birds infected with the virus. Infected mosquitoes then transmit the virus to humans.

Symptoms of the virus include fever and headache and in more severe cases can cause headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions and spastic paralysis.

Western Equine Encephalitis

Western Equine Encephalitis is relatively uncommon. There have been less than 700 confirmed cases of the virus in the United States since 1964. The virus is seen primarily in states west of the Mississippi River and in some countries in South America.

The Culex mosquito transmits the virus. Once infected symptoms range from mild flu-like illness to encephalitis, coma and death.

Dengue Fever

Dengue fever is found mostly in Asia, Africa and the Caribbean. However, it has made its way into the United States. In the summer of 2001 four people on the island of Maui in Hawaii contracted the disease. From 1977 to 1994, there have been 2,248 suspected cases of imported dengue fever reported in the United States.

The Aedes aegypti mosquito, which primarily feeds during the day, is a carrier of the Dengue fever virus. Symptoms of the disease begin four to seven days after being bit and include fever, painful headaches, eye, joint and muscle pain and a rash on the arms or legs. The disease is rarely fatal but occasionally progresses to dengue hemorrhagic fever a more serious illness with abnormal bleeding and very low blood pressure.

Chikungunya Fever

Chikungunya (CHIKV) is a viral illness spread human-to-human through the bite of a mosquito. The primary vector for chikungunya is the Aedes aegypti or yellow fever mosquito, although the Asian tiger mosquito is also a competent vector for the spread of Chikungunya.

Chikungunya was first discovered in Tanzania in 1952, but has since spread beyond Africa to nearly 40 countries in Asia, Africa, Europe and also in the Americas. The name ‘chikungunya’ derives from a word in the Kimakonde language, meaning "to become contorted" and describes the stooped appearance of sufferers with joint pain.

The incubation period is usually 3-7 days and symptoms can include sudden fever, joint pain with or without swelling, chills, headache, nausea, vomiting, lower back pain, and a rash. The symptoms are similar to those of Dengue fever, but unlike some types of Dengue, people who have Chikungunya do not experience hemorrhage (bleeding) or go into shock. There is no vaccine for chikungunya and no cure. Management of the disease includes rest, fluids and medications to relieve the symptoms of fever and pain.

Malaria

Probably one of the most widespread diseases that mosquitoes can carry is Malaria. According to the World Health Organization, malaria infects 300 to 500 million people every year in Africa, India, Southeast Asia, the Middle East, Oceania, and Central and South America. Malaria has been around for thousands of years. The symptoms of malaria were described in ancient Chinese medical writings in 2700 BC. Malaria is etched in history as the construction of the Panama Canal was nearly halted because of it. In 1906, there were more than 26,000 employees working on the canal of these, more than 21,000 were hospitalized for malaria at some time.

Malaria is transmitted by the Anopheles mosquito. These mosquitoes primarily bite during the nighttime hours. Once infected, the symptoms include anemia, fever, chills, nausea, and flu-like illness and in severe cases coma and death.

Malaria kills between one and three million people worldwide each year. Since there is no vaccination for the disease and the Plasmodium parasite that causes malaria has become increasingly drug resistant scientists are beginning to look at a new way to combat the disease. Researchers are currently looking for a way to create a genetically altered Anopheles mosquito that would be resistant to the Plasmodium parasite.

Rift Valley Fever

Though primarily a virus that affects livestock, humans do contract Rift Valley Fever as well. The disease is usually found in Africa and the Middle East. There have been severe outbreaks of the disease. In Africa between 1977and 1978 several million people were infected and thousands died.

Humans can become infected from the bite of an infected Aedes mosquito. Symptoms are usually mild and include fever, weakness, back pain, dizziness and weight loss. In rare cases it can lead to hemorrhagic fever syndrome or meningoencephalitis (inflammation of the brain).

Yellow Fever

Yellow fever is primarily found in African and South American countries. The yellow refers to the jaundice symptoms that affect some patients. Humans contract the disease from infected Aedes simpsaloi, Aedes africanus, and Aedes aegypti mosquitoes.

Although it's not usually found in the United States, yellow fever has made its way here. A ship carrying people infected with the virus arrived in Norfolk, Virginia in 1855. The disease spread quickly eventually killing more than 3,000 people.

There is a vaccination available for yellow fever but as of 2001, the World Health Organization estimates that yellow fever causes 200,000 illnesses and 30,000 deaths in unvaccinated countries.

Heartworm

Another type of mosquito-borne disease that affects our furry, four-legged friends is heartworm disease. Dog heartworm disease can be a life-threatening disease for canines. Dogs and sometimes other animals such as cats, foxes and raccoons are infected with a type of roundworm through the bite of a mosquito carrying the larvae of the worm. Many common types of mosquitoes can carry the heartworm disease and the disease is found throughout the United States.

Once a dog is infected with the roundworm through a mosquito bite, the worms burrow into the skin and eventually end up in the canine's heart. The cure for heartworm can be risky and expensive. However, it is preventable and there are several medications on the market for dogs.

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WHO Report on Global Surveillance of Epidemic-prone Infectious Diseases - Yellow fever

Background of the disease

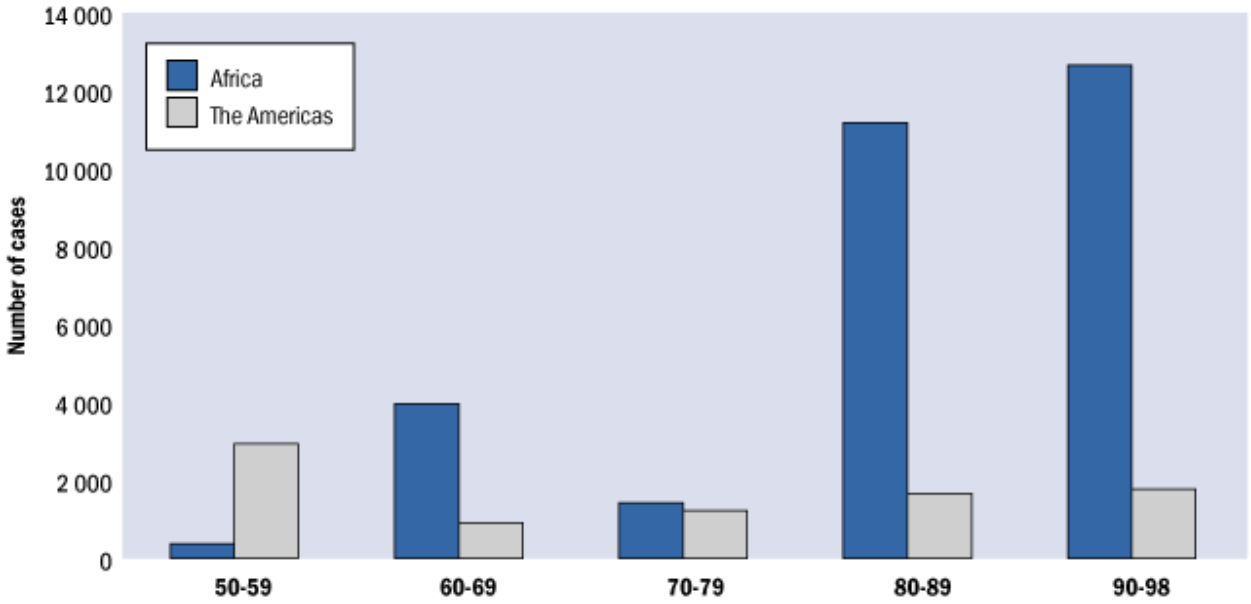
Yellow fever is a viral disease transmitted by infected mosquitos that has caused large epidemics in Africa and the Americas. It can be recognized from historic texts stretching back 400 years. Infection causes a wide spectrum of disease, from mild symptoms to severe illness and death. The "yellow" in the name is explained by the jaundice that affects some patients. The number of epidemics, and the number of people infected with yellow fever have increased over the last two decades, and yellow fever is now a serious public health problem again (Fig. 2.1). Case fatality rates for reported cases are in the order of 15 to 50%.

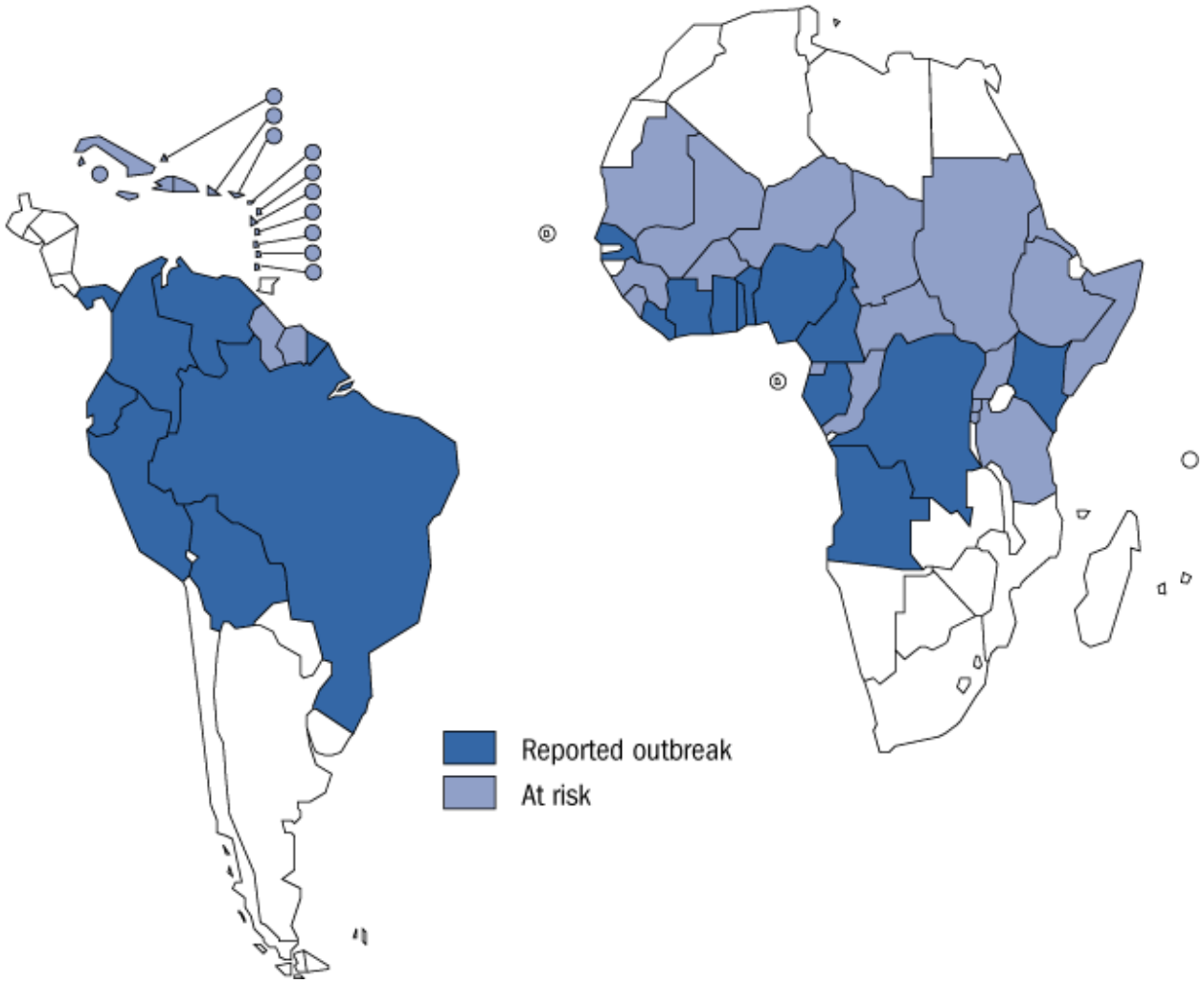
An important reason for the re-emergence of yellow fever is the lapse of yellow fever immunization programmes in areas where they had been implemented in the past. Although a safe and effective vaccine has been available for 60 years, there are now large susceptible populations living in high-risk areas. Other factors contributing to the spread of yellow fever include increased urbanization, because mosquitos in urban areas increase the potential for explosive large urban outbreaks, increase in the distribution and density of mosquitos that transmit yellow fever and increased intrusion of people into forested areas.

The yellow fever virus is constantly present in mosquitos and non-human primates in some tropical areas of Africa and the Americas. Certain species of mosquitos are the reservoir of yellow fever virus; thus eradication of yellow fever is not feasible. This viral presence sometimes amplifies into regular epidemics. At present, 33 countries, with a combined population of 468 million, are at risk in Africa.

These lie within a band ranging from 15°N to 10°S of the equator. In the Americas, yellow fever is endemic in ten South American countries and in several Caribbean islands. Bolivia, Brazil, Colombia, Ecuador and Peru are considered at greatest risk (see Map 2.1).

Fig. 2.1 Number of reported cases of yellow fever per decade, 1950-199




Reported outbreak
At risk