

## INFORMATION PAPER

DHA-IHD  
11 July 2024

SUBJECT: Chikungunya Virus and Chikungunya Vaccine

1. Purpose. To describe Chikungunya viral illness and chikungunya vaccine
2. Facts.
  - a. Microbiology. Chikungunya virus (CHIKV) is an alphavirus in the Togaviridae family. The virus has a positive-sense, single-stranded RNA genome surrounded by a lipid envelope. The viral particles are small and spherical.
  - b. Disease.

Chikungunya virus is transmitted to humans via the bite of an infected mosquito of the *Aedes* spp. predominantly *Aedes aegypti* and *Aedes albopictus*. Mosquitoes become infected when they feed on an infectious host. Humans are typically viremic shortly before and in the first 2–6 days of symptomatic illness.

Approximately 3%–28% of people infected with chikungunya virus will remain asymptomatic. For people who develop symptomatic illness, the incubation period is typically 3–7 days (range 1–12 days). Disease is most often characterized by sudden onset of high fever (temperature >102°F [39°C]) and joint pains. Fevers typically last for ≤1 week. Joint symptoms may be severe and debilitating. Joint pain occurs most commonly in bilateral hands and feet but can affect more proximal joints. Other symptoms may include conjunctivitis, headache, myalgia, nausea, vomiting, or a rash. The rash, which is typically maculopapular, occurs after onset of fever and involves the trunk and extremities but also can include the palms, soles, and face.

Acute symptoms of chikungunya typically resolve in 7–10 days. Some patients will have a relapse of rheumatologic symptoms (e.g., polyarthralgia, polyarthritis, tenosynovitis, Raynaud syndrome) in the months after acute illness. Studies have reported variable proportions, ranging from 5% to 80% of patients with persistent joint pains, and prolonged fatigue, for months or years after their illness. Fatalities associated with infection occur but are rare and are reported more commonly in older adults and those with comorbidities.

People who are pregnant have symptoms and outcomes similar to those of other people, and most infections that occur during pregnancy will not result in the virus being transmitted to the fetus. Intrapartum transmission can, however, result in neonatal complications, including hemorrhagic symptoms, myocardial disease, and neurologic disease. Spontaneous abortions after first-trimester maternal infection have been reported.

- c. Epidemiology. Chikungunya virus is found in mosquitoes in tropical and subtropical regions. It may cause large outbreaks with high attack rates, affecting up to 75% of the chikungunya-naïve population in areas where the virus is circulating. Outbreaks have occurred in Africa, the Americas, Asia, Europe, and islands in the Indian and Pacific oceans.

Risk to travelers is greatest in areas experiencing ongoing chikungunya epidemics. Most epidemics occur during the tropical rainy season and abate during dry season. Outbreaks in Africa have occurred after periods of drought, however, where open water containers near human habitats served as mosquito vector breeding sites. Risk for infection exists primarily during the day because the primary vector, *Aedes aegypti*, aggressively bites during the daytime.

- d. Vaccine. IXCHIQ® is a live attenuated vaccine produced by Valneva. It is currently the only chikungunya vaccine licensed by the FDA. IXCHIQ® is composed of a live lyophilized antigen component that is reconstituted at the time of use with accompanying sterile water diluent. After reconstitution, IXCHIQ® is a clear colorless to slightly yellowish solution.
- e. Immunization. IXCHIQ® is administered as a single dose of 0.5 mL intramuscularly.

Vaccination is recommended for persons aged 18 years and older traveling to a country or territory where there is a current chikungunya outbreak. Outbreaks are defined by CDC and posted online:

<https://www.cdc.gov/chikungunya/data-maps/index.html>

In addition, vaccination may be considered for the following persons traveling to a country or territory without an outbreak but with evidence of chikungunya among humans within the last 5 years:

- \* Persons aged 65 years and older, particularly those with underlying medical conditions, who are likely to have at least moderate exposure to mosquitoes, or
- \* Persons staying for a cumulative period of 6 months or longer.

Chikungunya vaccination is also recommended for laboratory workers with potential for exposure to chikungunya virus as determined by the local biosafety committee. However, vaccination is not necessary for workers handling routine clinical samples.

- f. Vaccine Contraindications and Precautions. IXCHIQ® is a live-virus vaccine that is contraindicated in immunocompromised individuals, including most patients taking immunomodulating medications. Consultation with an experienced vaccine provider is appropriate if an immunocompromised person needs chikungunya protection.

IXCHIQ® is contraindicated in persons with a history of hypersensitivity to any component of the vaccine. Components include recombinant human albumin, sucrose, D-sorbitol, L-methionine, magnesium chloride hexahydrate, trisodium citrate di-hydrate, di-potassium hydrogen phosphate, potassium di-hydrogen phosphate and protamine sulphate.

Pregnancy is a precaution for vaccination with IXCHIQ®. In general, vaccine recipients should be advised to avoid conception until 4 weeks after vaccination. Pregnant persons should generally defer vaccination until after delivery. However, when risk of chikungunya infection is high, a healthcare provider should review risks of infection, and potential benefits and risks of vaccination, so that vaccination can be considered.

If pregnant persons choose to be vaccinated, vaccination should generally be avoided during the 1st trimester (until 14 weeks gestation) and after the 36th week of gestation. The vaccine contains live virus that is reactogenic and can cause fever; fever in the 1<sup>st</sup> trimester has been linked to certain birth defects.

Any person who receives IXCHIQ® during pregnancy is encouraged to enroll in the Pregnancy Registry. Providers or patients should contact OXON Epidemiology at 1-855-417-6214 to enroll or receive additional information about the Registry.

- g. Adverse Events. The most common adverse events following immunization with IXCHIQ® are headache, fatigue, muscle pain, joint pain, fever, nausea, and tenderness at the injection site. In some case, systemic symptoms may prevent daily activity, require medical intervention, or last for weeks or months. In rare cases, IXCHIQ® causes a temporary decrease in the numbers of white blood cells.

All adverse events following immunization with IXCHIQ must be

reported to the Vaccine Adverse Event Reporting System (VAERS),  
<https://vaers.hhs.gov/index.html>

Healthcare providers or patients may consult the DHA Immunization Healthcare team for questions about vaccination or adverse events following immunization; the 24/7 Immunization Support Center may be reached at 877-438-8222 (877-GET-VACC) or DSN 761-4245.

- h. DoD Policy. DoD follows guidelines of the CDC Advisory Committee on Immunization Practices for administration of chikungunya vaccines.

### 3. References.

- a. Centers for Disease Control and Prevention, Chikungunya Virus  
<https://www.cdc.gov/chikungunya/index.html>
- b. Centers for Disease Control and Prevention. Updated Recommendations of the Advisory Committee on Immunization Practices (ACIP)  
<https://www.cdc.gov/vaccines/acip/recommendations.html>
- c. Centers for Disease Control and Prevention. Chikungunya. CDC Yellow Book: Health Information for International Travel 2024.  
<https://wwwnc.cdc.gov/travel/page/yellowbook-home>
- d. Multiple resources (e.g., package insert, Vaccine Information Statements) assembled by DHA-IHD.

Pacific Region Vaccine Safety Hub  
Approved: Chief, Immunization Healthcare Division  
877-438-8222 (DSN 761-4245)