

5. CASE MANAGEMENT

5A. Treatment

There is no specific antiviral drug treatment for CHIK. Symptomatic treatment is recommended after excluding more serious conditions like malaria, dengue, and bacterial infections.

Acute Disease

Treatment is symptomatic or supportive, comprised of rest and use of acetaminophen or paracetamol to relieve fever and ibuprofen, naproxen or other non-steroidal anti-inflammatory agent (NSAID) to relieve the arthritic component of the disease. Using aspirin is not advised because of the risk of bleeding in small number of patients and the risk of developing Reye's syndrome in children less than 12 years of age. In patients with severe joint pains that are not relieved by NSAID, the use of narcotics (e.g., morphine) or short-term corticosteroids can be used after evaluating the risk-benefit of these treatments. Patients should be advised to drink plenty of fluids to replenish fluid lost from sweating, vomiting, and other insensible losses.

Subacute and Chronic Disease

While recovery from CHIK is the expected outcome, convalescence can be prolonged (sometimes up to a year or even more), and persistent joint pain may require pain management including long-term anti-inflammatory therapy. Although an older study suggested that chloroquine phosphate offered some benefit⁴⁵, a recent double-blind placebo-controlled randomized trial found it to be

of no real value treating joint symptoms⁴⁶. Disabling peripheral arthritis that has a tendency to persist for months, if refractory to other agents, may occasionally respond to short-term corticosteroids³⁸. To limit the use of oral corticosteroids, local injections (intra-articular) of corticosteroids or topical NSAID therapy can be used. In patients with refractory joint symptoms, alternative therapies such as methotrexate can be evaluated. In addition to pharmacotherapy, cases that have prolonged arthralgia and joint stiffness may benefit from a program of graduated physiotherapy. Movement and mild exercise tend to improve morning stiffness and pain, but heavy exercise may exacerbate symptoms.

5B. Patient Isolation Recommendations

To prevent infecting others in the household, the community, or the hospital, a patient with acute CHIK should avoid being bitten by *Ae. aegypti* or *Ae. albopictus* mosquitoes during the viremic phase, which is usually the first week of illness. As these mosquitoes bite during daytime from dawn to dusk or even after dark in the presence of artificial light, staying under an insecticide-treated (IT) bednet or staying in place with intact screens is highly recommended. Furthermore, physicians or health-care workers who are visiting CHIK-infected patients at home should take care to avoid being bitten by mosquitoes by using insect repellent and wearing long sleeves and pants.

One hospital associated infection of CHIK has been identified in a health-care provider who had an accidental needle stick from a patient with CHIK⁴⁷. Furthermore, several laboratory workers have contracted CHIKV infection after

handling infected blood⁴⁸. These exposures indicate that direct contact transmission can occur. However, other modes of transmission, such as through respiratory droplets or particles, have not been documented.

5C. Healthcare and Hospital Surge Capacity

At the peak of one recent outbreak, 47,000 suspected cases were identified in a single week among a population of 766,000²⁷. In addition, there can be an accumulation of patients with symptoms seeking more long-term care. With that potential volume of cases per week, huge demands are likely to be placed on healthcare during outbreaks of the disease. A number of steps similar to those for pandemic influenza preparedness should be considered by healthcare facilities preparing for and during a CHIK outbreak. Triage systems should be considered at various levels of healthcare to facilitate the flow of patients during an outbreak.

Prior to the introduction of CHIKV, the following should be considered (*adapted from PAHO and HHS Influenza Pandemic Plan*^{49, 50}):

- Develop and implement methods for identifying and investigating potential introduction of CHIKV within existing surveillance systems (e.g., surveillance system for dengue)
- Inform healthcare providers and public health officials about the potential threat of CHIKV and educate them about the clinical presentation, diagnosis, and management of cases at healthcare facilities

- Develop planning and decision-making structures for responding to a potential outbreak at healthcare facilities
- Develop institutional plans to address disease surveillance, hospital communications, education and training, triage and clinical evaluation, facility access, and occupational health, surge capacity (beds and access to care), supply chain and access to critical inventory needs

Following the introduction of CHIKV into an area, healthcare facilities should:

- Activate institutional plans with assistance of Ministry of Health
- Ensure rapid and frequent communication within healthcare facilities and between healthcare facilities and health departments; and,
- Implement surge-capacity plans that address staffing, bed capacity, consumable and durable supplies, and continuation of essential medical services (see section on Healthcare Planning in the PAHO and HHS Pandemic Influenza Plan for further considerations^{49, 50})

Effective triage systems at various levels of healthcare may help to decrease the potential burden of a CHIK outbreak on the healthcare system. Regardless of the level of medical care available at the triage location, a key measure that needs to be considered at all levels of healthcare is institution of appropriate mosquito control measures in the immediate area. If this is not done, patients acutely ill with CHIK can serve as a source of subsequent infections for other patients and healthcare workers via mosquito transmission. Furthermore

consideration should be given to establishing areas where patients with suspected CHIK infections are seen and, if necessary, hospitalized (e.g., establish CHIK wards with screens and/or bednets). Finally, consideration should be given to the safety of healthcare workers. During a previous outbreak, up to one-third of healthcare workers became infected thus further taxing stretched resources⁹.

'Guiding principles for managing acute stage of the disease' has been previously described in detail in WHO's *Guidelines on Clinical Management of Chikungunya Fever*⁵¹. Key information, including triage considerations, from that document is summarized here.

Who should seek medical care?

- Anyone with neurologic signs or symptoms including irritability, drowsiness, severe headaches, or photophobia.
- Anyone with chest pain, shortness of breath, or persistent vomiting.
- Anyone with a fever persisting for more than five days (indicative of another illness like dengue)
- Anyone who develops any of the following, especially once the fever subsides:
 - Intractable severe pain
 - Dizziness, extreme weakness, or irritability
 - Cold extremities, cyanosis
 - Decreased urine output

- Any bleeding under the skin or through any orifice
- Pregnant women in the last trimester, newborns, and persons with chronic underlying disease as they or their offsprings are at risk for more severe disease.

Triage at point of first contact (Primary or ambulatory/urgent care)

- Rule out other illnesses by history, clinical examination, and basic laboratory investigations including but not limited to complete blood count (CBC), liver function tests, and electrolytes. Be careful to evaluate if patient has warning signs for severe dengue or malaria. If present, refer patient immediately to hospital.
- Assess for dehydration and provide proper rehydration therapy as needed.
- Evaluate hemodynamic status and stabilize and immediately refer patients with delayed capillary refill, narrow pulse pressure, hypotension, oliguria, altered sensorium, or bleeding manifestations.
- Treat symptomatically (paracetamol/acetaminophen).
- For those with prolonged joint pain (after three days of symptomatic treatment) consider more aggressive pain management, such as morphine and short-term corticosteroids.
- Consider referral in patients with increased risk of a poor outcome (persons above sixty years, those with chronic disease, pregnant women, and infants).

Triage at the secondary level (distinct or local hospital)

- Treat symptomatically (according to previous treatments).
- Investigate person for renal failure, neurologic signs and symptoms, hepatic insufficiency, cardiac illness, thrombocytopenia, and malaria.
- Evaluate hemodynamic status and assess for dehydration and provide proper supportive care and rehydration therapy as needed.
- Consider cerebral spinal tap if meningitis is suspected.
- Collect blood for serologic testing of CHIK and other diseases in the differential (e.g., dengue virus).
- Review history of present illness and evaluate if patient has warning signs for severe dengue. If present, administer supportive care in a unit that can monitor vital signs on an hourly basis during the critical phase.
- Refer patients with any of the following to a higher health center: pregnancy, oliguria/anuria, refractory hypotension, significant clinical bleeding, altered sensorium, meningoencephalitis, persistent fever of more than one week's duration, and signs of decompensation of underlying diseases.

Triage at the tertiary care level (advance care centers or centers with infectious disease specialists)

- Ensure all the above-mentioned procedures have been completed and that a comprehensive medical team is available to assist in managing patients with severe or atypical disease.

- Collect blood sample for serology and/or RT-PCR (see Laboratory section for more specific on CHIK testing).
- Consider the possibility of other rheumatic (e.g., RA, gout, rheumatic fever) or infectious diseases (e.g., viral or bacterial meningoencephalitis).
- Treat serious complications (e.g., bleeding disorder with blood components, acute renal failure with dialysis).
- Assess disability and recommend rehabilitative procedures.

Given the severity of the pain and the potential long-term pain with CHIK, pain management and psychological assistance should be made available and consideration given to develop chronic pain management protocols, teams, and centers. Autopsies should be considered on all deceased patients, with involvement of pathologists.

5D. Blood, Organ, and Tissue Safety

Blood-borne transmission is possible. There are documented cases that include infection of laboratory personnel handling infected blood and a health care worker drawing blood from an infected patient^{47, 48}. These cases support the belief that CHIKV is able to be transmitted through blood products.

To determine the impact of CHIKV on blood supply safety consider: 1. incidence of viremia among blood donors (which may vary depending on the time of the outbreak); 2. clinical impact on transfusion recipients who become infected; 3. availability of measures to reduce transfusion transmission (e.g.,

nucleic acid amplification testing (NAT) or photochemical pathogen inactivation treatment), 4. availability of alternative blood supply (from non-affected areas) and 5. the cost incurred by those measures⁵².

In addition to asking local health-care community to promote optimal use of blood components, possible considerations for blood safety in areas with CHIKV introduction could include⁵³:

- Continue to obtain blood donations from local persons until an unacceptable incidence or prevalence* of infection is reached in the community.
- Screen blood donors for symptoms prior to donation.
- Asking donors to report any illness occurring post donation while holding the blood donations for several (2-5) days prior to release.
- If feasible, cease all blood donations in the area of known CHIKV infections and import blood products from uninfected areas.
- Institute screening (e.g., NAT) of the blood supply for CHIKV. This will require a preexisting platform and regulatory clearance and is unlikely to be available in most areas.

* To be determined by blood banks and public health officials in the area.

Similar measures should be considered for organ and tissue (grafts) transplantations.

Summary of Case Management Section

- Treatment for CHIK is supportive with anti-pyretics, optimal painkillers, and fluids
- Acutely infected patients need to be protected against mosquito bites to prevent further disease spread both at home, in the community, and in the healthcare facility
- Because CHIK will place a large burden on the community including all levels of the healthcare system, well-established protocols and plans need to be developed in advance to assist in the triage, care, and rehabilitation of patients