Chikungunya overview

- Chikungunya is an acute febrile illness transmitted by the bite of a mosquito (Aedes spp) infected with the chikungunya virus.
- First identified in the United Republic of Tanzania in 1952 and subsequently in other countries Africa and Asia; introduced into the Americas in 2013.
- Most infected people will have symptoms such as: high fever, severe joint pain, arthritis, stiffness, rash.
- Severity varies by age - newborns and young infants, and the elderly are at greater risk for more severe disease.
- High population infection rate with potential for large epidemics, particularly among immunologically naïve populations where chikungunya has not circulated before.
- Overall case fatality rate (CFR) is <1%.
- Disease burden is mainly due to chronic disability and severe impact on patient quality of life.
Chikungunya situation overview

110
Countries across 6 WHO regions have reported local mosquito-borne transmission

4 BILLION
People at risk

<1%
Low case fatality rate

Up to 50%
Chronic joint pain - disability

Source: WHO, PAHO, U.S. Centers for Disease Control and Prevention
Chikungunya case definition criteria

Clinical
- Acute onset of fever >38.5°C and severe arthralgia/arthritis not explained by other medical conditions.

Epidemiological
- Residing or having visited epidemic areas having reported transmission within 15 days prior to the onset of symptoms.

Laboratory
- Virus isolation.
- Presence of viral RNA by RT-PCR
- Presence of virus-specific IgM antibodies in single serum sample collected in acute or convalescent stage.
- Four-fold increase in IgG values in samples collected at least three weeks apart
### Drivers of transmission of chikungunya

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<td>• Climatic factors</td>
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<td>• Increased breeding sites (water containers)</td>
<td>• Enhanced transmissibility</td>
<td>• poverty</td>
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<td>• Absent/reduced vector control programmes</td>
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<td>• Environmental adaptation</td>
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<td>Introduction into new areas</td>
<td>Enhanced transmissibility</td>
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<td>• Goods transportation (e.g., eggs/larvae in tires)</td>
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In 2023, increased number of cases & deaths in the Region of the Americas:

- Outbreaks in several countries and in areas without previous local transmission
- Increased number of cases in newborns
- Increased number of severe cases in elderly
- Increased CFR compared to previous years
Epidemiological alert

Complications:

• The national surveillance system detected an increased number of acute meningoencephalitis cases in 2023
• Associated to CHIKV: 50% neonates (confirmed by RT-PCR).
• Neonatal chikungunya recorded in previous outbreaks globally
  • risk highest intrapartum
  • ~49% transmission
• Frequent severe disease in newborns and infants

https://dgvs.mspbs.gov.py/page/#arbovirosis.html;
Integrated approach to tackle Aedes-borne diseases

WHO GLOBAL ARBOVIRUS INITIATIVE

1. Monitor risk and anticipate
2. Reduce epidemic risk
3. Strengthen vector control
4. Prevent and prepare for pandemics
5. Enhance innovation and new approaches
6. Build a coalition of partners

Pillars of the Global Arbovirus Initiative
Chikungunya prevention and clinical management

• Avoidance of mosquito bites to prevent infection
  ‣ Using approved insect repellent and
  ‣ Wearing clothing which minimizes skin exposure

• Vaccines under evaluation, not available yet

• No specific antiviral drug treatment

• Clinical management of fever and joint pain
  ‣ anti-pyretics
  ‣ optimal analgesics
  ‣ drinking plenty of fluids and general
  ‣ rest

• Hospital admission for severe disease

• Prevention of mosquito bites in persons with infection to limit further spread to uninfected mosquitoes
Aedes surveillance

- Effective vector surveillance requires community engagement, social mobilization, and intersectoral integrated actions.
- Coordinated mapping of entomological, epidemiological, and environmental data facilitates planning, implementation, monitoring, and evaluation of vector control activities.
- Entomological surveillance should emphasize routine monitoring of adult female Aedes indices; i.e., the life stage that is most directly linked to virus transmission risk.
- Immature mosquito indices can be useful for assessing the entomological impact of an intervention. There is, however, limited and inconsistent evidence associating immature Aedes indices to risk of human infection and/or disease.
Effective vector control programs

**Consist of:**

- Application of integrated combinations of interventions most appropriate to the local situation; no single intervention is effective across all ecological and epidemiological contexts
- Simultaneously targeting immature and adult vectors with multiple interventions
- Prevention by comprehensive intervention delivery with high coverage that is sustainable, through community involvement and programmatic continuity.
- Monitoring of insecticide resistance
Effective vector control programs

Require:

• Measuring, analysing, and integrating entomological and epidemiological data.

• Constant local and national government support and intersectoral collaboration. Ultimately, for long-term sustainability, disease prevention will require a coordinated regional approach.

• Improvements in housing industry (e.g., house designs that exclude mosquitoes, provision of reliable piped water, solid waste removal, and sealed water storage containers)
Resources for outbreak response

https://www.who.int/emergencies/outbreak-toolkit/disease-outbreak-toolboxes/chikungunya-outbreak-toolbox