

Chikungunya in Latin America (2020–2025): Epidemiological Burden, Clinical Impact, and Public Health Priorities

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ABSTRACT

Chikungunya virus (CHIKV) has maintained sustained transmission in Latin America since its introduction in 2013, generating recurrent outbreaks and a significant clinical, social, and economic burden. Between 2020 and 2025, more than 2.8 million suspected cases were reported, with Brazil contributing the highest morbidity and disability-adjusted life years (DALYs). Acute infection is characterized by sudden-onset fever, severe polyarthralgia, myalgia, headache, and a maculopapular rash. Approximately 40% of patients develop chronic arthropathy, which may persist for months or years, affecting functional capacity and quality of life. The diagnostic accuracy is challenged by the co-circulation of dengue and Zika, necessitating combined molecular and serological approaches. Management remains primarily supportive, utilizing NSAIDs, corticosteroids, and, in select cases, disease-modifying antirheumatic drugs (DMARDs) to manage persistent inflammation. Transmission dynamics are driven by climatic variability, rapid urbanization, high densities of *Aedes aegypti* and *Aedes albopictus*, and increased human mobility. Considerable disparities exist in public health capacity across the region: Brazil has implemented robust surveillance and vector control, while Nicaragua, Bolivia, and parts of Peru face substantial limitations that delay outbreak detection and response. Although the Ixchiq vaccine was recently approved in high-income settings, access remains extremely limited in Latin American countries with endemic regions.

Strengthening genomic surveillance, integrating vector control with urban development policies, expanding equitable access to vaccination, and improving long-term care for chronic post-CHIKV sequelae are essential priorities. Future efforts should focus on genotype-specific transmission modeling, evaluating vaccine

effectiveness in endemic populations, and coordinating cross-border data sharing to enhance early outbreak detection and regional preparedness.

Keywords: Chikungunya virus; Latin America; arboviruses; *Aedes aegypti*; *Aedes albopictus*; epidemiology; chronic arthropathy; public health; vector-borne diseases; surveillance.

INTRODUCTION

Chikungunya virus (CHIKV) is a mosquito-borne alphavirus primarily transmitted by *Aedes aegypti* and *Aedes albopictus*, both of which are prevalent in tropical and subtropical regions.¹ First identified in Tanzania in 1952, CHIKV has become a global public health concern due to its rapid geographic expansion, including the Americas, Asia, and parts of Europe.^{2,3} Introduced to the Americas in 2013, it has caused widespread epidemics, particularly in Latin America, affecting millions of people and overwhelming healthcare systems, as shown in Figure 1.⁴

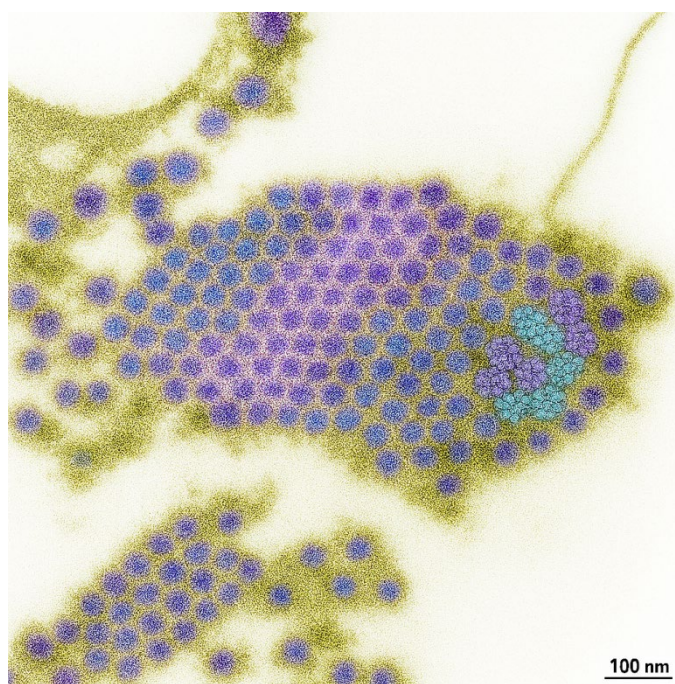


Figure 1. Chikungunya virus particles observed under high-resolution electron microscopy. High-resolution scanning electron micrograph illustrating multiple Chikungunya virus (CHIKV) particles. Each virion exhibits its characteristic spherical morphology, with a dense central nucleocapsid surrounded by a lipid envelope that contains surface glycoprotein spikes involved in host-cell attachment and entry. This structural organization underlies viral infectivity and facilitates transmission by *Aedes* mosquitoes. Figure generated by the authors using a custom AI-assisted workflow and validated against current structural virology literature.

Environmental, social, and economic factors strongly influence the epidemiology of CHIKV in Latin America.

Tropical and subtropical climates favor the proliferation of *Aedes* mosquitoes, while rapid, unplanned urbanization creates abundant breeding sites in densely populated areas. Climate change amplifies this risk by

altering temperature and rainfall patterns, expanding the geographic range of vectors, and facilitating outbreaks in previously unaffected regions.⁵ Additionally, high human mobility facilitates the introduction of the virus into new urban and peri-urban areas. The combination of urbanization, climate change, and human mobility creates an ideal environment for sustained CHIKV transmission, as shown in Figure 2.^{6,7}

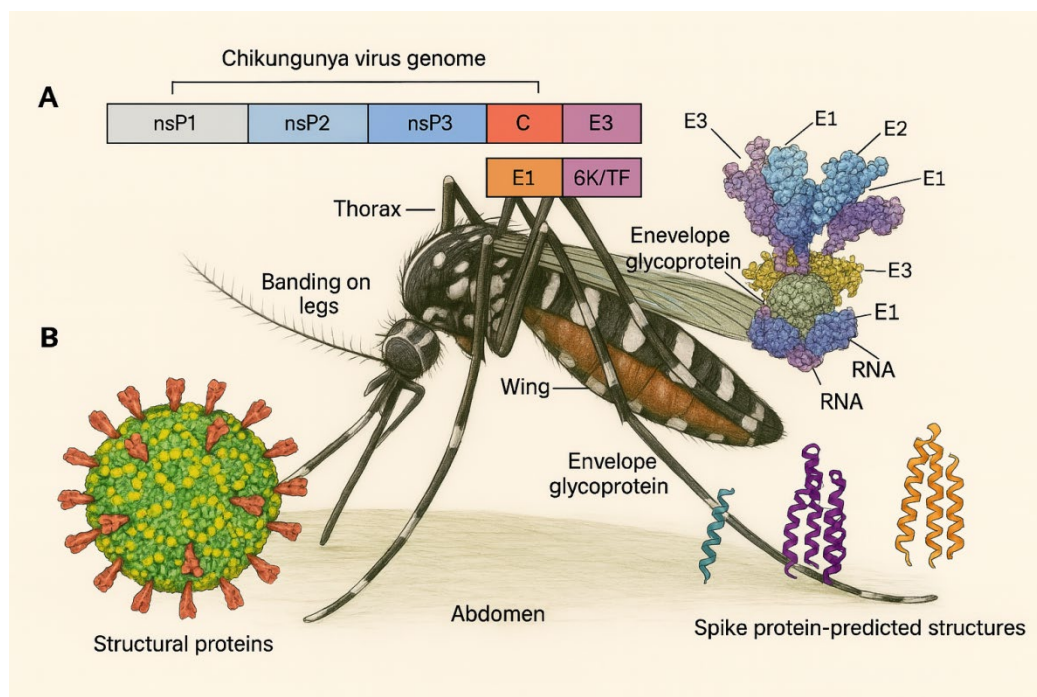


Figure 2. Genomic structure, virion architecture, and vector anatomy relevant to Chikungunya virus transmission.

Panel A: Schematic representation of the Chikungunya virus (CHIKV) genome, which encodes four nonstructural proteins (nsP1–nsP4) responsible for viral replication, and the structural proteins capsid (C), envelope glycoproteins (E1–E3), and 6K/TF, which are essential for virion assembly, budding, and host-cell entry.

Panel B: Structural depiction of the mature CHIKV virion showing its spherical morphology and the arrangement of envelope spike proteins composed of E1–E2–E3 glycoprotein complexes that mediate attachment and membrane fusion.

Central illustration: The *Aedes* mosquito vector highlighting diagnostic anatomical features—including thorax, abdomen, banding on legs, and wing structures—and the distribution of viral envelope glycoproteins associated with mosquito-mediated transmission. Predicted spike protein conformations involved in viral entry are shown at right.

Figure created by the authors using a custom AI-assisted workflow and validated against current genomic, structural, and entomological literature.

Clinically, CHIKV infection manifests with sudden-onset fever, severe polyarthralgia, myalgia, headache, rash, and occasionally gastrointestinal or ocular symptoms. While most cases are self-limiting, many patients experience prolonged musculoskeletal symptoms, leading to functional impairment and reduced quality of life.^{8,9} Currently, no widely available specific antiviral therapy exists, and clinical management remains primarily supportive.¹⁰ The recent approval of the Ixchiq vaccine represents a major advancement, although access in endemic Latin American regions remains limited, as shown in Figures 3 and 4.^{11,12,13}



Figure 3. *Aedes albopictus* is a competent vector of Chikungunya virus in tropical and subtropical regions.

High-resolution image of *Aedes albopictus* (the Asian tiger mosquito), a major vector of Chikungunya, Dengue, and Zika viruses. The species is characterized by distinctive black-and-white leg banding and a single white dorsal thoracic stripe. *A. albopictus* exhibits aggressive daytime biting behavior and high ecological adaptability, allowing it to thrive in both urban and peri-urban environments. Its expanding geographic range in the Americas has increased the risk of Chikungunya transmission, particularly in densely populated areas with favorable breeding sites.

Figure created by the authors using an AI-assisted image generation and refinement workflow and validated against entomological reference material.



Figure 4. *Aedes aegypti* is the principal urban vector of the Chikungunya virus in the Americas.

High-resolution image of *Aedes aegypti*, the primary urban vector for Chikungunya, Dengue, Zika, and yellow fever viruses. This species is identifiable by its lyre-shaped white dorsal markings on the thorax, banded legs, and its preference for feeding on humans (anthropophilic behavior). *A. aegypti* thrives in densely populated urban environments, breeds in artificial water containers, and exhibits peak biting activity during daylight hours. Its strong human–mosquito–human transmission cycle and high vector competence make it the dominant driver of Chikungunya outbreaks in Latin America.

Figure produced by the authors through an AI-assisted image generation and refinement workflow and validated using standard entomological references.

CHIKV infection is associated with a broad spectrum of clinical manifestations, ranging from acute febrile illness to prolonged musculoskeletal symptoms. The pathogenesis involves viral entry, replication, and host immune responses, which together contribute to both acute and chronic disease phenotypes, as illustrated in Figure 5.¹⁴ Detailed mapping of pain and associated symptoms reveals distinct patterns in acute versus chronic CHIKV patients, highlighting common musculoskeletal and neurological manifestations and the prevalence of comorbidities, as shown in Figure 6.^{9, 10}

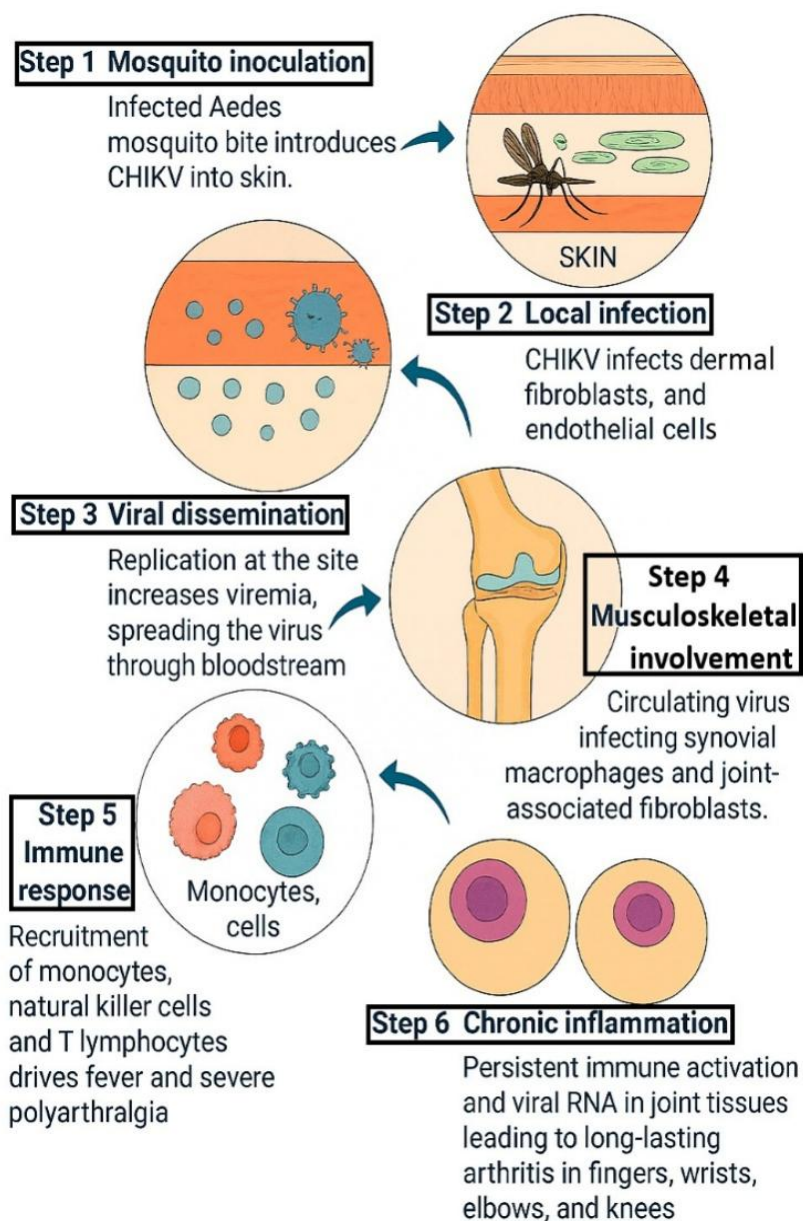


Figure 5. Pathogenesis of Chikungunya virus infection: from mosquito inoculation to systemic inflammation and joint involvement.

Schematic representation of the pathogenesis of Chikungunya virus (CHIKV) infection. Following inoculation of the virus into the skin by an infected *Aedes* mosquito (step 1), CHIKV initially infects dermal fibroblasts, macrophages, and endothelial cells (step 2). Viral replication at the inoculation site leads to increasing viremia and dissemination through the bloodstream (step 3). Circulating virus subsequently infects musculoskeletal tissues, including synovial macrophages and joint-associated fibroblasts (step 4), triggering a robust innate and adaptive immune response. Recruitment of inflammatory cells—such as monocytes, natural killer cells, and T lymphocytes—into infected tissues (step 5) contributes to the acute febrile phase and severe polyarthralgia. Persistent immune activation and viral RNA persistence in joint tissues may lead to chronic inflammation and long-lasting arthritis that can affect fingers, wrists, elbows, and knees (step 6).

Figure created by the authors using an AI-assisted illustration workflow and validated against current immunopathogenesis and clinical literature on CHIKV.

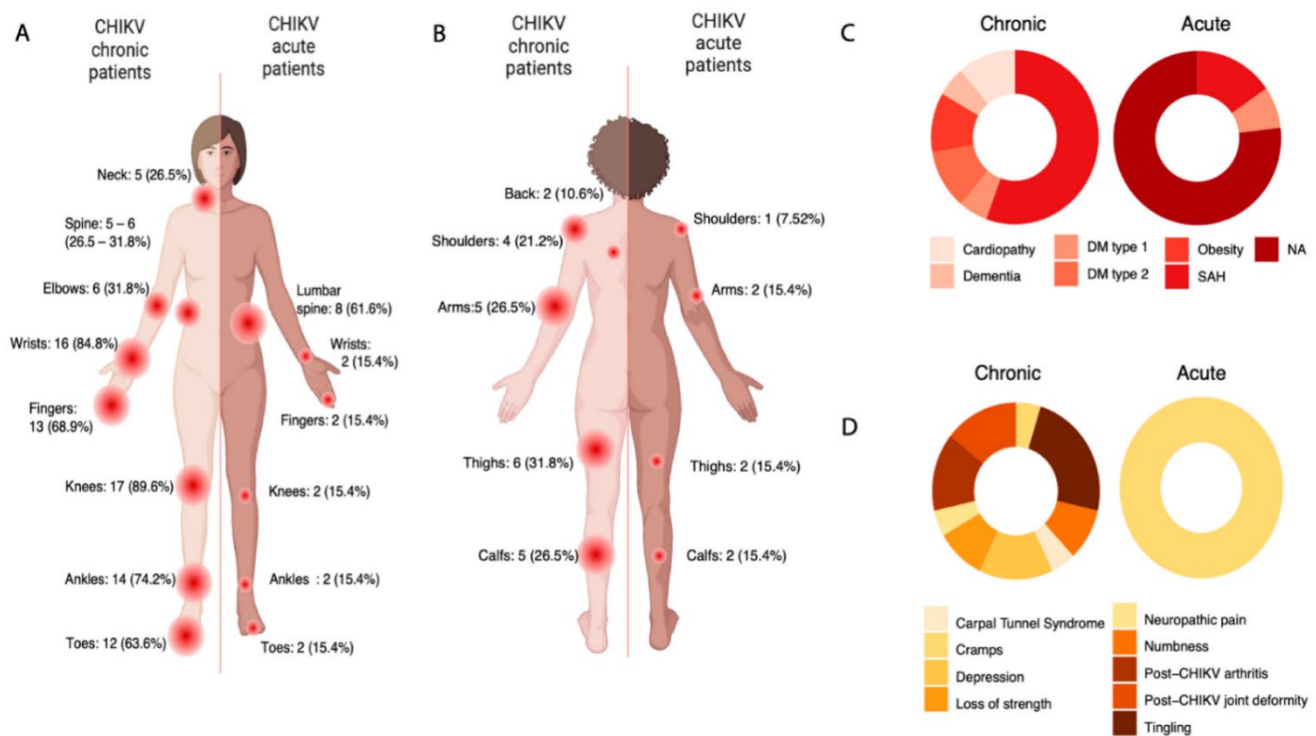


Figure 6. Anatomical distribution of pain, comorbidities, and symptom profiles in acute and chronic Chikungunya virus (CHIKV) infection.

Panel A: Anterior anatomical mapping of pain distribution in patients with chronic CHIKV infection (left) compared with acute-phase patients (right). Chronic cases exhibit a markedly higher frequency and wider distribution of joint involvement—particularly in the wrists, knees, ankles, fingers, and elbows—consistent with persistent post-CHIKV arthropathy.

Panel B: Posterior view illustrating musculoskeletal pain localization in chronic (left) and acute (right) patients. Chronic cases present greater involvement of the shoulders, arms, back, and thighs, reflecting the transition from acute inflammation to sustained musculoskeletal dysfunction.

Panel C: Comparative prevalence of comorbidities in chronic versus acute CHIKV cohorts, including obesity, diabetes mellitus types 1 and 2, systemic arterial hypertension (SAH), cardiopathy, and dementia. A higher comorbidity burden in chronic cases suggests an increased susceptibility to prolonged inflammation and delayed recovery.

Panel D: Symptom profiles highlighting distinctions between chronic and acute CHIKV presentations. Chronic patients more commonly exhibit neuropathic pain, carpal tunnel syndrome, cramps, depression, post-CHIKV arthritis, joint deformity, loss of strength, and persistent tingling, whereas acute cases primarily report transient systemic symptoms without long-term sequelae.

Visual data reflect patient-reported outcomes and standardized clinical assessments during post-CHIKV

follow-up. Figure created using an AI-assisted illustration workflow and validated against current clinical and rheumatological literature on CHIKV sequelae.

Comparative analyses of mosquito-borne diseases reveal differences in symptom frequency and severity, which are crucial for differential diagnosis in endemic regions. Fever, rash, inflammatory arthritis, myalgia, and headache are among the most frequent clinical features, with variations in presentation between Dengue, Chikungunya, and Zika infections, summarized in Figure 7.^{9, 10} Additionally, the typical cutaneous and arthritic manifestations observed in acute and chronic chikungunya infection, including maculopapular rash and periarticular swelling, are illustrated in Figure 8, highlighting the clinical patterns that may persist or resolve asymmetrically. Including these comparative symptom profiles and illustrative manifestations in the review provides a clearer understanding of CHIKV's clinical burden, supporting targeted public health interventions.^{15, 16}

FEATURES	DENGUE	CHIKUNGUNYA	ZIKA
 Fever	+++	++	++
 Rash	+	++	++
 Conjunctivitis	+	+	++
 Inflammatory arthritis (characterized by prolonged morning stiffness)		+++	-
 Myalgia	++	++	+
 Headache	++	++	+
 Hemorrhage		-	-
 Shock	+	-	-

Figure 7. Comparative clinical features of Dengue, Chikungunya, and Zika virus infections.
Comparative chart summarizing the relative frequency and intensity of major clinical manifestations associated with Dengue, Chikungunya, and Zika virus infections. Fever and headache occur most prominently in Dengue, while rash and conjunctivitis are more characteristic of Zika. Chikungunya is distinguished by its hallmark inflammatory arthritis—often severe and prolonged, with morning stiffness—alongside frequent myalgia. Hemorrhagic manifestations and shock are predominantly associated with severe Dengue, reflecting its vascular permeability and plasma leakage pathophysiology. The symptom-based comparison assists clinicians in differential diagnosis in regions where these arboviruses co-circulate.
Figure created using an AI-assisted illustration workflow and validated against current clinical and epidemiological literature on arboviral disease presentations.

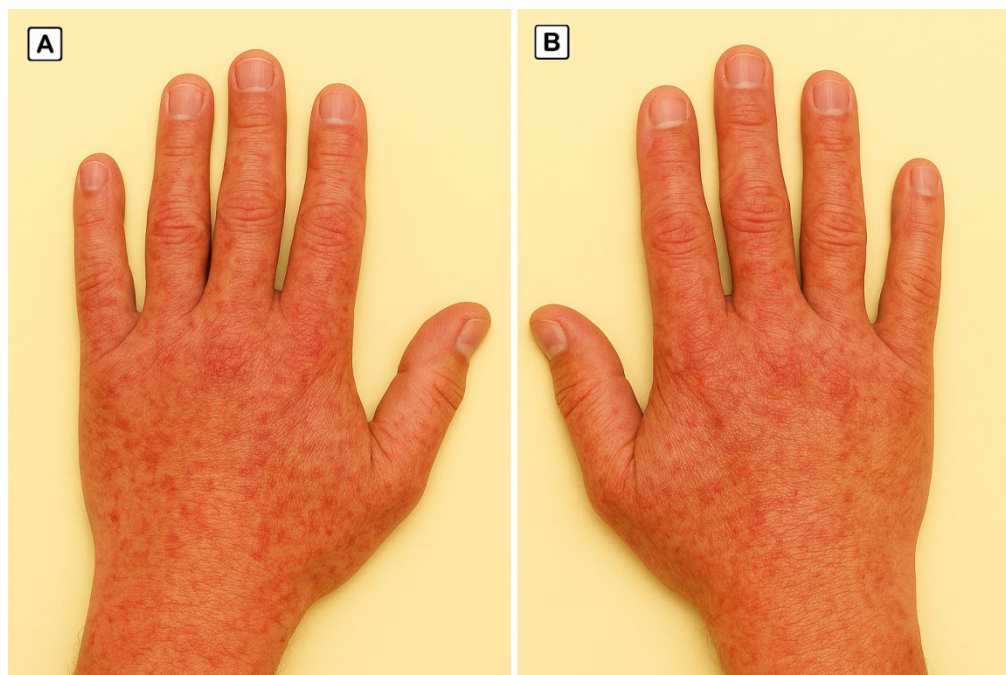


Figure 8. Cutaneous and periarticular manifestations during acute Chikungunya virus infection. Panel A: Dorsal view of the left hand showing an intense erythematous maculopapular rash accompanied by periarticular swelling, consistent with acute-phase Chikungunya virus (CHIKV) infection. The combination of diffuse rash and early inflammatory edema around the metacarpophalangeal and interphalangeal joints reflects the characteristic viral-induced synovitis and soft-tissue inflammation.

Panel B: Right hand demonstrating similar dermatologic findings but with reduced erythema and swelling, suggesting partial clinical improvement or asymmetric involvement—both recognized patterns in CHIKV-associated arthropathy.

These dermatologic and articular manifestations are typical of the acute phase of CHIKV infection, where rash often resolves within days and may be followed by transient desquamation. Persistent joint discomfort may evolve into chronic post-CHIKV arthritis in a subset of patients.

Figure produced using an AI-assisted medical illustration workflow and validated against current dermatological and rheumatological literature on Chikungunya virus infection.

In summary, CHIKV transmission in Latin America results from a complex interplay among viral biology, vector ecology, environmental factors, urbanization, and social determinants. This narrative review aims to synthesize recent evidence on chikungunya infection, its clinical consequences, and public health responses in the region, with a comprehensive focus encompassing both clinical care and prevention and control strategies.

Clinical and Epidemiological Overview of Chikungunya in Latin America

Epidemiology

Since its introduction in the Americas in 2013, CHIKV has demonstrated persistent endemicity and recurrent outbreaks across Latin America. Between 2020 and 2025, Brazil continued to be the epicenter of CHIKV activity, reporting over 1.7 million suspected cases, with substantial outbreaks in northeastern and southeastern regions. Colombia, Nicaragua, Bolivia, and Peru also experienced significant CHIKV activity, with peaks corresponding to seasonal rainfall and higher vector density.^{17, 18, 19} Regional surveillance data indicate that CHIKV outbreaks are often cyclical, with intervals of low transmission followed by explosive epidemic events, a pattern influenced by climate variability, vector population dynamics, and human mobility. Recent studies estimate that CHIKV contributes >1 million DALYs annually in Latin America, reflecting both acute morbidity and long-term disability from chronic arthropathy.^{20, 21} These data are summarized in Table 1.

Country	Suspected Cases	Peak Year	DALYs Estimate
Brazil	1.7 million	2022	500,000
Colombia	420,000	2023	200,000
Nicaragua	310,000	2021	150,000
Bolivia	280,000	2024	120,000
Peru	190,000	2025	100,000

Table 1. Epidemiological burden of CHIKV in major Latin American countries (2020–2025).

Data compiled from national surveillance systems and regional estimates from CDC¹, PAHO^{4,16}, and WHO^{8,14}. DALY approximations based on regional burden assessments reported in Lancet Reg Health Am³ and Trans R Soc Trop Med Hyg^{10,11}.

Clinical Features

CHIKV infection typically presents with sudden-onset high fever, severe polyarthralgia, myalgia, headache, and a maculopapular rash.²² Gastrointestinal symptoms, including nausea, vomiting, and diarrhea, occur in a subset of patients, while ocular manifestations, such as conjunctivitis, have also been reported.²³ Notably, chronic post-viral arthropathy affects up to 40% of patients, persisting for months or even years and

contributing to functional impairment, decreased quality of life, and economic loss due to reduced productivity.²⁴ Comorbidities such as diabetes, hypertension, and pre-existing joint disease are associated with increased severity of CHIKV-related arthropathy and prolonged recovery. Recent cohort studies indicate that older adults and individuals with immunocompromising conditions are at higher risk for severe manifestations, including neurological complications and protracted fatigue.^{25, 26} Table 2 presents these findings.

Symptom	Prevalence (%)	Chronic Risk
Sudden-onset fever	100%	Low
Severe polyarthralgia	93%	High
Myalgia	88%	Moderate
Maculopapular rash	62%	Low
Gastrointestinal symptoms	35%	Low
Chronic arthropathy	40%	Very High

Note: Chronic arthropathy may persist for months to years, particularly in older adults or in patients with diabetes, hypertension, or pre-existing joint disorders.

Table 2. Clinical features and chronic sequelae associated with Chikungunya virus (CHIKV) infection. Clinical frequency and long-term sequelae of CHIKV infection, based on regional cohort studies and global clinical summaries from WHO⁸⁽²⁰²⁵⁾, PAHO^{4,16}, and recent longitudinal analyses addressing post-CHIKV musculoskeletal disability (Lancet Reg Health Am³; Trans R Soc Trop Med Hyg^{10,11}). Severe polyarthralgia is the hallmark of acute infection and is strongly associated with the development of chronic post-viral arthropathy, which accounts for a substantial portion of the estimated DALY burden in affected populations.

Diagnosis

Laboratory confirmation of CHIKV infection relies on RT-PCR during the acute phase (the first 5–7 days of illness), which offers high sensitivity and specificity.²⁷ In the subacute phase, IgM serology is commonly used; IgG seroconversion indicates past exposure. Typical laboratory findings include leukopenia, thrombocytopenia, mild transaminase elevations, and, occasionally, elevated inflammatory markers, such as CRP and ESR.^{28, 29} Diagnostic accuracy is influenced by the timing of sample collection, viral load, and co-circulation of other arboviruses such as Dengue and Zika, which can lead to cross-reactivity and misdiagnosis if serological testing is used in isolation. Recent studies recommend combining molecular and serological assays to improve diagnostic reliability in endemic regions.^{30, 31}

Management

There is currently no specific antiviral therapy for CHIKV infection.³² Management is primarily supportive, focusing on hydration, rest, and analgesia.³³ NSAIDs are widely used to alleviate arthralgia and myalgia, while corticosteroids may be indicated in severe inflammatory cases or in patients with debilitating chronic arthritis. Antipyretic agents, including paracetamol, are recommended for the management of fever.^{34, 35} Recent clinical reports have explored adjunctive therapies, such as disease-modifying antirheumatic drugs (DMARDs), for persistent post-CHIKV arthropathy, though evidence remains limited. Early supportive care has been associated with shorter disease duration, reduced symptom severity, and improved functional outcomes.^{36, 37}

Public Health Strategies

Vector control remains the cornerstone of CHIKV prevention. Integrated vector management strategies include eliminating mosquito breeding sites, implementing larvicidal and adulticidal interventions, deploying insecticide-treated materials, and conducting public education campaigns.^{38, 39} Surveillance systems in Brazil, Colombia, and other Latin American countries have been enhanced with real-time reporting, geographic mapping of cases, and predictive modeling to identify and anticipate outbreak hotspots.⁴⁰ The recent approval of the CHIKV vaccine Ixchiq in Europe and the United States represents a milestone in preventive strategies; however, its deployment in endemic Latin American regions remains limited.⁴¹ Comparative analyses of outbreaks from 2020 to 2025 indicate that countries with robust vector control, early case detection, and community engagement experience shorter outbreak durations, lower morbidity, and reduced economic impact.⁴² Table 3 summarizes these data.

Country	Vector Control	Surveillance	Vaccine Access	Community Engagement
Brazil	Robust	Real-time	Limited	High
Colombia	Moderate	Strengthened	Limited	Moderate
Nicaragua	Basic	Intermittent	None	Moderate
Bolivia	Moderate	Strengthened	None	High
Peru	Basic	Developing	None	Low

Table 3. Public Health Strategies for Chikungunya Virus (CHIKV) Control in Selected Latin American Countries (2020–2025). Comparative overview of national public health strategies for CHIKV control in Latin America between 2020 and 2025.

Data compiled from national epidemiological bulletins, WHO regional updates^{8,14}, PAHO situation reports^{4,16}, and publicly available regulatory information on chikungunya vaccine availability (Valneva/FDA/EMA reports^{5,13,20}). Vaccine deployment remains limited across endemic regions, with no large-scale public immunization campaigns implemented. Countries that combine robust vector control, enhanced surveillance (including genomic monitoring), and sustained community participation—such as Brazil—tend to experience shorter outbreak durations and lower morbidity.

Clinical Insights and Public Health Implications

Chikungunya virus (CHIKV) remains a major public health concern in Latin America. Since its introduction to the Americas in 2013, recurrent outbreaks have demonstrated the complexity of controlling vector-borne diseases in densely populated urban settings. Factors such as climate change, rapid urbanization, and increased human mobility have facilitated the spread of viruses, compounding the challenges faced by public health authorities. Recent analyses confirm that localized urban factors, such as housing quality and population density, are more critical for predicting outbreak magnitude than climate alone.^{43, 44, 45}

Epidemiology and Distribution

Brazil has consistently been the epicenter of CHIKV activity in Latin America, reporting over 1.7 million suspected cases between 2017 and 2024. This is consistent with the most recent data, which places Brazil as the Americas' highest-case burden, accounting for 96% of the region's confirmed cases and deaths as of August 2025.^{46, 47} Other countries, including Colombia, Nicaragua, Bolivia, and Peru, have also experienced substantial outbreaks, often peaking during rainy seasons and periods of increased vector density. Regional surveillance data indicate that CHIKV outbreaks follow a cyclical pattern, with periods of low transmission interrupted by explosive epidemics influenced by climatic variability, vector population dynamics, and human movement. A concerning shift noted by PAHO is the co-circulation of the East/Central/South African (ECSA) genotype alongside the Asian genotype in at least four countries, which could enhance viral adaptation and transmission dynamics.⁴⁸

For instance, Brazil has implemented robust surveillance systems with real-time reporting and genomic monitoring, enabling earlier detection of outbreaks and more coordinated public health responses. In contrast, Nicaragua has faced recurrent epidemics with limited diagnostic capacity and fewer resources for sustained vector control, resulting in delayed recognition of outbreaks and higher community-level transmission. This

contrast highlights how differences in health system infrastructure and resource allocation directly influence the scale and duration of CHIKV epidemics in Latin America.^{49, 50}

Clinical Features and Disease Burden

CHIKV infection typically manifests with sudden-onset high fever, severe polyarthralgia, myalgia, headache, and a maculopapular rash. Gastrointestinal symptoms (nausea, vomiting, diarrhea) and ocular manifestations (conjunctivitis) have been reported in a subset of patients. While most infections are self-limited, chronic post-viral arthropathy affects up to 40% of patients, persisting for months or years and causing significant functional impairment, decreased quality of life, and economic losses due to reduced productivity. Recent authors strongly support this burden, documenting that chronic joint pain affects a significant proportion of patients and can lead to long-term disability and socioeconomic burden. Comorbidities such as diabetes, hypertension, and pre-existing joint disorders increase the risk of severe arthropathy and prolonged recovery. Older adults and immunocompromised individuals are particularly susceptible to severe manifestations, including neurological complications and chronic fatigue.³⁰

Diagnosis and Clinical Management

Laboratory confirmation relies on RT-PCR during the acute phase (first 5–7 days) and IgM serology in the subacute phase, with IgG indicating prior exposure. Laboratory abnormalities often include leukopenia, thrombocytopenia, mild elevation of liver enzymes, and occasionally elevated inflammatory markers such as CRP and ESR. Diagnostic accuracy can be affected by sample timing, viral load, and the presence of co-circulating arboviruses (e.g., Dengue, Zika), which can lead to serological cross-reactivity. Combining molecular and serological assays is recommended to improve diagnostic reliability in endemic regions.

Currently, there is no specific antiviral treatment for CHIKV infection. Management is primarily supportive, including hydration, rest, and analgesics. Non-steroidal anti-inflammatory drugs (NSAIDs) are widely used to alleviate arthralgia and myalgia, while corticosteroids may be indicated in severe inflammatory cases or debilitating chronic arthritis. Antipyretics, such as paracetamol, are recommended for controlling fever. This management approach is consistently endorsed by recent systematic reviews, which confirm the lack of a specific antiviral treatment and the need for a symptomatic approach.³⁵ Recent studies have explored

adjunctive therapies, including disease-modifying antirheumatic drugs (DMARDs) for persistent post-CHIKV arthropathy, although evidence remains limited.

To our knowledge, this review represents one of the most recent and regionally focused syntheses (2020–2025) examining the epidemiological burden, clinical impact, diagnostic challenges, and public health strategies related to Chikungunya in Latin America.

By integrating epidemiological data, clinical evidence, and policy insights, this narrative review aims to clarify evolving transmission patterns, highlight persistent gaps in regional preparedness, and identify priority actions to reduce the long-term impact of CHIKV on public health systems in the Americas.

CONCLUSIONS

Effective control of CHIKV in Latin America requires a coordinated approach that addresses clinical, public health, and research priorities. Clinically, CHIKV continues to pose challenges: sudden-onset fever, severe polyarthralgia, and chronic post-viral arthropathy affect a substantial proportion of patients, particularly older adults and those with comorbidities, leading to functional impairment and socioeconomic burden. Supportive care—including hydration, analgesics, NSAIDs, corticosteroids for severe inflammatory cases, and DMARDs for persistent arthropathy—remains essential, alongside timely diagnosis in regions with co-circulating arboviruses.

At the public health level, integrated vector control, robust surveillance, and equitable vaccine distribution are critical. Countries like Brazil, with real-time reporting, genomic monitoring, and predictive modeling, have achieved more effective outbreak containment, whereas resource-limited settings, such as Nicaragua, face delayed detection and higher transmission. The deployment of the recently approved Ixchiq vaccine offers a promising preventive tool; however, equitable access across low- and middle-income countries will require regional coordination, joint procurement, and community engagement. Genotype co-circulation (ECSA and Asian) and the evolution of urban and environmental risk factors underscore the need for adaptive, context-specific strategies.

From a research perspective, developing next-generation vaccines and antiviral therapies, understanding genotype-specific transmission dynamics, and climate-linked epidemiological modeling are crucial for guiding targeted interventions. Strengthening surveillance networks, integrating genomic sequencing and vector monitoring, and promoting cross-border data sharing will enhance early outbreak detection and response capacity.

By combining clinical vigilance, integrated vector management, equitable vaccination, and research-informed strategies, Latin America can advance sustainable chikungunya control and reduce the burden of future outbreaks.

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