



WHO Disease Outbreak News Dengue

2024 has been the worst year for Dengue infections on record. Since the beginning of 2024, over 14 million Dengue cases and over 10,000 Dengue-related deaths have been reported globally. Most cases have been reported from the WHO PAHO region. This region reported over 12.5 million cases in 2024, 53% of which were laboratory confirmed, and over 7 000 deaths. Brazil has reported the most cases in 2024 (over 10 million) followed by Argentina, Mexico, Colombia and Paraguay, as of November 2024 (Situation Report No 44 - Dengue Epidemiological Situation in the Region of the Americas

As of January 2, 2025, the CDC reported 8980 Dengue cases in 53 U.S. jurisdictions. Locally acquired Dengue cases have been detected in Florida, Texas, Hawaii, Arizona, and California. Autochthonous cases have also been reported by France, Italy, and Spain in 2024.

In November 2024, WHO classified Dengue as a grade 3 emergency. CDC advises clinicians to counsel patient to avoid mosquito bites and to consider Dengue in patients with fever who live in or recently traveled to areas with risk of Dengue.

Chikungunya

Throughout 2024, CHIKV has caused outbreaks globally. As of of November 30, 2024, approximately 480 000 CHIKVD cases and over 200 deaths have been reported worldwide. A total of 23 countries reported CHIKVD cases from the Americas , Asia, Africa and Europe. The countries with the highest number of cases include Brazil, India, Paraguay, Argentina, and Bolivia.

As of early November 2024, the CDC reported that 141 people in the U.S. had been infected with CHIKV while traveling abroad with a higher-than-expected number of cases among returning U.S. travelers from India. CDC issued a Level 2 Travel Health Advisory to alert travelers to India's ongoing CHIKV outbreak.

CDC recommends vaccination (IX-CHIQ) against CHIKV for most adults (the live vaccine is contraindicated for immunosuppressed individuals) traveling to a destination with a current outbreak.

CDC advises pregnant individuals to reconsider travel to countries experiencing CHIKV outbreaks. There are no adequate and well-controlled studies of IXCHIQ in pregnancy.

The IXCHIQ vaccine is available in the ID clinic pharmacy.

MPox Global Emergency

Between 2022 and November 30, 2024, a total of 117,663 confirmed cases of Mpox and 263 deaths have been reported globally. The Region of the Americas contributes the largest proportion of cases, followed by the European and African Regions. The clade 1b outbreak in Africa remains especially concerning and the high case counts continue to be driven by the outbreaks in the Democratic Republic of the Congo, Burundi, and Uganda. This represents a marked acceleration over previous years and an extension into previously unaffected African countries.

The 2022 Mpox epidemic (clade IIb) had been primarily spread through sexual contact among men who have sex with men and had a relatively low CFR of <1% overall. In contrast, the 2024 clade 1b epidemic has concentrated in children and heterosexuals with a CFR as high as 5% in adults and 10% in children. There are also reports of pregnancy loss. Cases of clade 1b Mpox have recently been reported in Sweden, Belgium, Germany, Thailand, India, Canada, the U.K, the U.S, as well as multiple African countries.

Travelers should avoid close contact with persons with symptoms consistent with Mpox; observe hand and respiratory hygiene and safer sex practices; and avoid consumption of bushmeat and direct contact with rodents and other animals in affected areas. Mpox vaccination is recommended for high-risk persons (infants and young children, pregnant women, the elderly, and severely immunocompromised persons) traveling to any country with an Mpox outbreak (regardless of clade).

Oropouche Virus

As of November 25, 2024, 11,634 confirmed cases, including 2 deaths of Oropouche virus disease have been reported in several countries in South America and the Caribbean, including those outside the Amazon basin in areas where it had not previously been found. Oropouche virus is spread to people by bites of infected biting midges and mosquitoes. The most affected countries include Brazil, Bolivia, Colombia, Cuba, Peru, and the Dominican Republic. Two deaths and negative pregnancy outcomes have been reported in 2024.

As of December 17, 2024, 108 cases have been reported in the United States from travelers returning from Cuba. Local transmission has not been detected in the United States. The CDC recommends that travelers to affected areas should protect themselves from bug bites and pregnant people should avoid non-essential travel to areas with a Level 2 Travel Health Notice for Oropouche.



NEWS AND UPDATES

Malaria Vaccine awarded Innovation of the Year

The R21/Matrix-M malaria vaccine was awarded innovation of the year by Time magazine in October 2024. The vaccine was developed by the University of Oxford and the Serum Institute of India and uses adjuvant technology from Novavax which amplifies the immune response generated by the vaccine. In December 2023, the WHO approved the vaccine for use in countries where malaria is endemic. The Phase III trial showed the vaccine was well tolerated with a good safety profile. The efficacy of the vaccine over 12 months in 5–36-month-old children was 75% (95% CI 71-79; $p < 0.001$) at sites with high seasonal malaria transmission and 68% (61-74; $p < 0.001$) at the sites with more perennial transmission. In the United States, the CDC has confirmed 1,772 malaria cases during 2024, mostly in international travelers arriving from Africa in New York City, Miami, Florida, and Los Angeles, California.

Chikungunya Vaccine Efficacy & Safety

In October 2024, Susan Hills, MBBS MTH CDC Lead, Chikungunya Vaccines Work Group led a review of the IXCHIQ vaccine. This U.S. CDC ACIP presentation reported a sero-response rate of 97% three years since the last dose. Monitoring is scheduled to continue for 10 years to determine whether an IXCHIQ booster dose is needed, given the extensive Chikungunya outbreak in 2024. In addition, no safety signals have been reported since the U.S. FDA approved this vaccine in 2023.

Tecovirimat STOMP Trial Interim Analysis-NIAID closes enrollment

The Study of Tecovirimat for Mpox (STOMP) study began in September 2022 as part of the U.S. response to the clade II mpox outbreak. The randomized international efficacy study enrolled participants who had been ill with mpox for less than 14 days in Argentina, Brazil, Japan, Mexico, Peru, Thailand and the United States, including Puerto Rico. Participants

Tecovirimat STOMP Trial Interim Analysis-NIAID closes enrollment

were randomized to receive tecovirimat (TPOXX) or a placebo. NIAID closed study enrollment as of 11/27/24 on the recommendation of the study's DSMB because interim analysis showed that TPOXX did not reduce the time to lesion resolution or have an effect on pain among adults with mild to moderate clade II mpox and a low risk of developing severe disease. There were no safety concerns associated with TPOXX.

Participants with severe disease, certain skin conditions, or substantially suppressed immune systems were assigned to an open-label study arm and all received TPOXX. By design, the open-label study arm did not assign participants to receive a placebo, so STOMP will not draw conclusions about the efficacy of TPOXX in participants with, or at elevated risk for, severe clade II mpox. The role of TPOXX in treatment of mpox in patients with severe immunocompromise, including advanced HIV, has not been determined and requires additional clinical trials.

TPOXX administration through the CDC is encouraged for those at high risk, which includes people who are severely immunocompromised patients (e.g., those living with HIV with CD4 <200, or solid organ transplant recipients). Contact CDPHE for TPOXX. tpoxx@state.co.us [monitored Monday - Friday, 8 a.m. - 5 p.m.] or call 303-692-2700 or 303-370-9395 [after hours]).

RESEARCH ACTIVITIES

Samantha Kaplan MD, Andrés F. Henao-Martínez MD and others coauthored “Impact of antiparasitic therapy on cardiovascular outcomes in chronic Chagas disease. A systematic review and meta-analysis” in *Lancet e-Clinical Medicine* 2025;79: 102972. This study aimed to evaluate the impact of antitrypanosomal therapy in preventing or reducing disease progression and mortality in chronic Chagas disease. The authors found compelling evidence that antiparasitic treatment significantly reduces the risk of ECG changes, disease progression, cardiovascular death, and overall mortality in chronic Chagas disease.

Andrés F. Henao-Martínez MD coauthored “The Epidemiology of Chagas Disease in the Americas” and a Viewpoint article “Chagas disease in the United States: a call for increased investment and collaborative research” published in *The Lancet Regional Health Americas* and written on behalf of the U.S. Chagas Research Consortium, a group of clinicians and researchers who advocate on behalf of people nationwide living with the disease. The Consortium calls for urgent action to implement programs, bolster health care response, and advance research efforts for the close to 300,000 people (mostly migrants from Latin America) in the United States living with Chagas disease.

In recent decades, declining vector-borne transmission (due mainly to vector-control efforts and improved housing) and increasing prevalence in previously non-endemic settings (due mainly to international and rural-to-urban migration) have substantially modified the disease landscape. Oral-transmission outbreaks, urbanization, and vertical transmission are additional/emerging issues calling for innovative strategic thinking.

Lancet Reg Health Am. 2024 Sep 13;37:100881. doi: 10.1016/j.lana.2024.100881.; *Lancet Reg Health Am.* 2024. June, Vol 34.

GLOBAL HEALTH



This June, two professors from Brazil visited the CU Anschutz Medical Campus to exchange ideas on how to enhance research, clinical care, and mentorship techniques.

Eneida Rejane Rabelo da Silva, RN, MSc, ScD, and Marco Aurélio Lumertz Saffi, RN, MSc, ScD, are both professors and researchers at the Universidade Federal do Rio Grande do Sul (UFRGS) in Porto Alegre, Brazil.

GLOBAL HEALTH

Andrés F. Henao-Martínez MD was among a small number of experts invited to La Universidad Nacional de la Amazonía in Iquitos, Peru - a city in the Amazon jungle that can only be accessed by boat or plane - to lecture as part of a tropical medicine course from the Loreto Regional Hospital's Department of Infectious and Tropical Diseases.



THERAPEUTIC ADVANCES in INFECTIOUS DISEASE -Updates

The journal continues to grow--- there were 175,961 full-text downloads in 2024 (through the end of August). This is a 37.9% increase over 127,592 full-text downloads through the end of August 2023. Full-text downloads include HTML, PDF, and ePub article usage.

There were 350 submissions YTD with a 42% acceptance rate, compared to 322 manuscript submissions in 2023.

Several Infectious Disease Division faculty contribute to the Journal as authors, reviewers, and editors. Andrés Henao Martínez MD is Editor in Chief, Martin Krsak MD was recently appointed as Associate Editor, and Donna McGregor NP is a peer reviewer.

The following table shows the top 5 articles downloaded from January 2024 through September 2024 on the Sage Journals platform.

Catherine-Audrey Boutin, Me-Linh Luong

Update on therapeutic approaches for invasive fungal infections in adults

Volume 11; 10.1177/20499361231224980

David A. Cretella, Mary Joyce B. Wingler, Jamie L. Wagner, Katie E. Barber, Kayla R. Stover, Tulip A. Jhaveri, J. Myles Keck, Prakhar Vijayvargiya

Approach to fever in patients with neutropenia: a review of diagnosis and management

Volume 9; 10.1177/20499361221138346

Charles J. Sande, Christopher A. Green, Rachael Barr, Simon B. Drysdale

Respiratory syncytial virus: diagnosis, prevention and management

Volume 6; 10.1177/2049936119865798

Avaan Govindasamy, Pushpa Raj Bhattarai, Jeff John

Liver cystic echinococcosis: a parasitic review

Volume 10; 10.1177/20499361231171478

Bhaskar Somani, Thomas Hughes, Daniel Bowen, Patrick Juliebø-Jones

Fournier's gangrene: a review of predictive scoring systems and practical guide for patient management

Volume 11; 10.1177/20499361241238521