Travel & Endemic Newsletter

JULY 2025

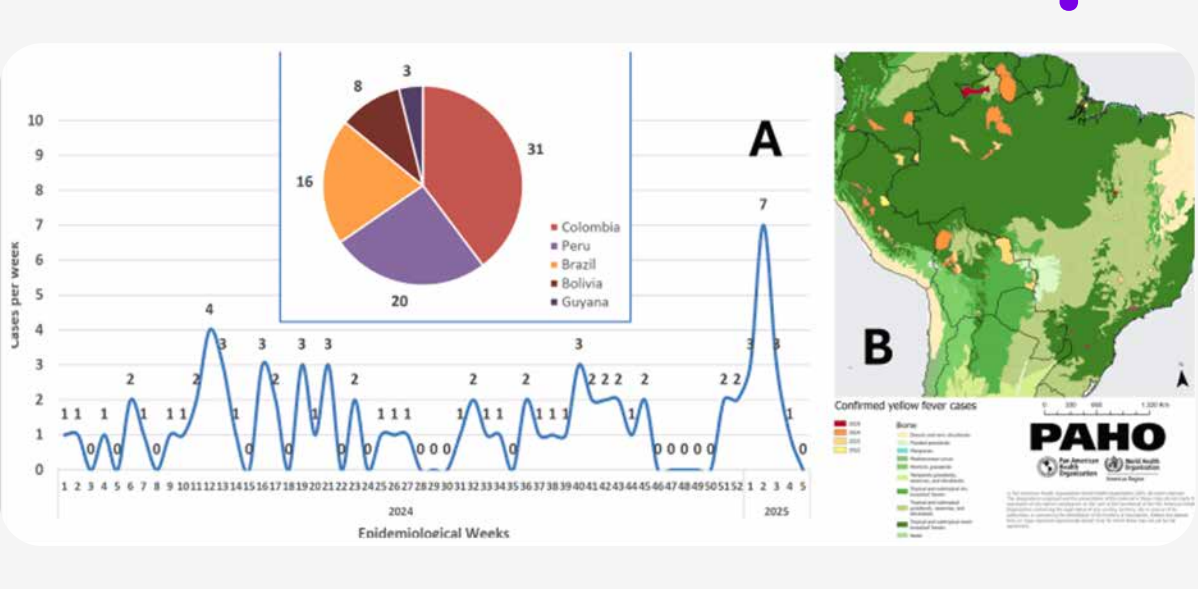
YELLOW FEVER

Yellow fever outbreaks in South America: Current epidemiology, legacies of the recent past and perspectives for the near future

Yellow fever (YF) remains a significant public health threat in South America, with recent outbreaks in 2024–2025 affecting Brazil, Colombia, Peru, Bolivia, and Guyana. The current epidemiological pattern shows a resurgence of sylvatic transmission, particularly in non-endemic areas with low vaccination coverage and weak surveillance of non-human primate (NHP) epizootics.
Colombia's Tolima department experienced a severe outbreak with a 40.5% case fatality rate, while Brazil reported increasing cases outside the Amazon basin.
The article emphasizes the importance of incorporating YF vaccination into routine immunization schedules and highlights the challenges of fractional-dose strategies, especially regarding long-term immunity. Climate change, reduced NHP populations, and urban expansion complicate predictive modeling and outbreak control. Therapeutic plasma exchange (TPE) shows promise in reducing mortality from YF-associated acute liver failure, though access remains limited.
The authors call for intensified surveillance, rapid vaccination campaigns in at-risk rural areas, and heightened awareness among healthcare professionals, especially during concurrent arboviral epidemics. The article concludes with a warning that without proactive measures, YF could re-emerge as a global health challenge.

More at *pmc.gov*

Yellow fever in South America. A. Cases by country, year, and epidemiological week of symptom onset in the Americas Region, 2024 and as of Epidemiological Week 4 of 2025 (Includes only cases for which symptom onset information is available by epidemiological week. B. Municipalities with confirmed cases in humans in Bolivia, Brazil, Colombia, Guyana, and Peru, years 2022–2025 (as of Epidemiological Week 4) (For Brazil, also epizootic information is included)



WHO warns of 'explosive' yellow fever outbreaks as disease spreads in Americas

The World Health Organization (WHO) and the Pan American Health Organization (PAHO) have issued urgent warnings following an eightfold increase in yellow fever (YF) cases in the Americas during the first 20 weeks of 2025.
A total of 221 cases and 89 deaths have been reported, with a notable shift in transmission patterns—most cases occurred outside the Amazon basin, where YF is typically endemic. This geographic expansion raises concerns about potential urban outbreaks and sustained transmission in densely populated areas.
WHO has elevated the regional risk level to "high," citing the virus's high fatality rate, growing vaccine shortages, and insufficient surveillance in newly affected zones.
The article underscores the urgent need for intensified vaccination campaigns, improved vector control, and enhanced epidemiological monitoring.
The spread of YF into non-endemic and urban areas reflects broader ecoepidemiological shifts, including climate change and human mobility. WHO warns that without immediate action, the region could face explosive outbreaks with significant public health consequences.

More at *bmj.com*

Sylvatic Yellow Fever Cases Rise Across Brazil, Colombia, and Peru

Recent reports indicate a rise in yellow fever cases across several regions in **Brazil**, **Colombia**, and **Peru**. These cases are part of a broader resurgence of sylvatic (jungle) transmission cycles, with infections occurring in both rural and peri-urban areas. In Brazil, states such as São Paulo and Minas Gerais have reported confirmed cases, while Colombia has seen activity in Tolima and Meta. Peru has documented cases in the Amazon basin, particularly in Loreto.

The outbreaks are occurring in areas with historically low vaccination coverage, raising concerns about potential urban spillover.
Health authorities are emphasizing the importance of yellow fever vaccination, especially for populations living near forested areas or traveling to endemic zones. Surveillance and vector control efforts are being intensified, but challenges remain due to limited vaccine supply and logistical barriers in remote regions. The situation underscores the need for sustained immunization campaigns and cross-border coordination to prevent further spread.

Potential risk of yellow fever outbreak in Southeast Asia due to importation amidst outbreaks in South America

This perspective article highlights the growing risk of yellow fever (YF) introduction into Southeast Asia due to increased travel from South America, where outbreaks are ongoing. Despite no direct flights, indirect travel routes via Europe and the Middle East facilitate the movement of potentially unvaccinated individuals. Southeast Asia hosts competent vectors—*Aedes aegypti* and *Aedes albopictus*—and has a largely non-immune population, making it vulnerable to YF transmission. Surveillance gaps, reliance on self-declaration, and limited enforcement of vaccination documentation at ports of entry further exacerbate the risk. The article emphasizes that even a single imported case could trigger urban outbreaks in densely populated cities like Bangkok, Manila, and Jakarta. Current global vaccine stockpiles are insufficient to meet the demand in the event of a multi-regional outbreak. The authors recommend enhanced public education, stricter travel screening, syndromic surveillance, and regional vaccine stockpiling. They also call for proactive vector control and contingency planning, especially as climate and travel trends increase the likelihood of YF introduction into Asia.

More at *academic.oup.com*

The development and validation of a microneutralization assay for the detection and quantification of anti-yellow fever virus antibodies in human serum

The study presents the development and validation of a Vero cell-based microneutralization (MN) assay for detecting and quantifying yellow fever (YF) virus-neutralizing antibodies in human serum.
This assay offers a higher-throughput alternative to the traditional plaque reduction neutralization test (PRNT), which is labor-intensive and less adaptable for clinical vaccine licensure. The MN assay demonstrated 100% serostatus agreement with PRNT50 at a titer of 10 (1/dil) in vaccinated individuals, confirming its reliability.
Validation metrics included intra-assay precision (36%), intermediate precision (54%), and quantitation limits ranging from 10 to 10,240.
The assay showed strong dilutional accuracy, with 88% of samples falling within ±1 log_2 titer of expected values. It also maintained specificity across related flaviviruses (dengue, Japanese encephalitis, Zika) and various serum matrices (hemolytic, lipemic, icteric).
These results support the MN assay's suitability for clinical and regulatory use, including vaccine licensure. The Center for Biologics Evaluation and Research endorsed its application for YF antibody detection.
Given the resurgence of YF due to globalization and climate change, this assay represents a timely advancement in public health diagnostics.

More at *journals.asm.org.com*

DENGUE

Global dengue epidemic worsens with record 14 million cases and 9000 deaths reported in 2024

In 2024, dengue reached unprecedented global levels, with over 14.1 million reported cases and 9,508 deaths, marking a twofold increase from 2023 and a 12-fold rise since 2014. The Southern Hemisphere bore the brunt, accounting for over 80% of cases and 75% of deaths, with Brazil alone reporting over 10 million cases and 6,264 deaths.

A generalized linear regression model identified key predictors of dengue mortality: higher mean annual temperature, increased rainfall, older population demographics, and Southern Hemisphere location. Urbanization, population density, and poor air quality were also associated with higher case incidence.

The study highlights the disproportionate impact on low- and middle-income countries, where limited healthcare access and vector control exacerbate outcomes.

The authors advocate for the inclusion of dengue virus (DENV) on the WHO's R&D priority list to accelerate vaccine development, therapeutic innovation, and vector control strategies. Despite progress in vaccine development, such as Brazil's Butantan Institute efforts, global access remains limited. The study underscores the need for real-time, standardized global surveillance, noting current data gaps and underreporting, especially in Africa and Europe. Older adults face higher fatality risks, yet are often excluded from vaccine trials.

The authors call for urgent international collaboration, investment in digital health infrastructure, and tailored interventions to mitigate the escalating dengue burden. Without coordinated global action, the trajectory of dengue suggests continued expansion and increasing mortality.

More at *sciencedirect.com*

Severe Disease During Both Primary and Secondary Dengue Virus Infections in Pediatric Populations

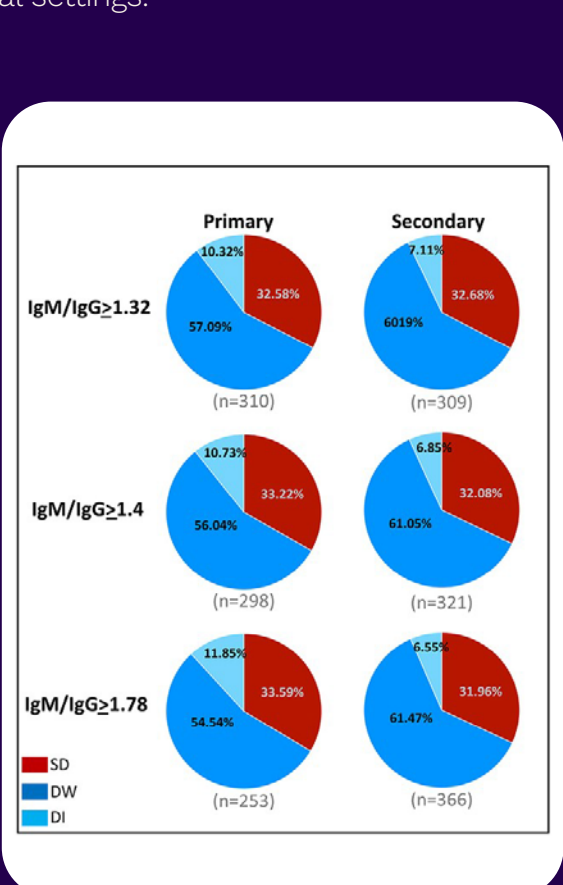
This multicenter study analyzed 619 pediatric dengue cases from three tertiary hospitals in India to investigate the relationship between infection type (primary vs. secondary) and disease severity. Contrary to the prevailing belief that severe dengue is primarily associated with secondary infections due to antibody-dependent enhancement (ADE), the study found that severe disease occurred at similar rates in both primary (32.5%) and secondary (32.7%) infections. Notably, over half of all severe cases and five of seven fatalities were linked to primary infections.

These findings were consistent across different dengue virus serotypes (DENV-1, -2, and -3) and clinical sites. Infants under one year, all of whom had primary infections, exhibited the highest rates of severe disease, but severe outcomes were also common in older children with primary infections. Neutralizing antibody titers were significantly lower and narrower in breadth in primary infections, confirming immunological distinctions.

The study challenges the current paradigm that severe dengue is predominantly a secondary infection phenomenon and underscores the need for vaccines that are safe and effective in dengue-naive individuals. It also highlights the importance of community-based surveillance to better understand dengue epidemiology beyond hospital settings.

More at *pubmed.gov*

Extended Data: Similar frequency of severe disease in primary versus secondary cases that were distinguished using stringent IgM/IgG ratios.
Severe Dengue (SD), Dengue with warning signs (DW) and Dengue infection without warning signs (DI).



Early Clinical Results Support KD-382 as a Safe, Effective Dengue Vaccine

This Phase I clinical trial evaluated the safety and immunogenicity of KD-382, a live attenuated tetravalent dengue vaccine (LATDV) developed by KM Biologics. Sixty flavivirus-naïve healthy adults were randomized to receive either a low or standard dose of KD-382 in single or two-dose regimens, or placebo. The vaccine demonstrated a 100% seroconversion rate for all four DENV serotypes by Day 57, with sustained seropositivity for DENV1, 2, and 4 through 12 months. DENV3 seroconversion remained high, though slightly lower in the standard-dose group. The vaccine was well-tolerated, with no serious or severe vaccine-related adverse events. Most adverse events were mild to moderate, with fatigue, headache, and myalgia being the most common systemic symptoms. Immunogenicity was comparable between single and two-dose regimens, and between low and standard doses, suggesting a single low dose may be sufficient. Viremia was detected primarily after the first dose, particularly for DENV2 and DENV4, but not after the second dose, indicating effective immune priming. The study supports KD-382's potential as a safe, immunogenic, and possibly single-dose dengue vaccine candidate. Further Phase II/III trials in endemic populations are warranted to confirm efficacy and long-term protection.

More at *sciencedirect.com*

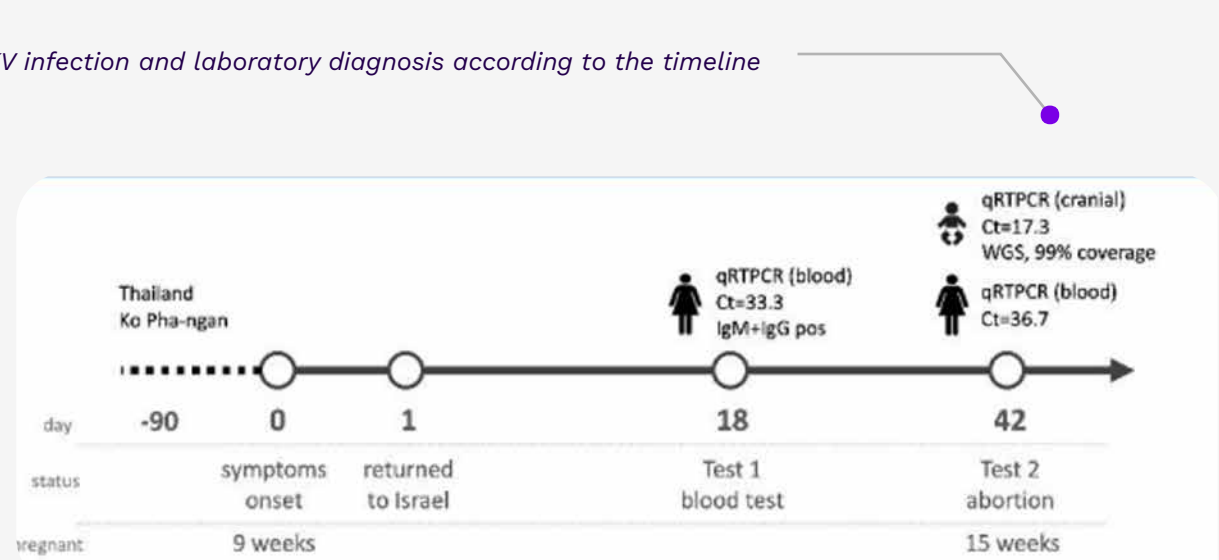
ZIKA

Congenital Zika Infection in an Israeli Traveler Returning from Thailand

Congenital Zika infection is rarely reported in travellers to East Asia.
The authors describe a case of a traveller, a 32-year-old Israeli woman, infected during her ninth week of pregnancy in Thailand.
The woman developed a febrile illness with rash while staying on Ko Pha-Ngan, Thailand.
18 days post-symptom onset, ZIKV infection was confirmed via:
qRT-PCR: Positive in whole blood (Ct 33.3), and Serology: Positive IgM and IgG.
The patient elected for pregnancy termination at day 42 post-onset.
Post-termination analysis revealed a significantly higher viral load in the fetal brain than in maternal blood, highlighting Zika's strong neurotropism and the Thai strain's ability to cause congenital infection.

More at *academic.oup.com*

Congenital ZIKV infection and laboratory diagnosis according to the timeline



qRT-PCR = quantitative reverse transcription polymerase chain reaction
WGS = whole genome sequencing

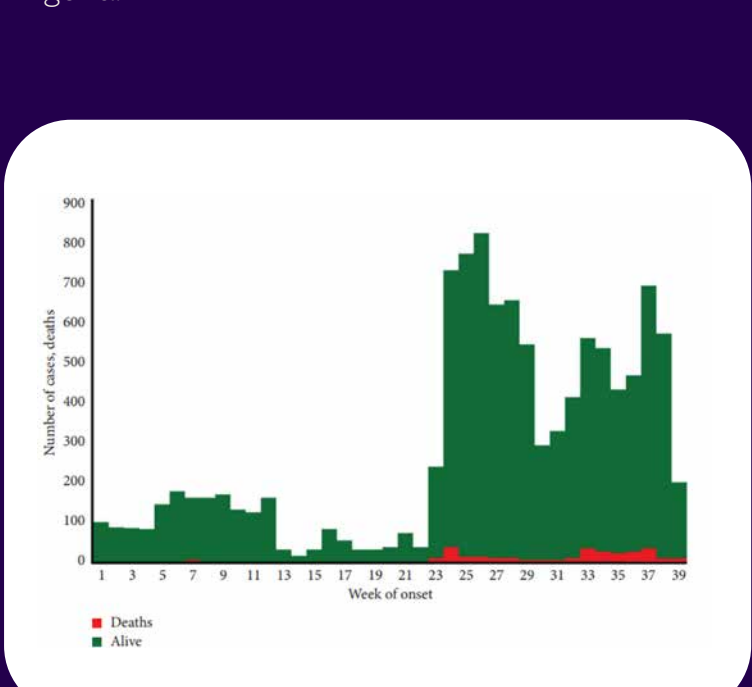
CHOLERA

AI and Public Health Strategies for Cholera Control in Nigeria

This comprehensive review examines the persistent cholera burden in Nigeria, highlighting the interplay of historical, socioeconomic, meteorological, and diagnostic factors. The 2024 outbreak, with over 10,000 suspected cases and a 3.3% case fatality rate, underscores the inadequacy of current control measures. Socioeconomic drivers include poverty, poor sanitation, overcrowding, and limited access to clean water, particularly in high-density urban areas like Lagos. Meteorological factors such as increased rainfall, flooding, and elevated temperatures have exacerbated outbreaks by promoting the survival and spread of Vibrio cholerae. Diagnostic challenges persist due to limited laboratory infrastructure, underutilization of rapid diagnostic tests (RDTs), and lack of environmental surveillance. The review emphasizes the transformative potential of artificial intelligence (AI) in cholera management, including predictive modeling, AI-enhanced biosensors, CRISPR-based diagnostics, and genomic surveillance tools like DeepVariant and Nextstrain. However, barriers to AI integration include poor data quality, limited infrastructure, workforce shortages, and ethical concerns. The authors recommend strengthening diagnostic capacity, expanding AI applications, and fostering multisectoral collaboration to improve outbreak preparedness and response. The study calls for urgent policy action and investment to reduce cholera morbidity and mortality in Nigeria.

More at *wiley.com*

National epidemic curve of weekly reported cholera suspected cases, Week 1–39, 2024.



Source: National Center for Disease Control (NCDC)

Cholera in Europe Tied to Holy Water from Ethiopia

A recent report highlights imported cholera cases in Europe linked to the consumption of holy water from Ethiopia, specifically from the Bermel Giorgis holy well in the Amhara region. The European Centre for Disease Prevention and Control (ECDC) and Eurosurveillance documented seven confirmed cases—three in Germany and four in the UK—between February and March 2025.
All cases were caused by multidrug-resistant Vibrio cholerae O1, genetically linked to strains circulating in Eastern and Middle Africa, including Kenya and Ethiopia.
Four patients acquired cholera through direct consumption or contact with imported holy water, while three had recent travel history to Ethiopia.
All patients developed acute diarrheal illness, with requiring several hospitalization and intensive care. No fatalities were reported.
The findings underscore the risk of importing cholera via non-commercial, culturally significant items like holy water.
Ethiopia has been experiencing a prolonged cholera outbreak since 2022, with over 58,000 cases and 726 deaths reported as of February 2025. These outbreaks are exacerbated by limited access to safe drinking water—only 11.4% of the population has access to safely managed water—and inadequate WASH (Water, Sanitation, and Hygiene) infrastructure.

More at *news-medical.net*

Cases of cholera identified in Israel; cases linked to travel to Ethiopia

In May 2025, Israeli health authorities confirmed three cases of cholera—the first in the country in several years. Two of the cases were travel-related, involving individuals who contracted the disease while visiting Ethiopia. The third case was a secondary domestic transmission, resulting from the consumption of contaminated well water brought back from Ethiopia by one of the infected travelers.
The causative agent is *Vibrio cholerae*, primarily serogroups O1 and O139.
The Israeli Ministry of Health has issued travel advisories for Ethiopia, emphasizing the avoidance of tap and well water, street food, and recommending the use of bottled or boiled water. Preventive measures such as chlorination and environmental monitoring have been implemented to safeguard local water sources.

More at *timesofisrael.com*

MISCELLANEOUS

Underdiagnosed Arbovirus Burden in Southeast Europe: MERMAIDS-ARBO Study

This multicenter prospective observational study assessed the burden of endemic arbovirus infections among adults hospitalized with compatible syndromes across 21 hospitals in seven southeast European countries from 2016 to 2019.
Of 913 eligible participants, 13% were diagnosed with confirmed or probable acute infections with West Nile virus (WNV), tick-borne encephalitis virus (TBEV), Toscana virus (TOSV), or Crimean–Congo haemorrhagic fever virus (CCHFV). WNV was the most frequently detected (6%), followed by TOSV (5%), TBEV (2%), and CCHFV (<1%). Most infections were locally acquired, and nearly half of arbovirus cases were not recognized by local clinicians.
The majority of patients presented with meningoencephalitis, and empirical antibiotic use was high (80%), reflecting diagnostic uncertainty. Median hospital stay was 9 days, with 12% requiring ICU care. Mortality was low (1% among arbovirus-confirmed cases), but the burden on healthcare systems was significant.
The study highlights underdiagnosis, limited access to diagnostics (especially for TOSV), and the need for improved surveillance, clinician awareness, and diagnostic capacity. It also demonstrates the feasibility of a syndromic, sentinel-site approach to arbovirus surveillance in the region.

More at *sciencedirect.com*

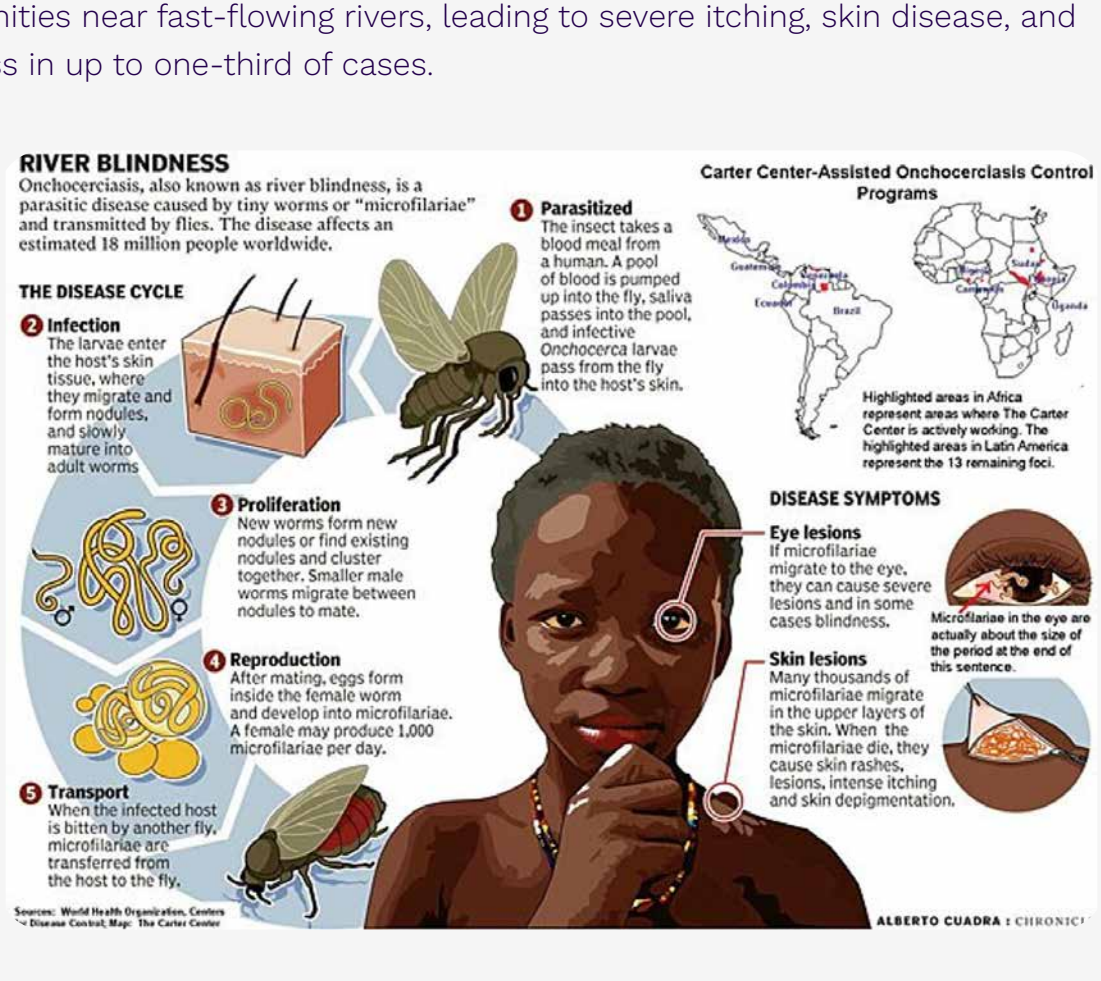
Local Tree Cover Predicts Mosquito Species Richness and Disease Vector Presence in a Tropical Countryside Landscape

This study investigated how local tree cover and land use influence mosquito community composition and the presence of disease vectors in southern Costa Rica. Researchers surveyed 37 sites across forest, agricultural, and residential landscapes, combining field mosquito collections with remote-sensed tree cover data. They found that mosquito species richness was positively correlated with tree cover, particularly at spatial scales of 90–650 meters, with the strongest effect at 250 meters. In contrast, the presence of the invasive dengue vector Aedes albopictus was negatively associated with tree cover, especially at smaller scales (30–250 meters), and was most frequently observed in residential and agricultural settings. Community composition varied significantly by land use, with forest sites supporting more unique and diverse mosquito assemblages.
Generalized dissimilarity modeling showed that tree cover, temperature, and geographic distance explained only 7% of species turnover, suggesting other habitat features also play a role.
The findings highlight that maintaining or enhancing local tree cover can simultaneously support mosquito biodiversity and reduce the presence of key disease vectors, offering a dual benefit for ecosystem and public health. The study underscores the importance of fine-scale habitat management in tropical rural landscapes to mitigate vector-borne disease risk.

More at *link.springer.com*

Niger's Defeat of River Blindness

The World Health Organization has officially verified Niger as **the first country in Africa to eliminate river blindness** (onchocerciasis), a major milestone in the fight against neglected tropical diseases (NTDs). River blindness, caused by the parasitic worm *Onchocerca volvulus* and transmitted by blackflies, historically devastated communities near fast-flowing rivers, leading to severe itching, skin disease, and blindness in up to one-third of cases.



The disease was once rampant in West Africa, with some villages experiencing blindness in over 50% of adult males. The socioeconomic impact was profound—fields were abandoned, families went hungry, and children dropped out of school to care for blind relatives.
Niger's success was the result of decades of sustained effort, including mass drug administration, vector control, and community engagement. The END Fund, WHO, and national health authorities collaborated to implement surveillance and treatment programs that ultimately interrupted transmission.
The WHO officially recognized Niger's achievement on World NTD Day in January 2025, setting a precedent for other endemic countries.
With over 99% of river blindness cases still concentrated in 31 African countries, Niger's blueprint offers a hopeful path forward for regional elimination.

More at *who.foundation*

Suriname is the first country in the Amazon region to be certified malaria free

The World Health Organization (WHO) has officially certified Suriname as malaria-free, making it the first country in the Amazon region and the 12th in the Americas to achieve this status. Globally, it is the 47th country or territory to eliminate local malaria transmission.
Suriname recorded its last *Plasmodium falciparum* case in 2018 and its last *Plasmodium vivax* case in 2021. The country's tropical climate and dense rainforest historically made it a hotspot for mosquito-borne diseases, including malaria, Zika, and chikungunya.
Malaria control efforts began in the 1950s with indoor DDT spraying and antimalarial treatments, initially focusing on coastal urban areas. However, the interior regions—home to indigenous and tribal populations—remained vulnerable due to open housing structures and limited healthcare access.
A peak in malaria cases occurred in 2001, with over 15,000 cases, particularly among miners. In response, Suriname expanded its malaria program in 2005 with support from the Global Fund, implementing mass screening, improved diagnostics and treatment access, distribution of long-lasting insecticidal nets, and enhanced surveillance.

More at *who.int*

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