

VACCINES  
BEAT

# THE IMPORTANCE OF CLINICAL DEVELOPMENT IN LOW-AND- MIDDLE INCOME COUNTRIES

Lessons from Latin America with Dr. Xavier Saez Llorens

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## **The importance of clinical development in low-and-middle income countries**

**Lessons from Latin America  
with Dr. Xavier Saez Llorens**



Pediatrician and infectious disease specialist Dr. Xavier Saez Llorens serves as the Chief of Infectious Diseases and the Director of Clinical Research at the Dr. José Renán Esquivel Children's Hospital in Panama. He has been a member of the National Committee of Bioethics in Research (NCBR) for the past 10 years and is recognized as a Distinguished Researcher in the National Research System (SNI, Senacyt) and at the Vaccine Research Center, Cevaxin.

Most recently, he received special recognition as a Latin American vaccine researcher at the Global Health Conference of the Americas (September 2024) from Florida International University. He also received a Principal Investigator (PI) award for his outstanding contributions to the M5-ABMG study in support of the Global Polio Eradication Initiative, presented by the Global Health Technologies Coalition (GHTC) Impact Awards (December 2024).

Dr. Saez-Llorens earned his medical degree from the Faculty of Medicine at the University of Panama. He completed his doctoral training in Pediatrics (CSS, Panama) and postdoctoral training in Infectious Diseases at UT Southwestern Medical Center in Dallas, Texas.

Throughout his medical career, Dr. Saez-Llorens has received multiple awards for his research and publications in childhood infections. Notably, he was recognized in Chicago as one of the best young researchers in the United States in the field of infectious diseases (CAAC 1991). He also received the award for having the highest number of publications in international scientific journals among Panamanian physicians (Senacyt 2013), the William Gorgas Medal for his outstanding contributions to vaccination and public health (Gorgas Institute 2017), and the award for excellence in scientific research from the Association for the Advancement of Science of Panama (APANAC 2021).

**VACCINES  
BEAT**

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# LETTER FROM EDITORS

Welcome to our seventh issue of *Vaccines Beat*. We are excited to continue our mission of communicating, educating, and promoting knowledge in the fields of vaccinology and vaccination.

To kick off the year, we are delighted to express our heartfelt gratitude to the thousands of readers and subscribers from all five continents who have joined us in this six-month journey since the launch of our first issue. Your support inspires our unwavering commitment to continuously enhance *Vaccines Beat* as a leading global newsletter.

In our 'Coffee with an Expert' section, we are delighted to feature an interview with Dr. Xavier Saez-Llorens, a renowned expert in Pediatric Infectious Diseases. Dr. Saez-Llorens is a distinguished researcher, professor, clinical developer, vaccinologist, investor, and lecturer from Panama. He serves as the Chief of Infectious Diseases and the Director of Clinical Research at the Dr. Jose Renan Esquivel Children's Hospital in Panama. He is a member of the National Committee of Bioethics in Research and is recognized as a Distinguished Researcher in the National Research System (SNI, Senacyt) and at the Vaccine Research Center, Cevaxin. Dr. Saez-Llorens shared valuable insights on the challenges and critical factors for success in conducting vaccine clinical trials in Low- and Middle-Income Countries (LMICs). He highlighted his success story in Panama and emphasized the importance of strengthening manufacturing capabilities while enhancing quality research across Latin America and other LMICs.

In the 'Editor's Corner' section, we delve into the rationale for vaccinating travelers, examining it from both the traveler's and the destination region's perspectives. We also highlight key examples, including considerations in the context of global pandemics.

In the 'Best Practice' section, we provide a comprehensive reflection on pandemic threats, examining them from a human, public health, and global leadership perspectives. We emphasize how collective action at a planetary level is essential for effective intervention.

In the 'Guest Contributor' section, we are honored to feature a contribution from one of our key partners, the Federation of African Immunological Societies (FAIS). They provide an insightful summary of their 12th Congress (FAIS-2024), held in Cotonou, Benin, in December of 2024.

As always, this issue features carefully curated and up-to-date information on the 'Latest Scientific Publications' along with the most recent and important 'News and Alerts'.

We hope you find this issue informative and engaging, and we look forward to continuing this unique effort in support of a healthier planet.

Javier Casellas, M.D., Ph.D.  
Chief Editor

Enrique Chacon-Cruz, M.D., MSc  
Chief Editor



**Javier  
Casellas**

Well-recognized Argentinian Pediatrician and Infectious Diseases Specialist with more than 17 years of experience on Medical Affairs & Clinical Research on Vaccines field within different multinational & recognized Pharmaceutical Companies. (GSK and Novartis Vaccines)

From 2005 to 2015 Dr. Casellas worked as Vaccines Medical Affairs / Clinical Research Director (GSK and Novartis vaccines in Latam Region) with experience on vaccine clinical research, medical affairs activities, vaccine pharmacovigilance, public & private vaccine market access, strong relationship with MoHs across Latam and supranational organizations (such as PAHO, and Sabin Institute), and has published several scientific papers and posters in international journals and meetings, among the most relevant medical activities.

Since 2016 Dr. Casellas became an Independent Vaccine Consultant. From 2016 to 2018, Dr. Casellas joined an NPO (FIDEC, Miami, FL, USA) as Medical Manager working on vaccine clinical trials along with Bill and Melinda Gates Foundation. Currently, Dr. Casellas works on global & regional Vaccine and Infectious Diseases (IDs) trials at IQVIA as Global Medical Director within the Infectious Diseases and Vaccines Team.



**Enrique  
Chacon  
Cruz**

Enrique Chacon-Cruz, M.D., MSc, Mexican-born medical doctor with a degree from Guadalajara, Mexico, and further specializations in Pediatrics and Infectious Diseases from institutions in Mexico City and the USA (Eastern Virginia Medical School). He also holds a Master's degree in Vaccinology and Drug Development from the University of Siena, Italy.

He is an Overseas Fellow of the Royal Society of Medicine of the United Kingdom and a member of several international associations in Infectious Diseases. Currently, he is the CEO and Founder of "Think Vaccines" (Research, Education, and Consultancy for Vaccines and Vaccinology) based in Houston, Texas.

With over 140 research items published and/or presented at international meetings and more than 500 international lectures, all focused on vaccines, vaccination, clinical trials, and vaccine-preventable diseases. The latter conducted independently or in association with the Centers for Disease Control and Prevention (CDC), the University of California in San Diego, Eastern Virginia Medical School, and several other institutions.

Additionally, he is a member of the Mexican Committee for the Elimination of Measles, Rubella, and Congenital Rubella, and the Scientific Committee on Health Issues of the Mexican Government in Baja-California. He is also the former Director of the Mexican Active Surveillance Network for Bacterial Meningitis and the former Head of the Pediatric Infectious Diseases Department and the Research Department at the General Hospital of Tijuana, Baja-California, Mexico.

Editorial disclaimers: "The author/s assumes no responsibility or liability for any errors or omissions in the content of this publication. The information contained in this publication is provided on an "as is" basis with no guarantees of completeness, accuracy, usefulness or timeliness. The purpose of this Vaccines Beat is purely academic, sponsors do not contribute to its content."



## Coffee with the Expert

# THE IMPORTANCE OF CLINICAL DEVELOPMENT IN LOW-AND-MIDDLE INCOME COUNTRIES

Lessons from Latin America with Dr. Xavier Saez Llorens

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Pediatrician and infectious disease specialist Dr. Xavier Saez Llorens serves as the Chief of Infectious Diseases and the Director of Clinical Research at the Dr. José Renán Esquivel Children's Hospital in Panama. He has been a member of the National Committee of Bioethics in Research (NCBR) for the past 10 years and is recognized as a Distinguished Researcher in the National Research System (SNI, Senacyt) and at the Vaccine Research Center, Cevaxin.

Most recently, he received special recognition as a Latin American vaccine researcher at the Global Health Conference of the Americas (September 2024) from Florida International University. He also received a Principal Investigator (PI) award for his outstanding contributions to the M5-ABMG study in support of the Global Polio Eradication Initiative, presented by the Global Health Technologies Coalition (GHTC) Impact Awards (December 2024).

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Throughout his medical career, Dr. Saez-Llorens has received multiple awards for his research and publications in childhood infections. Notably, he was recognized in Chicago as one of the best young researchers in the United States in the field of infectious diseases (ICAAC 1991). He also received the award for having the highest number of publications in international scientific journals among Panamanian physicians (Senacyt 2013), the William Gorgas Medal for his outstanding contributions to vaccination and public health (Gorgas Institute 2017), and the award for excellence in scientific research from the Association for the Advancement of Science of Panama (APANAC 2021).

Dr. Saez-Llorens is an active member of the Pediatric and Pediatric Infectious Diseases Societies in the United States, Latin America, and Spain. He is a member of the Catalan Institute of Biological Sciences, the

National Bioethics Committee, and served as a consultant for the Ministry of Health of Panama in the fight against the COVID-19 pandemic, focusing on vaccination efforts.

Demonstrating his commitment to research, Dr. Saez-Llorens is the principal investigator of numerous international clinical trials supported by the Bill & Melinda Gates Foundation, the National Institutes of Health (NIH), and various academic institutions and pharmaceutical companies.

### Clinical Research in Latin America: now and then

Dr. Saez-Llorens has been involved in vaccine clinical research for nearly 20 years. The significant impact of conjugated vaccines against bacterial meningitis inspired his commitment to vaccine clinical development. He recalls the lack of awareness regarding quality local research among potential volunteers, the weak regulatory frameworks for ethical processes aimed at protecting human rights, and the challenges in implementing adequate protocols for experimental drugs and vaccines.

“At the beginning in Panama, there was a lack of experienced staff in performing clinical trials, an absence of dedicated units to do research outside hospitals for conducting studies in healthy people. So, those were relevant obstacles to proper research activities in my country. And I remember that in those days, we started the very challenging study of a new pneumococcal vaccine, PCV10. It was called later Synflorix,” comments Dr. Saez-Llorens.

The ethical issues faced by investigators, combined with intense commercial competition among vaccine manufacturers and widespread misinformation from tabloid press, complicated recruitment, data capture, participant retention, and overall trial execution. Dr. Saez-Llorens believes the situation has improved substantially in Panama and possibly in other Latin American countries as well.

For example, Cevaxin, a clinical trial center in Panama, has developed a public-private model with key partners to enhance clinical research as a valuable care option for volunteers. Guided by the extensive clinical research experience of Dr. Saez-Llorens, this model addresses many barriers to effective participation in vaccine

trials. Key features include expanded access to healthcare through patient-centric approaches, high-quality care, and rigorous ethical standards that promote patient satisfaction and build trust.

“We underscored the importance of solving main worries of participants. For example, doubts about taking a chance with their health, concerns about the risk of clinical research not being treated as a focus of drug industry merely, involving subjects [in the research process journey], regular healthcare providers, and making subjects feel that they are being treated like valued individuals. In addition, we have engaged the participants in the study design process, asking about their insights on the outcomes of most relevance to them,” he explains.

Examples of participant engagement include conducting lab tests, sharing study results, utilizing digital applications for frequent communication, and providing home-based visits. We also seek volunteers' input on how to facilitate their participation, including visit scheduling, locations, and data collection methods, employing all available technology to ensure that patients feel they are benefiting from the research.

“Finally, and it's very important, not only in Panama but also in Latin America, we have put all our efforts to eliminate the historic concept of guinea pigs, stressing the critical role of modern ethical committees and comprehensive consent processes to ensure protection of human rights and respect of people's autonomy in their own informed decisions,” he concludes.

### Roadblocks in Latin America

According to Dr. Saez-Llorens, the primary roadblocks in clinical research in Latin America are related to regulatory requirements for pediatric studies. These regulations are often more stringent than those for adult trials, necessitating extensive preclinical data and longer approval timelines. Additionally, recruiting pediatric participants is challenging due to parental concerns, increasing vaccine hesitancy, the requirements for informed consent forms (ICFs)– which often requires signatures from both parents in some countries – and various logistical barriers.

“But I think we have to improve the understanding that we need a robust regulation end-to-end, including research laws, and we

have to have properly trained staff, not only in conducting clinical studies in methodology of research, but also in bioethics and technical aspects for vaccine development,” he points out.

Solid ethical committees are crucial, especially when conducting research involving infants, children, and pregnant women. It is vital to engage these groups in research to prevent them from becoming therapeutic orphans.

Dr. Saez-Llorens also emphasizes the need for competitive timelines to attract investment from pharmaceutical companies and philanthropic organizations in Latin America. This includes having qualified, fully dedicated personnel trained in Good Clinical Practices (GCPs) and clinical methodologies that facilitate adequate recruitment and retention. Overcoming these obstacles relies on trained professionals with strong communication skills, capable of engaging not only with participants but also with the media and health authorities.

Panama serves as a success story, having developed research units that simulate public-private models for conducting studies. This approach has enhanced their reputation and opened doors to publishing in prestigious international journals. Cevaxin’s credibility is further bolstered by its high enrollment rates and successful participant recruitment, achieving four successful inspections by the Food and Drug Administration (FDA), one by the European Medicines Agency (EMA), and by several international independent research auditing companies.

Other regions, such as Africa and the Asia-Pacific, that face similar limitations could benefit from the experiences of Latin America. This model could facilitate investment in local science and clinical trials. However, the challenge remains: how can we convey the importance of conducting local research and clinical trials?

“I think every region in the world, they have to work for doing innovation and research in their places. That’s a way to improve the situation in the world, in many regions,” asserts Dr. Saez-Llorens. “The things that happen in Africa, in a very remote place in Africa, can affect the people in the U.S. or in Europe. So this is a globalized planet.”

In his view, science is crucial for the progress and independence of nations. During the pandemic, many countries relied heavily on imported essential public health products, not just vaccines. Dr. Saez-Llorens contends that true prevention requires not only investment in clinical trials but also in basic science.

“In science in general, clinical is only a part of the research. Also in basic science and also in social sciences, epidemiology sciences. So we need to invest in all the aspects of science in every part of the world, not only in a few places,” he emphasizes.

### **Clinical Research and National Immunization Program inclusion of vaccines**

A critical question is how clinical research in Latin America impacts the decision-making process for vaccine implementation. Before the year 2000, there was an average delay of almost six years between the approval of vaccines in Latin America and in industrialized countries. However, after 2000, as Latin America began conducting local research, this dynamic changed dramatically. It allowed the medical community and health authorities to better understand the burden of disease, as well as the safety and efficacy of vaccines within their own populations.

“For example, a vaccine that is just studied here in Panama or in several Latin American places goes to the national immunization scheme very fast. Even simultaneously with the moment in industrialized countries, or even before. For example, the rotavirus vaccine was approved in Brazil and in Panama before the U.S. and Europe. So I think that doing research locally helps on the rapid approval, the rapid incorporation of good vaccines in our national immunization programs,” points out Dr. Saez-Llorens.

### **Latin America & manufacturing capacity**

During the COVID-19 pandemic, Latin America faced significant challenges in vaccine procurement, leading to delays, increased costs, and difficult choices between quality and price. The notion that manufacturing sites in Latin America and other developing countries can provide faster access to vaccines at a lower cost is not new.



In the aftermath of the pandemic, several countries in the region began launching initiatives to establish manufacturing plants, facilitate technology transfer, and develop vaccines and monoclonal antibodies. These efforts will be crucial for managing future epidemics and ensuring adequate supply among countries in the region. However, for these initiatives to be effective, they must be sustainable and supported by regional agreements to avoid duplication of efforts and to maximize capabilities.

“To me, the key problem has been mainly in terms of sustainability. Because some countries beyond Brazil, for example, Argentina, Colombia, Mexico, Cuba, have had previous experience on vaccine manufacturing. But these initiatives lost public funding over time. So sustainability is a very important issue in that regard,” asserted Dr. Saez-Llorens, who firmly believes that we must be prepared for the next pandemic.

### The ideal trial design

As a principal investigator (PI), Dr. Saez-Llorens has observed that many trial protocols require adjustments to ensure feasibility. In his experience, an ideal vaccine trial design would be a randomized, blinded, controlled study with clearly defined objectives that evaluate clinical immunological and efficacy endpoints, optimal dosing schedules, and strategies to ensure rapid yet sustained protection from disease.

Key features of such trials include ethical considerations that clearly communicate the benefits and risks to participants, an adequate sample size, well-defined endpoints, and continuous safety monitoring by an independent Data Safety Monitoring Board (DSMB). High retention rates for follow-up visits are also essential. Dr. Saez-Llorens believes that adaptive designs have optimized resource use for these studies, many of which have been conducted in Panama for dengue, polio, rotavirus, COVID-19, and monoclonal antibodies against RSV.

“Some good examples, for example, of vaccine trials in our region have been the rotavirus efficacy and safety trials developed in Latin America. Also the dengue vaccine trials, which included long-term safety and efficacy,” he recalls. He also notes the current RSV studies that have enabled the real-time incorporation of preventive strategies worldwide.

### The recruitment funnel problem

The patient recruitment process can be visualized as a funnel that channels patients into clinical trials while determining their suitability for participation. While the combined Latin American clinical trials market was estimated at USD 2.17 billion in 2024, and is projected to reach USD 4.08 billion by 2030, a significant percentage of potential patients are lost before enrollment.

“Yes, that has been a huge problem in the past. But nowadays, I think we have techniques or strategies to retain the subjects during the last very long trials. For example, in dengue, the WHO and FDA told us that we needed to have at least a five-year follow-up for dengue to be sure that the vaccine was safe and not replicate the previous phenomenon that had been viewed with the first dengue vaccine,” states Dr. Saez-Llorens, who proudly notes that their retention rate exceeded 90% after five years.

With a team of highly qualified professionals in Good Clinical Practices (GCPs) and dedicated personnel for the dengue trials, their recruitment and retention units maintain strong communication with subjects while also providing incentives.

“In Cevaxin [trials], for example, what we have done is we give to them all the vaccines that are included in the national program when they participate in the study. We also have, in pediatric study, we have pediatricians that are involved in growth and development, in giving instructions about maternal milk, and also solving many of the health problems, not only of the participants, but also of the families of the participants,” reveals Dr. Saez-Llorens, whose team also collaborates closely with peripheral health centers and hospitals, ensuring active participation from pediatricians who are on call 24/7.



## News & Alerts

# MOST RELEVANT MONTHLY NEWS ON VACCINATION AND EMERGING DISEASES WITH BIBLIOGRAPHIC ALERTS

*A summary of the latest News & Alerts in the fields of vaccinology, vaccines, vaccination, and vaccine-preventable diseases. We curate the latest information on regulatory updates, emerging trends, breakthroughs in vaccine technology, vaccine safety and efficacy, global immunization developments and outbreak alerts, as a resource to keep our community informed.*

### **PAHO launches interactive dashboard to monitor avian influenza A(H5N1) in the Americas**

Published: January 16, 2025 (PAHO)

<https://www.paho.org/en/news/6-1-2025-paho-launches-interactive-dashboard-monitor-avian-influenza-ah5n1-americas>

### **Outbreak of suspected Marburg Virus Disease - United Republic of Tanzania**

Published: January 14, 2025

[https://hq\\_publichealthintelligenceunit.cmail19.com/t/d-1-sjluutd-dddkutyudi-y/](https://hq_publichealthintelligenceunit.cmail19.com/t/d-1-sjluutd-dddkutyudi-y/)  
Brief Comment: On 13 January 2025, WHO informed its Member States and IHR State Parties of an outbreak of suspected Marburg Virus Disease (MVD) in the Kagera region of the United Republic of Tanzania using our secure web-based platform—the Event Information Site (EIS). Under the International Health Regulations, the EIS is used to issue rapid alerts to Member States of acute and rapidly developing public health risks and events with possible international implications.

### **Norway secures an option for 11 million H5N1 vaccines**

Published: January 12, 2025

<https://www.scoop.it/topic/virusworld>  
Brief Comment: The Norwegian Institute of Public Health is stepping up its preparedness against bird flu, and has secured an option for 11 million vaccines in the event of a pandemic. The agreement with two suppliers concerns vaccines that will be produced first if a new influenza



virus arises that causes a pandemic, and includes two doses for everyone in Norway. The vaccines will be produced against a completely new virus that does not exist today, using the same method as current influenza vaccines. First vaccine doses are to be delivered four to six months after the WHO has declared a new pandemic.

### **CDC H5N1 - US Fatal Case Report**

Published: January 6, 2025

<https://bit.ly/4fV58j6>

Brief Comment: Louisiana health center reported that a person previously hospitalized with severe avian influenza A(H5N1) illness (“H5N1 bird flu”) has passed away. While tragic, a death from H5N1 bird flu in the United States is not unexpected because of the known potential for infection with these viruses to cause severe illness and death. As of January 6, 2025, there have been 66 confirmed human cases of H5N1 bird flu in the United States since 2024 and 67 since 2022. This is the first person in the United States who has died as a result of an H5 infection. Outside the United States, more than 950 cases of H5N1 bird flu have been reported to WHO; about half of those have resulted in death.

### **Expanded Recommendations for Use of Pneumococcal Conjugate Vaccines Among Adults Aged ≥50 Years: Recommendations of the Advisory Committee on Immunization Practices — United States, 2024-**

Published: MMWR Morb Mortal

Wkly Rep 2025;74:1-8.

DOI: <http://dx.doi.org/10.15585/mmwr.mm7401a1>

Brief comment: On October 23, 2024, the Advisory Committee on Immunization Practices recommended a single dose of PCV for all adults aged ≥50 years who are PCV-naïve or who have unknown vaccination history. The risk-based recommendation for adults aged 19–49 years is unchanged. The updated, expanded age-based recommendation is expected to improve pneumococcal disease prevention in adults aged 50–64 years, particularly among demographic groups experiencing higher disease rates.

### **WHO: Trends of acute respiratory infection, including human metapneumovirus, in the Northern Hemisphere**

Published: January 7, 2025

WHO DON Trends of acute respiratory

infection, including human metapneumovirus, in the Northern Hemisphere

<https://www.who.int/emergencies/disease-outbreak-news/item/2025-DON550>

Brief comment: Based on data published by China, covering the period up to 29 December 2024, acute respiratory infections have increased during recent weeks and detections of seasonal influenza, rhinovirus, RSV, and hMPV, particularly in northern provinces of China have also increased. The observed increase in respiratory pathogen detections is within the range expected for this time of year during the Northern hemisphere winter.

### **CEPI and Micron Biomedical accelerate needle-free vaccines against Disease X**

Published: January 7, 2025.

<https://cepi.net/cepi-and-micron-biomedical-accelerate-needle-free-vaccines-against-disease-x>

### **Dengue Situation in India**

Published: January 6, 2025.

<https://ncvbdc.mohfw.gov.in/index4.php?lang=1&level=0&linkid=431&lid=3715>

### **Brazil's Visitors Should Consider Chikungunya Vaccination in 2025**

Published: January 5, 2025.

<https://www.vax-before-travel.com/2025/01/05/brazils-visitors-should-consider-chikungunya-vaccination-2025>

Brief comment: The Federative Republic of Brazil recently announced it broke its record for international tourists last year with over 6.621 million travelers, exceeding results from 2018. As of the end of 2024, the PAHO reported over 420,139 chikungunya cases and 236 related deaths throughout Brazil.

### **Highly Pathogenic Avian Influenza A(H5N1) Virus Infections in Humans**

Published: December 31, 2024 - DOI:

<https://doi.org/10.1056/NEJMoa2414610>

Brief Comment: Of the first 46 human cases of bird flu in the U.S., all but one person was exposed to sick or infected poultry and dairy cows, and most had mild illness. The analysis, covering from March to October 2024, highlights the importance of wearing preventive equipment (PPE) and monitoring, testing, and treatment for H5 bird flu.

### 9 Countries say goodbye to a devastating disease

Published: December 30, 2024.

<https://www.npr.org/sections/goats-and-soda/2024/12/30/g-s1-39336/disease-eliminate-blindness-leprosy-sleeping-sickness>

Brief comment: This year Cape Verde and Egypt became malaria-free. Brazil and Timor Leste eliminated lymphatic filariasis, the disfiguring parasite that causes a condition commonly known as elephantiasis. Jordan became the first country to ever be certified as leprosy-free. Chad got rid of one form of human African trypanosomiasis or sleeping sickness. And Pakistan, Vietnam and India eliminated trachoma, which causes blindness.

### Whooping cough cases in the US are the highest they've been in a decade

Published: December 25, 2024.

<https://www.cnn.com/2024/12/25/health/whooping-cough-cases-surg-ing-united-states/index.html>

Brief comment: As of mid-December, preliminary data indicates that over 32,000 cases have been reported this year — approximately six times the

number reported at the same time last year and the highest since 2014. Vaccination rates among children have also declined, with only about 92% of kindergartners receiving their DTaP vaccine for the 2023–2024 school year. This figure falls short of the 95% federal target, leaving thousands of schoolchildren vulnerable to infection.

### United Nations Tourism Barometer.

Published: November, 2024.

<https://www.e-unwto.org/doi/abs/10.18111/wtobarometereng.2024.22.1.4?journalCode=wtobarometereng>

Brief comment: An estimated 1.1 billion international tourist arrivals (overnight visitors) were recorded in the January–September 2024, about 11% more than in the same period of 2023. 1.1 billion of potential susceptible persons to many vaccine-preventable diseases. Risks ranging from individual to potential outbreaks.

### CDC H5N1 Informational Videos.

Published: September 5, 2024.

<https://www.cdc.gov/bird-flu/video-series/index.html>





## Latest Relevant Publications

# LATEST PUBLISHED PAPERS AND COMMENTARIES FROM THE CHIEF EDITORS

*Latest impactful scientific publications that stand out for their potential bearing on healthcare. We introduce groundbreaking research findings, innovative treatment modalities, results from phase 1 to 3 vaccine clinical trials, or paradigm-shifting discoveries that redefine our understanding of infectious diseases and therapeutic approaches for all vaccine-preventable diseases.*

01

### Post-Vaccination Anaphylaxis in Adults: A Systematic Review and Meta-Analysis

**Published:** *Vaccines* 2025; 13: 37. <https://doi.org/10.3390/vaccines13010037>

**Editorial comment:** A comprehensive meta-analysis reviewed 37 studies examining anaphylaxis related to non-COVID vaccines in adults. The findings clearly demonstrated that anaphylaxis is a very rare event following immunization. Among the vaccines studied, the Influenza vaccine had the highest rate of anaphylaxis, while Td/Tdap vaccines showed the lowest.

02

### Measles Among the Foreign-Born Population Residing in Spain, 2014–2022: Missed Opportunities for Vaccination

**Published:** *Vaccines* 2024; 12: 1452. <https://doi.org/10.3390/vaccines12121452>

**Editorial comment:** In this Spanish cross-sectional study, researchers found that the incidence of measles is 40% higher among Spain's foreign-born population compared to its native-born population. Considering the growing migrant population in Spain, the authors emphasize the need for targeted public health initiatives to address susceptibility within these groups.

03

### Do We Need a Lyme Disease Vaccine?

**Published:** *Pediatr Infect Dis J* 2025; 44: 32. <https://doi.org/10.1097/INF.0000000000004537>

**Editorial comment:** This month's Pediatric Infectious Disease feature, Stanley Plotkin's Corner, highlights the critical need for a Lyme Disease vaccine, offering insights from one of the most brilliant and influential minds in the field of vaccinology.

04

### Highly Pathogenic Avian Influenza A(H5N1) Virus Infections in Humans.

**Published:** *NEJM* 2024; December 31. <https://doi.org/10.1056/NEJMoa2414610>

**Editorial comment:** This study examines 46 human cases of avian influenza (AH5N1) in the United States between March and October 2024, detailing the origins of infection, clinical symptoms, outcomes, and proposed recommendations.

05

### A low pre-existing anti-NS1 humoral immunity to DENV is associated with microcephaly development after gestational ZIKV exposure

**Published:** Plos Neglected Tropical Diseases January 6, 2025 <https://doi.org/10.1371/journal.pntd.0012193>

**Editorial Comment:** The impact of preexisting DENV anti-NS1 antibodies on the outcome of prenatal ZIKV infection in viral cocirculation areas is a critical and unsolved issue. Here, we show that DENV and ZIKV IgG-NS1, but not NS1-IgM, are placentally transferred to infants. The efficiency and lasting of transferred NS1 antibodies depend on the magnitude of circulating NS1-IgG in mothers. A low or absent DENV NS1-IgG was the most critical characteristic of mothers and children with CZS-related microcephaly, supporting a protective role of preexisting DENV NS1 humoral immunity. These findings will be helpful for future vaccine designs, risk population identification, and updated medical guidelines.

06

### Concurrent outbreaks of Mpox in Africa—an update

**Published:** The Lancet, Volume 405, Issue 10472, 86–96 [https://doi.org/10.1016/S0140-6736\(24\)02353-5](https://doi.org/10.1016/S0140-6736(24)02353-5)

**Editorial Comment:** This review focuses on the concurrent outbreaks of mpox in Africa, focusing on clade 1a, the newly emerged clade 1b, and clade 2b lineage A, and how they differ from the 2022 global outbreak caused by clade 2b lineage B.1. The severity of the disease is higher for clade 1a (case fatality rate up to 12%) compared with other clades (case fatality rates 0–3.6%). Diagnostic challenges include false negative results for clade 1b with existing PCR assays and poor testing access in remote areas. Tecovirimat, the primary antiviral during the 2022 outbreak, has shown reduced effectiveness against clade 1a in preliminary study results, whereas its efficacy against other clades is still under investigation. The modified vaccinia Ankara–Bavarian Nordic vaccine has been shown to be up to 90% effective against clade 2b after two doses and is safe for children, although its effectiveness drops to 20% when used as post-exposure prophylaxis. Given the evolving nature of the monkeypox virus, ongoing research and strong public health responses are key to managing potential future outbreaks.

07

### A systematic review to identify research gaps in studies modeling MenB vaccinations against Neisseria infections

**Published:** PLoS One. 2025 Jan 2;20(1):e0316184. DOI: <https://doi.org/10.1371/journal.pone.0316184>

**Editorial Comment:** Authors identified options for future research, including the combination of both meningococcal and gonococcal infections in studies to have better estimates for vaccine benefits, and the spillover of gonorrhoea infections from the heterosexual to the MSM community and vice versa. Cost-effectiveness studies looking at at-risk and the wider populations can then be used to inform vaccine policies on gonorrhoea, as they have for meningococcal disease.

Bexsero can be cost effective if gonorrhoea is added to the analysis. The future for vaccination against Neisseria infections looks promising though: for MC, a pentavalent MenABCWY vaccine for individuals aged 10 to 25 has recently been approved in the USA, and could increase MC vaccination coverage for all five serogroups. This vaccine uses Trumenba for the B component and thus its effectiveness against gonorrhoea infection is yet unclear. Another pentavalent vaccine currently in phase III clinical trials uses Bexsero for the B component and could thus also offer some protection against gonorrhoea should it be approved. That said, vaccines specifically against GC are also under development, including a vaccine currently being developed by INTRAVACC, and the aforementioned vaccine by GSK that in turn might offer some level of cross protection against MenB.

08

**Bangladesh's 2023 Dengue outbreak – age/gender-related disparity in morbidity and mortality and geographic variability of epidemic burdens****Published:** IJID 2024; 136: 1-4. <https://doi.org/10.1016/j.ijid.2023.08.026>**Editorial comment:** This study examines the dynamics of dengue epidemics in Bangladesh, highlighting geographic variations in disease patterns and differences in severity. The findings reveal a higher incidence and greater disease severity among women and older individuals.

09

**Cervical Cancer****Published:** January 1, 2025 – N Engl J Med 2025;392:56–71 DOI: <https://doi.org/10.1056/NEJMra2404457>**Editorial Comment:** In 2020, an estimated 604,127 new cases of cervical cancer were reported worldwide, with 341,831 related deaths.<sup>1</sup> Low-resource regions of Latin America, sub-Saharan Africa, and Southeast Asia, including India, have a high disease burden. There is a clear correlation between socioeconomic status and the incidence of cervical cancer and mortality rates, with progressively lower rates of both incidence and mortality as the mean national Human Development Index increases. In 2024, a total of 13,820 new cases and 4360 related deaths were expected to occur in the United States<sup>2</sup>; in the European Union, 58,169 cases were anticipated (56% from central and eastern Europe), with 22,989 related deaths.<sup>1</sup> The median age at diagnosis is 50 years. An effective vaccine is available and it is highly effective even a single dose schedule.

10

**Association between Congenital Zika Syndrome and hospitalizations during early childhood: a nationwide cohort study****Published:** IJID 2025: 107780. <https://doi.org/10.1016/j.ijid.2025.107780>**Editorial comment:** A retrospective cohort study conducted in Brazil found that children born with Congenital Zika Syndrome (CZS) experienced hospitalization rates 3 to 7 times higher and faced overall greater morbidity compared to children without CZS.

11

**Time trends in malaria incidence from 1992 to 2021 in high-risk regions: an age-period-cohort analysis based on the Global Burden of Disease study 2021****Published:** IJID 2024: 107770. <https://doi.org/10.1016/j.ijid.2024.107770>**Editorial comment:** From 1992 to 2021, age-standardized malaria incidence rates generally declined across highest-risk regions, although Sub-Saharan Africa saw the smallest decline, with a net drift of -0.74% (95% confidence interval [CI]: -1.32 to 0.17). The 0-4 age group faces the highest risk, which decreases with age.

12

**Marburg Virus Reaches Rwanda: How Close Are We to a Vaccine Solution?****Published:** IJID 2024: 107371. <https://doi.org/10.1016/j.ijid.2024.107371>**Editorial comment:** This review examines the current MVD outbreak in Rwanda and the progress toward developing a long-term vaccine solution.

13

### Systems Vaccinology: Navigating the Future of Personalized Immunity and Next-Generation Vaccines

**Published:** JID 2024; 230. <https://doi.org/10.1093/infdis/jiae505>

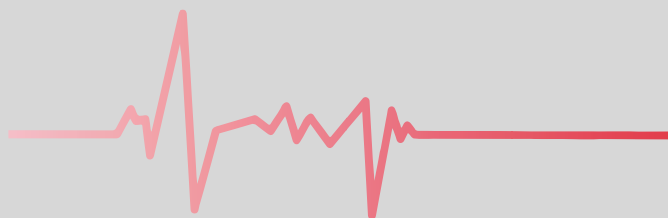
**Editorial comment:** This perspective article explores systems vaccinology as an integrated approach leveraging various “omics” technologies to identify critical immune signatures and advance vaccine development. The authors highlight how this methodology enhances understanding of immune response variations influenced by factors such as genetics, health status, and the microbiome. By addressing these differences, systems vaccinology holds promise for developing personalized vaccination strategies tailored to the needs of diverse populations.

14

### The role of artificial intelligence in pandemic responses: from epidemiological modeling to vaccine development.

**Published:** Molecular Biomedicine 2025; 6:1. <https://doi.org/10.1186/s43556-024-00238-3>

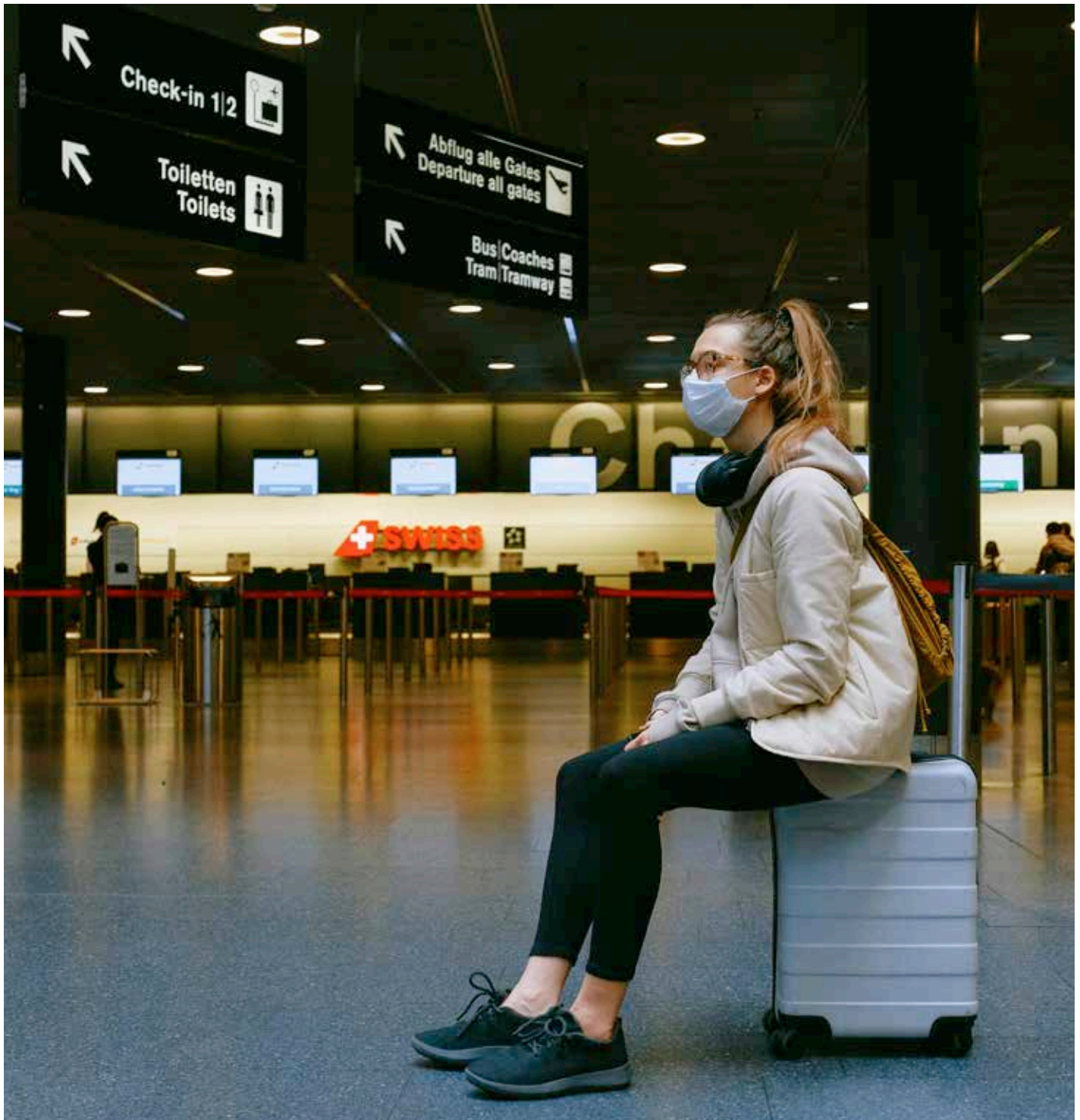
**Editorial comment:** This compelling review delves into the multifaceted role of artificial intelligence (AI) in addressing pandemics as global health crises. It explores AI’s contributions to preparedness and response efforts, including advanced epidemiological modeling, accelerated vaccine development, and improved methods for screening, forecasting, contact tracing, and virus monitoring. The article also emphasizes the importance of sustained research, real-world applications, ethical use, and the strategic integration of AI technologies to enhance our collective capacity to tackle and mitigate the impacts of global health challenges. A must-read for those interested in the intersection of technology and public health.





## Editors Corner

# WHY VACCINATE TRAVELERS?



The primary goal of vaccination is to immunize susceptible individuals against a pathogen, preventing outcomes that range from asymptomatic infection (with the potential for onward transmission) to clinical disease, hospitalization, long-term complications, and death.

At the population level, vaccination aims for a broader impact by immunizing all susceptible individuals. This approach leads to a significant reduction in disease burden, transmission, hospitalizations, mortality, and associated healthcare costs.

The same rationale applies to individual travelers, who may be susceptible to various pathogens due to exposure to new environments at their destinations.

An estimated 1.1 billion international tourist arrivals (overnight visitors) were recorded between January and September 2024, marking an 11% increase compared to the same period in 2023. These 1.1 billion travelers represent a substantial population potentially susceptible to numerous vaccine-preventable diseases, posing risks that range from individual infections to the potential for outbreaks.

Accordingly, immunoprophylaxis through vaccination for travelers should consider the following factors related to their destination.

### Risk of acquiring infection/disease to the traveler:

- 1. Vectors, mosquitoes:** Mosquitoes are the primary vectors responsible for transmitting a significant proportion of diseases worldwide. Malaria remains the leading mosquito-borne disease associated with high mortality, particularly in Africa (*Plasmodium falciparum*). However, other diseases such as Dengue, Yellow Fever, Chikungunya, Japanese Encephalitis, West Nile Virus, Venezuelan Equine Encephalitis, Ross River Fever, Barmah Forest fever, La Crosse Encephalitis, Zika Fever, Oropuche Fever, as well as newly detected Keystone Virus and Rift Valley Fever and several others also contribute substantially to global disease burden. In addition to *Plasmodium* species and viruses, interestingly, in January 2024, an Australian research group proved that *Mycobacterium ulcerans*, the causative pathogen of Buruli Ulcer is transmitted by mosquitoes. These infections can result in severe illness, hospitalizations, long-term complications, and, in some cases, mortality. Currently, vaccines

are available for travelers against Chikungunya, Japanese Encephalitis, and Yellow Fever. Additionally, a recently developed Dengue vaccine has demonstrated rapid immunogenicity without the need for prior serostatus testing and may soon be approved for use by travelers hopefully in all countries.

- 2. Vectors, ticks:** Ticks are significant vectors for numerous diseases, transmitting pathogens that include viruses (e.g., Tick-Borne Encephalitis, Powassan, Colorado Tick Fever, and Crimean-Congo Hemorrhagic Fever), parasites (e.g., Babesiosis), and bacteria (e.g., Lyme Disease and other Borrelia species, Typhus, Rocky Mountain Spotted Fever, Rickettsioses, Bartonellosis, Ehrlichiosis, and Tularemia). Currently, four licensed vaccines are available for Tick-Borne Encephalitis. In regions where the disease is highly endemic, the World Health Organization (WHO) recommends vaccination for all age groups, including children, as well as for travelers to these areas who engage in activities that increase the risk of tick bites. Additionally, a Lyme Disease vaccine is under development, showing promising early results.
- 3. An endemic human-to-human transmitted disease in which there is no vaccine in the country of origin.** A prime example of this condition is Meningococcal Disease. Many countries with intermediate to high endemicity rates (1–10 cases per 100,000) pose a transmission risk to susceptible individuals. Additionally, mass gatherings in endemic areas, such as the Hajj pilgrimage in Mecca, have been linked to significant outbreaks. As a result, vaccination prior to travel is mandatory for individuals attending such events. Another important scenario involves the issue of so-called “sex tourism,” a broad and often criminal activity. A notable example is how Mpox spread globally, primarily through sexual transmission. Other sexually transmitted infections (STIs) associated with this context include Hepatitis B, Hepatitis C, HIV, Syphilis, Gonorrhea, and more. It is crucial to note that vaccines are available for some of these diseases, including Mpox, Hepatitis B, and, to a certain extent, Gonorrhea (via the Meningococcal B vaccine, which offers partial protection against *Neisseria gonorrhoeae*).
- 4. An outbreak:** In the context of an ongoing outbreak, the primary recommendation is to avoid traveling to the affected region. However, if travel is essential, the traveler’s susceptibility must be carefully assessed. For example, outbreaks of diseases covered by vaccines included in National Immunization Programs (NIPs), such as measles, diphtheria, or polio, may require vaccination prior to travel if the individual’s immunization status is unknown or incomplete. Currently, there are also

outbreaks of diseases for which vaccines are not universally part of NIPs. Examples include Ebola and Marburg in Africa, as well as Crimean–Congo Hemorrhagic Fever, Chikungunya, Yellow Fever, Japanese Encephalitis, Hepatitis A, and others. Notably, there are now two licensed vaccines available for Ebola, providing a measure of protection for travelers to at-risk regions.

- 5. Enteric diseases:** In most developed countries and many developing nations, water purification has significantly reduced the prevalence of bacterial enteric infections. However, numerous developing countries continue to face challenges in ensuring access to clean drinking water. This has resulted in recurring outbreaks of diseases such as Cholera, Typhoid Fever, other Salmonellosis, Shigellosis, diarrheagenic *E. coli*, and other bacterial infections. While these diseases pose risks to local populations, visitors are at an even higher risk due to their presumed lower immunity from minimal prior exposure. Currently, there are three WHO-prequalified Cholera vaccines available. For Typhoid Fever, two newer-generation vaccines have replaced the older, reactogenic inactivated whole-cell vaccine previously used. These include the live oral Ty21a vaccine and the injectable Vi polysaccharide vaccine, both of which have demonstrated safety and efficacy in large-scale clinical trials and are internationally licensed for individuals aged 2 years and older. Meanwhile, vaccines against *Enterotoxigenic E. coli* (ETEC), *Shigella*, and non-typhoidal Salmonella are under development, with many showing promising results in early clinical trials. In addition to these

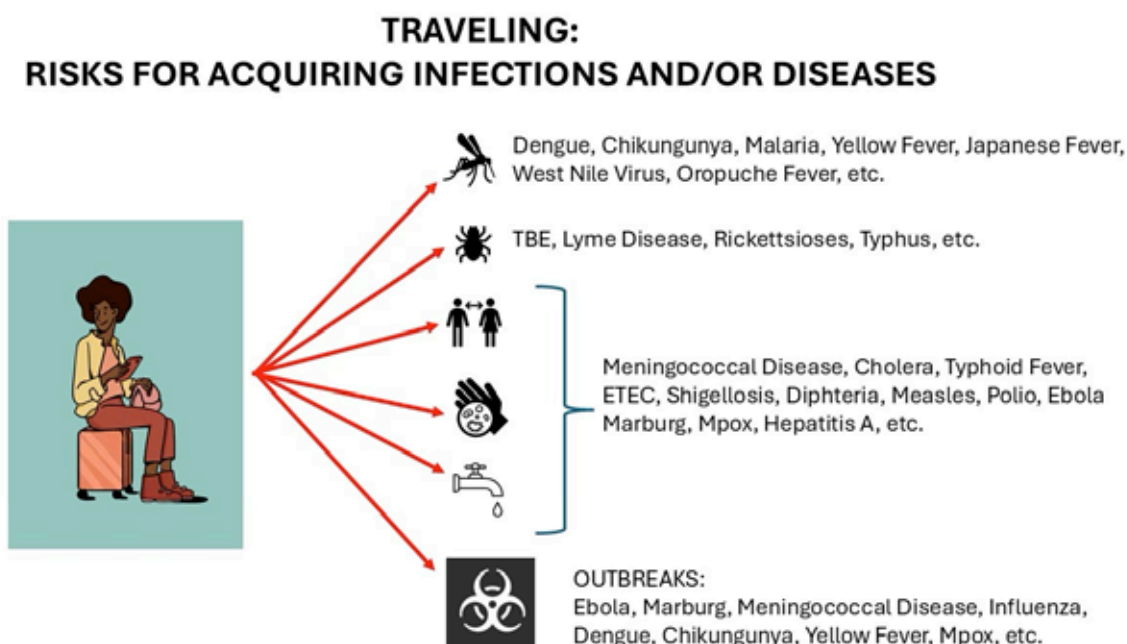
bacterial infections, Norovirus—a viral disease frequently linked to outbreaks in crowded settings such as cruise ships, schools, and other group environments—remains a significant concern. Encouragingly, a Norovirus vaccine is currently in clinical development, offering hope for future prevention.

- 6. Others:** Certain host-related conditions can increase susceptibility to infections, necessitating additional considerations. Individuals with diabetes, hypertension, or any form of immunosuppressive condition may require a more thorough evaluation to determine if additional vaccines are needed beyond those routinely recommended for travelers.

### Risk of disseminating infection/disease from the traveler:

This is a critical issue. An unimmunized traveler, whether asymptomatic or in the prodromal phase of a disease, can directly or indirectly transmit infections to other susceptible individuals. This can escalate from small clusters of infections to outbreaks and even large-scale epidemics. Examples of such diseases include Measles, Influenza, Mpox, Dengue, Chikungunya, Zika, Polio, Diphtheria, COVID-19, Ebola, and many others.

Without appropriate measures—such as confinement, prophylaxis (e.g., vaccination) for contacts, and other preventive actions—the consequences can sometimes be catastrophic.





## Organizations providing recommendations for traveler immunizations:

The WHO offers a comprehensive and regularly updated website with global recommendations for travelers. Additionally, numerous national organizations (e.g., the US CDC), regional societies (e.g., the Latin American Society for Travel Medicine), and private entities (e.g., Travel Health Xpert) provide supplementary information and guidelines. These resources complement the recommendations issued by the foreign ministries of most countries, ensuring travelers have access to the latest and most relevant advice.

## Gaps and areas for improvement:

For several diseases, vaccination recommendations often face challenges

due to limited data on the vaccine or an incomplete understanding of the benefit-risk balance regarding disease acquisition. This creates gaps in advising vaccination for certain pathogens. Notable examples include Chikungunya and Dengue, where periodic evaluation of recommendations is essential to ensure they remain aligned with emerging evidence and evolving epidemiological trends, as well as safety data of the immunogens.

In summary, vaccination for travelers represents a unique and dynamic field within vaccinology and public health. It requires a comprehensive approach that balances personalized assessments with community-based strategies. However, inequitable access to many vaccines remains a significant challenge, highlighting the urgent need for targeted actions to address this disparity.

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**Best Practice**

# REFLECTING ON POTENTIAL PANDEMIC THREATS



Learning from our most recent pandemic experience (COVID-19) must provide us with help to handle much better future pandemic threats. First and subsequent responders have a central role in the handling of these potential pandemics.

When these pandemics hits the globe, they affect not only individuals but also communities, nations, as well as personal and contractual relationships. Creating in this way a huge disruption across the world (national health systems, impacting travels, politics, economies, etc., etc.)

Communication and containment measures must be timely and carefully handled by highly experienced & trained teams. There is no space for improvisation here, readiness and preparedness are must for future pandemics. Many groups are working on this worldwide, and guidelines are being developed and will evolve for sure linked to new data generated by the scientific community.

On the human level, pandemics create fear and concern. Fear and concern combined with empowerment generally result in more constructive outcomes than fear with disempowerment.

Global & Local leaders must understand the nature of organizational power and control in social systems. Researchers need to adapt the focus of knowledge generation and responses according to the phase of pandemic cycles.

Public health activities during the post-peak phase of a pandemic aim to address the long-term health and social impacts and to prepare for potential new pandemic waves. Analyzing

the range of responses during the pandemic helps to prepare for future pandemic outbreaks.

Large databases created during the pandemic offer tools to evaluate the cost-effectiveness of interventions taken by different countries. Additionally, newly developed vaccines/treatments need ongoing monitoring for short- and long-term effectiveness, adverse effects on patients and efficacy against newly emerging variants.

Responding to a pandemic requires an adaptive style of leadership that adjusts to changing conditions by balancing hierarchies and heterarchies. Human systems function most efficiently and effectively in a scale-free environment, leveraging human capital as the key resource in tackling a 'wicked problem' like pandemics. Novel situations have no known solutions to fall back upon and moving forward in time has only a 'one shot to get it right' chance. A functional healthcare system relies on robust supply chains. Robust supply chains rely upon healthy individuals. Failure to contain the infection would overwhelm the health care system. Therefore, addressing the interconnected, interrelated, and interdependent scientific and political needs requires leadership and decision-making from local & international levels.

Voluntary responses from all societal sectors better help contain the virus and minimize societal disruptions. Decision-making must be based on current best available knowledge about the nature of the disease and its potential impacts. Effective responses come from a combination of concern and empowerment, enabling adaptability as the pandemic evolves.

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## Guest Contributors

# SUMMARY OF THE 12TH CONGRESS OF THE FEDERATION OF AFRICAN IMMUNOLOGICAL SOCIETIES (FAIS 2024)

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**Event Overview:** The 12th Congress of the Federation of African Immunological Societies (FAIS 2024) was held from December 10–13, 2024, at the Palais des Congrès in Cotonou, Benin. This was the first in-person FAIS meeting since 2017, disrupted by the COVID-19 pandemic. The congress brought together 260 delegates, including scientists, policymakers, and researchers from across Africa and beyond, to address the theme: “Innovative Strategies Against Infectious Diseases and Emerging Immunological Disorders in Africa: Challenges and Opportunities.” The meeting emphasized the critical role of immunology in addressing health challenges facing the continent.

**Objectives and Structure:** FAIS 2024 aimed to create a collaborative environment for sharing knowledge, building capacity, and fostering international partnerships. The congress facilitated a platform for discussions on various crucial themes relevant to Africa’s health priorities. The Benin Immunology Society (SIB) and the Gambia Immunology Society (GAMIS) organized the event in collaboration with FAIS.

## Key Themes:

### 1. Emerging Infectious Diseases:

- The congress commenced with a discussion on the burden of diseases in Africa, specifically addressing tuberculosis and its immune challenges. Experts emphasized localized diagnostic tools and treatment innovations tailored to resource-limited settings (Henry Mwandumba, Malawi).
- Presentations also highlighted the need for robust genomic surveillance to identify and respond to emerging infectious diseases rapidly (Anges Yadouleton, Benin).
- The session on mpox provided insights into its epidemiology, transmission, and genetic evolution, underscoring the interconnectedness of animal and human health (Jason Kindrachuk, Canada).

### 2. SARS-CoV-2 Research:

- Noteworthy findings presented included unique immune response profiles in Nigerians infected with SARS-CoV-2, shedding light on population-specific immune responses relevant for future vaccine development (Ganiyu Arinola, Nigeria).
- The influence of genetic polymorphisms on COVID-19 severity and outcomes was discussed, aiming to identify potential biomarkers for risk stratification (Chaimaa Zerrad, Morocco).
- The challenges of co-infections, particularly in advanced HIV patients experiencing prolonged SARS-CoV-2 infections, highlighted



the complexity of immune responses (Sandile Cele, South Africa).

### 3. One Health Approach:

- A session dedicated to “One Health Immunology” focused on a multi-faceted perspective on health challenges, emphasizing the growing threat of antimicrobial resistance (AMR) in Africa. The session stressed the need for multisectoral interventions integrating human, animal, and environmental health (Brice Boris Legba Kossi, Benin).
- Various case studies illustrated the success of animal vaccination programs in controlling zoonotic diseases and mitigating AMR (Baptiste Dungu, Democratic Republic of Congo).

### 4. Developmental Origins of Health and Diseases (DOHaD):

- Researchers shared experimental data showing how environmental exposures during early life can significantly impact immune system development and long-term health outcomes (Clarissa Prazeres da Costa, Germany).
- The relationship between maternal-fetal interactions and the risks of HIV transmission was emphasized, along with the effects of in-utero exposure to HIV, CMV and antiretroviral drugs on the placenta and infant immunity (Rana Chakraborty, USA; Helen Payne, UK and South Africa, Doty Ojwach and Clive Gray, South Africa).

### 5. Cancer Immunology:

- The congress addressed the pressing cancer burden in Africa, particularly focusing on triple-negative breast cancer (TNBC). A study revealed the potential of targeting FABP, linked to poor survival rates in TNBC patients (Abdallah Badou, Morocco).
- Discussions on the immune escape mechanisms in tumor environments and their implications for immunotherapy highlighted the need for further research, especially considering ethnic and regional differences in immune responses (Barbara Seliger, Germany).

### 6. Vaccine Development and Capacity Building:

- A significant focus was placed on Africa’s

capacity for vaccine manufacturing. The Chanjo Hub symposium showcased ongoing projects in Kenya and Ghana aimed at developing low-cost malaria vaccines using mRNA and egg-based technologies.

- Experts provided insights into various vaccine development approaches, including live malaria vaccines and RNA-based platforms (Faith Osier, UK and Kenya; Eluem Blyden, Avril BioPharma).

**Collaboration and Funding Initiatives:** Sessions dedicated to collaboration and funding emphasized the changing landscape of immunology research in Africa. Initiatives like the Science for Africa Foundation and the International Vaccine Initiative were discussed, highlighting their roles in enhancing research capacity and funding opportunities. These organizations support a wide range of studies and facilitate vaccine manufacturing efforts on the continent.

**Equity, Diversity, and Inclusion (EDI):** A session on EDI highlighted the importance of creating inclusive research environments. FAIS has made strides toward gender representation and diversity within its leadership. The establishment of the FAIS African Women’s Immunology Database aims to increase the visibility of female immunologists and promote equitable opportunities in the field. Panelists emphasized that an inclusive environment fosters scientific innovation and enhances the competitiveness of research outputs.

**Conclusion and Future Directions:** The congress concluded with the election of a new 10-member Executive Committee to guide FAIS for the next two years. The committee aims to foster new partnerships and enhance immunology research, vaccine development, and capacity building in Africa. The event successfully reinforced the need for collaboration in addressing Africa’s unique health challenges and paved the way for future initiatives aimed at strengthening the continent’s response to infectious diseases and emerging health threats.

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# VACCINES BEAT

## Who we are

At Vaccines Beat, we understand that vaccines and immunization have become a crucial topic of discussion at the center of any public health analysis. Therefore, timely, relevant, accessible, and well-curated information for all vaccine preventable diseases is key to advancing better health policies.

For this reason, a team of passionate vaccine professionals has created Vaccines Beat and each month diligently works to share with the healthcare ecosystem information, knowledge, and insights to improve global health.

## Vision

Vaccines Beat aims to become the beacon of insight in the public health ecosystem through its distinctive monthly newsletter. With an in-depth 360 perspective, carefully curated information and expert analysis, this novel platform fosters collaboration among a diverse global network of stakeholders.

## Mission

Vaccines Beat's main task is to inform through the review of the most recent developments in vaccines, immunization, and vaccine preventable diseases. Our mission extends to sharing best practices from successful initiatives worldwide while building bridges through editorial collaboration with regional and international stakeholders.

Vaccines Beat highlights the importance of information sharing & collaborative efforts within the public health community to boost vaccination campaigns, R&D, public policy, access, awareness, and equity.

Vaccines Beat encourages stakeholders to take action and promote sustainable commitment with continued support through multi-stakeholder synergies.

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