

VACCINES  
BEAT

# MAPPING THE RISKS OF A MOVING WORLD

Prof. Robert Steffen pioneered the field of Travel Medicine

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**“IMMUNIZATION IS A GLOBAL HEALTH AND DEVELOPMENT  
SUCCESS STORY SAVING MILLIONS OF LIVES EVERY YEAR”**

**WORLD HEALTH ORGANIZATION**

**VACCINES  
BEAT**

## **Mapping the risks of a moving world**

**Prof. Robert Steffen pioneered  
the field of Travel Medicine**



Professor Robert Steffen is internationally recognized as the “father of travel medicine.” He not only coined the term but also initiated the world’s first international conference on the subject, laying the foundation for this vital medical specialty.

Professor Emeritus at the University of Zurich, he formerly led the Division of Communicable Diseases at the Epidemiology, Biostatistics and Prevention Institute. He also served as Director of a World Health Organization (WHO) Collaborating Centre for Traveller’s Health. In addition, he holds an adjunct professorship at the University of Texas School of Public Health in Houston.

In the 1970s, Prof. Steffen began systematic research into the morbidity and mortality associated with travel-related illnesses and accidents. Drawing from epidemiological evidence, he developed targeted preventive strategies for individual travelers and championed broader public health initiatives.

Throughout his career, Prof. Steffen has authored more than 400 scientific publications, with a strong emphasis on vaccination. He has served as Editor-in-Chief of both the Journal of Travel Medicine and the International Journal of Public Health, as well as Section Editor for Clinical Infectious Diseases. During his 27-year tenure at the Zurich University Center for Travel Medicine, he oversaw more than one million vaccinations, with the clinic providing nearly 20,000 consultations annually.

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# LETTER FROM EDITORS

## WELCOME TO THE 10TH ISSUE OF VACCINES BEAT

In this issue's "Coffee with an Expert" section, we are honored to feature an interview with Professor Robert Steffen, internationally recognized as the "father of travel medicine." Not only did he coin the term, but he also initiated the world's first international conference on the subject—paving the way for this essential medical specialty. As a leading expert in weaving epidemiological studies into actionable travel health guidance, Prof. Steffen continues to underscore the need for vigilance in the face of evolving threats such as malaria and dengue—both of which are alarmingly on the rise in terms of absolute numbers and incidence rates.

In the "Editor's Corner," we address the resurgence of measles—one of the most contagious yet entirely preventable diseases. We explore the consequences of failing to adhere to WHO recommendations, which include maintaining robust surveillance systems for early detection, thoroughly assessing risks of transmission and severe outcomes, identifying immunity gaps, and preparing for rapid response efforts.

Our "Best Practice" section highlights the critical role of Pharmacoeconomics in Vaccines as a cornerstone for informed decision-making, sustainable healthcare investment, and overall public health success.

Thank you for joining us in this important conversation.



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 disclaimer: "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 Vaccines Beat is purely academic, sponsors do not contribute to its content."

## Coffee with the Expert

# MAPPING THE RISKS OF A MOVING WORLD

Prof. Robert Steffen pioneered the field of Travel Medicine

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Professor Robert Steffen is internationally recognized as the “father of travel medicine.” He not only coined the term but also initiated the world’s first international conference on the subject, laying the foundation for this vital medical specialty.

Professor Emeritus at the University of Zurich, he formerly led the Division of Communicable Diseases at the Epidemiology, Biostatistics and Prevention Institute. He also served as Director of a World Health Organization (WHO) Collaborating Centre for Traveller’s Health. In addition, he holds an adjunct professorship at the University of Texas School of Public Health in Houston.

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Throughout his career, Prof. Steffen has authored more than 400 scientific publications, with a strong emphasis on vaccination. He has served as Editor-in-Chief of both the *Journal of Travel Medicine* and the *International Journal of Public Health*, as well as Section Editor for *Clinical Infectious Diseases*. During his 27-year



tenure at the Zurich University Center for Travel Medicine, he oversaw more than one million vaccinations, with the clinic providing nearly 20,000 consultations annually.

In 1988, Prof. Steffen organized the first international conference on travel medicine in Zurich, Switzerland. Three years later, in 1991, he co-founded the International Society of Travel Medicine in Atlanta alongside Herbert ‘Bert’ DuPont, who served as its first president. Prof. Steffen also led the Swiss Federal Commission for Influenza and served as Vice-President of both the Federal Commission on Vaccination and the Swiss Bioterrorism Committee. Since retiring from the University of Zurich, his research has focused on adult immunization. He continues to contribute to the field as an advisor to the Adult Immunization Board (AIB).

The WHO has frequently sought his expertise, inviting him to serve on numerous advisory boards. His contributions have included work on malaria, vaccine-preventable diseases, biological and chemical threats, aircraft and ship disinsection, and airport epidemiological preparedness. Notably, he chaired the International Health Regulations (IHR) Emergency Committee on Ebola multiple times until 2020.

Much of the development of travel medicine as an interdisciplinary field can be traced back to Prof. Steffen's pioneering efforts. His research, often sparked by seemingly minor issues, has paved the way for significant advancements and practical travel health recommendations. Today, his legacy underscores the critical importance of preventive measures in global health.

### How it all started and evolved

Nearly 50 years ago, Professor Robert Steffen was at the helm of the International Federation of Medical Student Associations (IFMSA), which at the time represented around 200,000 students across numerous countries. As part of his duties, he frequently traveled to visit member nations. However, there was no structured travel health guidance available then. In preparation for these visits, he turned to textbooks on tropical medicine—only to find widespread contradictions.

“And so, I decided that I wanted to devote my professional life to creating evidence on which base we could then later advise future travelers on what is recommended and what is really unnecessary,” he shared.

An expert in weaving epidemiological studies that produce guidance for travelers, Prof. Steffen continues to emphasize the importance of vigilance—for instance in the face of evolving diseases like malaria and dengue.

He highlights malaria as a growing concern. According to [annual malaria reports](#), the disease is not only increasing in absolute numbers—partly due to population growth, particularly in tropical Africa—but also in incidence rates. One contributing factor, he notes, is that malaria prevention was significantly neglected during the COVID-19 pandemic.

“And I really wonder what is going to happen now in the immediate future as we view that initiatives—particularly initiatives which have been traditionally funded by the United States— are now not being financed any longer,” he worries. “So, there will be a huge challenge to keep malaria under control.”

On dengue, Prof. Steffen points to an unprecedented surge in 2024. In the Americas alone, nearly 15 million cases were recorded—a threefold increase compared to 2023.

“But actually, if we look at the WHO data, their estimate is that we annually have on a global scale about 100 million symptomatic cases and overall about 400 million infections overall. And that indicates that there has been a huge increase—not only in the Americas, but globally, particularly also in Asia—it is known. Unfortunately, with respect to Africa, there is probably far worse underreporting because some countries don't report anything at all with respect to dengue because they don't have that on their radar,” Prof. Steffen shares.

According to the [WHO](#), dengue is now endemic in over 100 countries across the WHO regions of Africa, the Americas, the Eastern Mediterranean, South-East Asia, and the Western Pacific. The most seriously affected areas are the Americas, South-East Asia, and the Western Pacific—with Asia alone accounting for about 70% of the global disease burden. Alarming, dengue is also spreading into new territories, including Europe, the Eastern Mediterranean, and parts of South America and the U.S.

### Predictability and the crystal ball

The global movement of travelers continues to pose a serious challenge in containing potential epidemics. Diseases that originate in one region can rapidly impact others—often far beyond their point of origin. For Prof. Steffen, this interconnectedness highlights a sobering reality: the predictability of outbreaks is extremely limited.

“We always have to be prepared for new outbreaks,” he emphasizes.

In addition to well-known arboviruses

such as chikungunya, dengue, and Zika, a new player has emerged: Oropouche virus. Initially identified in Trinidad, Oropouche has recently caused a significant outbreak in several Latin American countries—many of which are popular travel destinations for European and North American tourists.

“And so, we had a number of tourists infected in Europe or who presented in Europe with Oropouche,” Prof. Steffen explains. “And actually in the United States, they imported even more than 100 cases of Oropouche. A complete surprise.”

These unexpected developments serve as a stark reminder of the challenges public health experts face in forecasting disease trends.

“And so, predictability really is extremely limited and I prefer not to predict too much because I might be proven wrong,” he reflects.

### **Absence of evidence is not equal to evidence of absence: Surveillance**

In epidemiology, surveillance is a cornerstone of disease monitoring and control. It enables early detection of outbreaks, helps identify at-risk populations, and supports the evaluation of public health interventions.

For international travelers, surveillance becomes even more critical. Recognizing this, Prof. Steffen and his colleagues helped establish [GeoSentinel](#), a global research and surveillance network under the International Society of Travel Medicine and the Centers for Disease Control. The system comprises approximately 70 clinics worldwide, all focused on tracking infectious diseases in travelers.

“And every so often, we have been able to determine that particular infectious disease occurs in country X when it is imported, be that to North America or to Europe or possibly also to clinics in Australia or Asia. And we are able to determine these infections even before they have been noted in the country where there is some endemicity,” he shares proudly.

GeoSentinel has become a valuable early warning system. It’s a powerful reminder that

*the absence of evidence does not mean evidence of absence*—especially in global health.

### **A successful dengue vaccine**

An ideal vaccine, according to Prof. Steffen, should meet several critical benchmarks: high efficacy, good tolerability, affordability, and broad availability. In the case of dengue, two vaccines are currently available globally. The first vaccine, however, because of serious adverse reactions will no longer be produced.

The second vaccine, currently marketed in Europe, has shown a strong efficacy against serotypes 1 and 2. However, it offers no protection against serotype 3 in seronegative individuals (those who have never had dengue—most travelers fall into this category), and its efficacy against serotype 4 remains inconclusive due to the low number of trial participants infected with that strain.

A promising finding is that a single dose of this vaccine provides approximately 80% protection—comparable to the full two-dose regimen.

“That single dose, administered before departure, typically offers substantial protection for most travelers—who usually stay no longer than one or two months in endemic regions,” he says. “Eighty percent protection after just one dose? That’s already pretty good.”

The second dose, he adds, extends protection over the longer term and can be administered after travel or even up to a year later, especially for those planning a return to an endemic area.

“I often say, be happy about having half a glass full, and don’t complain that it’s not completely full. I see this vaccine as a benefit,” he reflects.

Prof. Steffen also challenges the belief, held by some expert groups, that dengue is a mild illness.

“Over 20% of the patients need hospitalization, be that in the country where the infection is endemic, or be it upon return, or possibly both,” he argues. “This is not mild because, additionally to ruining a trip, it has a potential substantial impact on their health and, even primary infections of dengue have killed some travelers.”

Given the severity of the disease, he calls for

a reassessment of Europe’s current dengue vaccination guidelines, which he believes are too restrictive for travelers. At present, the vaccine is often limited to seropositive individuals (those previously infected).

However, Prof. Steffen contends that seronegative individuals should also be eligible. He emphasizes that, unlike the first vaccine—associated with Antibody-Dependent Enhancement (ADE)—the current vaccine, with five years of use, shows no such concerns. He points to growing evidence that it does not cause the life-threatening side effects seen with its predecessor.

“There’s no warning sign that the new vaccine triggers ADE,” he explains. “NS1 is transferred and, in my opinion, that helps prevent it.”

Despite these positive developments, Prof. Steffen expresses disappointment that the vaccine cannot be approved in the United States. The regulatory agency, he explains, requested additional trial data only after the completion of phase-three studies—data that can no longer be collected.

“This decision effectively blocks access to the vaccine for American travelers, instead of reducing their risk of infection,” he concludes.

### **Wolbachia infected mosquitoes: An Elegant Approach to Vector Control**

One of the most innovative strategies in the fight against mosquito-borne diseases involves the use of genetically modified mosquitoes infected with *Wolbachia*—a naturally occurring bacterium that blocks viruses like dengue, chikungunya, and Zika from replicating in the bodies of *Aedes aegypti* mosquitoes. As a result, these mosquitoes become significantly less

capable of transmitting infections to humans.

Prof. Steffen has closely reviewed the available data and finds the results highly encouraging. Such trials have been conducted in as much as a dozen countries and the incidence rate of dengue showed to be reduced by around 80% in some cases, which is extremely impressive. He is an enthusiastic proponent of expanding this approach.

In addition to vector control, Prof. Steffen emphasizes the importance of sustained medical and financial support—both for deploying more *Wolbachia*-infected mosquitoes and for expanding access to dengue vaccines. He also believes international policy should evolve to better reflect the lack of equity in disease prevention.

At the policy level, he calls for greater international harmonization of vaccination recommendations for travelers. He notes key philosophical differences between regions:

“In the United States, there’s a tendency to reduce the risk to zero. Europe, on the other hand, is more willing to accept limited risk,” he explains.

Prof. Steffen’s pragmatic approach underscores a fundamental truth in travel medicine: while total safety may be an illusion, smart, evidence-based strategies can offer real and meaningful protection.

“And we say, well, living is dangerous. And so, we do have to accept some risks. And of course, we can immunize against all, even the extremely rare diseases. But usually, our customers [travelers] prefer only to get protected against the frequent ones,” he concludes.



## 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.*

### “Vietnam ramps up emergency measures as severe measles cases surge”.

According to the Ministry of Health, from the beginning of the year to March 20, more than 42,400 suspected measles cases have been reported nationwide, with over 4,000 cases confirmed through testing. At least six deaths from measles have been recorded in the past three months. On March 29, Deputy Minister of Health Tran Van Thuan signed an emergency document sent to hospitals and health departments across 63 provinces and cities, outlining measures for triage, admission, treatment, and infection control of measles within healthcare facilities.

Published: March 30, 2025.

<https://vietnamnet.vn/en/vietnam-ramps-up-emergency-measures-as-severe-measles-cases-surge-2385800.html>

### WHO: “Cholera – Angola”.

Since January 2025, Angola has been experiencing a substantial cholera outbreak. As of 23 March 2025, a total of 8543 cases and 329 deaths (Case Fatality Rate (CFR) 3.9%) have been reported, with one-third of the deaths occurring in the community. The outbreak has rapidly spread to 16 out of Angola’s 21 provinces, affecting individuals of all age groups, with the highest burden among those under 20 years old.

Published: March 28, 2025.

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

[DON562#:~:text=Since%20January%202025%2C%20Angola%20has%20been%20experiencing%20a,one-third%20of%20the%20deaths%20occurring%20in%20the%20community.](#)

### “There are 153 cases of measles in the state of Chihuahua, Mexico”.

The state Health Secretariat reported that, as of Friday, April 4, a total of 153 confirmed cases of measles have been recorded in the state. The agency continues to monitor the evolution of the outbreak and implement the necessary measures to contain it (vaccination predominantly). There is a possibility that the first cases were associated with the measles outbreak in the northern US border state of Texas.

Published: April 4, 2025.

[https://www.tiempo.com.mx/noticia/153\\_casos\\_de\\_sarampion\\_87\\_en\\_cuauhtemoc\\_24\\_en\\_la\\_capital\\_salud/](https://www.tiempo.com.mx/noticia/153_casos_de_sarampion_87_en_cuauhtemoc_24_en_la_capital_salud/)

### CEPI: “Exploiting fungus growth for rapid and affordable vaccine development”.

CEPI is providing US\$4.5 million to non-profit Fondazione Biotechnopolo di Siena (FBS) for proof-of-concept research that will explore whether producing antigens in C1 filamentous fungus—applying technology owned by Dyadic International (Nasdaq:DYAI)—is a faster and cost-effective alternative to the more established route of producing antigens in mammalian cells.

While producing protein antigens in mammalian cells is an effective way of developing protein-based vaccines, the process can take four to six months.

Published: March 19, 2025.

<https://cepi.net/exploiting-fungus-growth-rapid-and-affordable-vaccine-development>

### **“Chlamydia vaccine candidate granted fast track designation by the US FDA”.**

The US Food and Drug Administration has granted fast track designation to Sanofi's mRNA vaccine candidate for the prevention of chlamydia infection. The decision was based on the potential of the vaccine candidate to address a serious condition and address an unmet public health need.

Published: March 26, 2025.

<https://www.news.sanofi.us/2025-03-26-Chlamydia-vaccine-candidate-granted-fast-track-designation-by-the-US-FDA#:~:text=The%20US%20Food%20and%20Drug,an%20unmet%20public%20health%20need.>

### **“Promising Phase 3 Trial of Tuberculosis Vaccine is Running Ahead of Schedule”.**

A Phase 3 trial for the tuberculosis vaccine known as M72/AS01E is running a year ahead of schedule and has already recruited 90% of the 20,000 people it needs, according to Dr Alemnew Dagneu, who leads its clinical development.

Published: March 21, 2025.

<https://healthpolicy-watch.news/promising-phase-3-trial-of-tuberculosis-vaccine-is-running-ahead-of-schedule/>

### **“Chikungunya in Reunion (French Department in the Indian Ocean): week 10 to 16 March 2025”.**

The chikungunya epidemic is now widespread throughout the country and continues to spread. From March 10 to 16, 2025, 4,156 new cases were reported, a 16% increase compared to the previous week. Since August 2024: 13,594 cases reported. To date, 15 serious cases have been reported, including eight adults and seven newborns, and two deaths. In response to the epidemic, the Franco-Austrian pharmaceutical group Valneva announced that it would supply 40,000 doses of

its IXCHIQ vaccine from the beginning of April.

Published: March 27, 2025.

<https://www.rfi.fr/en/france/20250327-thurs-8am-r%C3%A9union-island-on-health-alert-after-spike-in-chikungunya-disease>

### **“African CDC”.**

Published: April, 2025.

<https://africacdc.org/>.

### **ECDC: “Dengue worldwide overview”.**

Published: March, 2025.

<https://www.ecdc.europa.eu/en/dengue-monthly>.

### **“PAHO issues new epidemiological alert amid rising yellow fever cases in the Americas”.**

The number of confirmed human cases as of March 22 has more than doubled compared to the total recorded in all of 2024, raising concerns about a potential expansion of the disease.

In the first almost three months of 2025, 131 human cases have been confirmed, with 53 deaths.

Published: April 2, 2025.

<https://guyanachronicle.com/2025/04/02/paho-issues-new-epidemiological-alert-amid-rising-yellow-fever-cases-in-the-americas/>

### **“Uganda launches Africa’s largest malaria vaccine rollout to date”.**

Uganda is introducing the malaria vaccine at an unprecedented scale, joining the ranks of nearly 20 countries that have introduced a malaria vaccine into their routine childhood immunization schedules.

Published: April 2, 2025.

<https://www.path.org/our-impact/articles/uganda-launches-africas-largest-malaria-vaccine-rollout-to-date/>

### **“Sagaing Earthquake in Myanmar: Situation Report - 4th Edition”.**

WHO Health Emergencies Programme

Published: April 4, 2025.

<https://www.who.int/southeastasia/internal-publications-detail/who-mmreq-Srep0404254>

### **“Epidemic and emerging disease alerts in the Pacific as of 01 April 2025 (Dengue, Influenza, Pertussis, Measles, and others).”**

Published: April 1, 2025.

<https://reliefweb.int/map/world/epidemic-and-emerging-disease-alerts-pacific-01-april-2025>.

### **“Mexico’s Pertussis Outbreak Awaiting Spring Breakers”.**

As of March 3, 2025, 120 pertussis cases have been confirmed across 21 Mexican states. led by Nuevo León (24 cases). This increase is very concerning compared to the 15 cases recorded in the same period in 2024. Mexico isn’t alone in reporting a spike in pertussis cases. The Centers for Disease Control and Prevention (CDC) recently reported that the number of pertussis cases in the United States increased last year. As Spring Break vacationers plan their trip to Mexico in March 2025, the local government has issued an alert regarding a vaccine-preventable disease.

<https://www.vax-before-travel.com/2025/03/03/mexicos-pertussis-outbreak-awaiting-spring-breakers>

### **“Uganda launches historic malaria vaccine rollout to protect over 1.1 million children”**

Uganda Launches Malaria Vaccine to Protect 1.1M Children

April 2025- Apac, Uganda- Uganda’s Ministry of Health, with support from Gavi, the Vaccine Alliance (Gavi) and alliance partners, UNICEF, the World Health Organization (WHO), PATH and CHAI rolled out a malaria vaccination campaign in Apac District, northern Uganda. This makes Uganda the 19th country in Africa to introduce the malaria vaccine into routine immunisation and it is the largest vaccine rollout to date in terms of target districts and population.

The R21/Matrix-M malaria vaccine, administered in four doses at 6, 7, 8, and 18 months, will initially target 1.1 million children under two years in 105 high and moderate transmission districts across Uganda, with plans to expand nationwide.

### **“DR Congo’s conflict and cholera: a call for ring vaccination”**

DR Congo’s conflict and cholera: a call for ring

vaccination – The Lancet Infectious Diseases

Although novel, a ring vaccination strategy for cholera is subsumed under the broader guidance to avert expansion of cholera outbreaks and is feasible. Gavi is currently supporting the countries around the conflict region in DR Congo. Areas affected by conflict are included in the approved plan. Therefore, ring vaccination should be seen as a promising strategy to propel swift action. Although a ceasefire should be pursued to enable vaccination and other public health efforts in the conflict area, parallel efforts to protect the population in the periphery of the conflict are crucial, achievable, and should be actioned without delay.

### **“October 2024 ACIP Meeting Update: Influenza, COVID-19, RSV, and Other Vaccines”**

October 2024 ACIP Meeting Update: Influenza, COVID-19, RSV, and Other Vaccines | Pediatrics | American Academy of Pediatrics

The Advisory Committee on Immunization Practices (ACIP), a group of medical and public health experts that provides advice to the Centers for Disease Control and Prevention, normally meets 3 times per year to develop US vaccine recommendations. The ACIP met October 23 to 24, 2024, to discuss influenza vaccines, chikungunya vaccines, COVID-19 vaccines, RSV (respiratory syncytial virus) immunizations, meningococcal vaccines, human papillomavirus vaccines, pneumococcal vaccines, and adult and child/adolescent immunization schedule revisions. This update summarizes the proceedings of these meetings, with an emphasis on topics that are most relevant to the pediatric population. Major updates for pediatric clinicians include information regarding COVID-19 and influenza vaccine recommendations, meningococcal vaccination considerations, and updates regarding the implementation and effectiveness of RSV immunization in pregnant people and infants.

### **“Mexico reports first human death from H5N1 bird flu”.**

Published: April 8, 2025.

<https://www.reuters.com/world/americas/mexico-reports-first-human-death-h5n1-bird-flu-2025-04-08/>

## 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

**“Assessing the Feasibility of Drone-Mediated Vaccine Delivery: An Exploratory Study”.**

**Published:** Health Sci Rep 2025; 8: e70208. <https://doi.org/10.1002/hsr2.70208>

**Editorial comment:** The findings of this study signify the potential for drone-based medical supply deliveries across confined and controlled environment conditions. It also provides the insights that there is no environmental impact such as humidity, temperature, wind etc. on the drone and no impact on vibrations on the physical integrity and leakage of the dummy vaccine vials.

02

**“Landscape analysis of invasive non-typhoidal salmonella (iNTS) disease and iNTS vaccine use case and demand: Report of a WHO expert consultation”.**

**Published:** Vaccine 2025; 55: 127008. <https://doi.org/10.1016/j.vaccine.2025.127008>

**Editorial comment:** This publication summarizes a report on the proceedings of an expert consultation held on 29 November – 1 December 2021 as part of an overall project to develop a Full Value of Vaccines Assessment (FVVA) for non-typhoidal Salmonella serovars (iNTS) vaccines and in addition to more recent iNTS vaccine developments. Experts at the consultation reviewed the current evidence on iNTS disease and discussed knowledge gaps to be addressed to accelerate vaccine development, licensure and introduction, as well as LMIC perspectives on potential iNTS vaccine use and demand.

03

**“Implementation of school-based vaccination in French middle schools: Efficient or not?”**

**Published:** Vaccine 2025; 55: 127007.

**Editorial comment:** The Agence Régionale de Santé mandated vaccination centers in Normandy, France, to implement a school-based vaccination program in public middle schools. This study aimed to evaluate the program’s effectiveness over four academic years (2019–2023).

Before the intervention, the overall vaccination coverage (VC) was 10.7% (n = 585), which significantly increased to 65.7% (n = 3,585) after implementation (p < 0.0001).

Meningococcal C vaccine: VC rose from 64.8% to 87.5% (p < 0.0001).

Hepatitis B vaccine (HBV): VC increased from 67.6% to 85.6% (p < 0.0001).

Human papillomavirus vaccine (HPV): VC surged from 14.6% (n = 675/4,614) to 79.9% (n = 3,685/4,614) (p < 0.0001).

The findings confirm that a school-based vaccination program effectively improves VC across all recommended vaccines. Therefore, such programs should not be limited to specific vaccines, such as HPV, but should be expanded to include other essential immunizations.

04

**“Plant-Derived Immunomodulatory Nanoadjuvants for Cancer Vaccines: Current Status and Future Opportunities”.**

**Published:** *Vaccines* 2025, 13(4), 378; <https://doi.org/10.3390/vaccines13040378>

**Editorial comment:** This review focuses on the application progress of plant adjuvants, including saponins, polysaccharides, flavonoids, and plant virus-like particles, and their combination with nano-delivery systems in cancer vaccines. At the same time, also discusses the immunomodulatory mechanisms of these adjuvants and their prospects for improving vaccine efficacy in the treatment of cancer in the future.

05

**“Immunization Coverage, Equity, and Access for Children with Disabilities: A Scoping Review of Challenges, Strategies, and Lessons Learned to Reduce the Number of Zero-Dose Children”.**

**Published:** *Vaccines* 2025, 13(4), 377; <https://doi.org/10.3390/vaccines13040377>

**Editorial comment:** This scoping review examines peer-reviewed, gray literature from 2010 to 2024. Searches were conducted in PubMed, Google Scholar, and relevant organizational reports (WHO, UNICEF). Studies addressing children with disabilities and focusing on immunization barriers, interventions, or lessons learned were selected. Children with disabilities continue to experience significant gaps in immunization coverage, driven by intersecting barriers at the individual, health system, and societal levels. Scaling tailored interventions, inclusive policies, strengthened infrastructure, and ongoing research can help ensure these children receive equitable access to life-saving vaccinations.

06

**“Global impact of ten-valent and 13-valent pneumococcal conjugate vaccines on invasive pneumococcal disease in all ages (the PSERENADE project): a global surveillance analysis”.**

**Published:** *Lancet Infect Dis* 2025; 25: 457–70. [https://doi.org/10.1016/S1473-3099\(24\)00665-0](https://doi.org/10.1016/S1473-3099(24)00665-0)

**Editorial comment:** This study was performed by the multinational PSERENADE project. The analyses included 32 PCV13 sites (488758 cases) and 15 PCV10 sites (46 386 cases) in 30 countries, primarily high income (39 sites), using booster dose schedules (41 sites). PCV13 introduction were reversed at PCV13 sites (age <5 years: 61–79% decline relative to before any PCV; age ≥65 years: 7–26% decline) but increased at PCV10 sites (age <5 years: 1.6–2.3-fold; age ≥65 years: 3.6–4.9-fold). Serotype 3 IRRs had no consistent trends for either product or age group. Non-PCV13-type IPD increased similarly for both products (age <5 years: 2.3–3.3-fold; age ≥65 years: 1.7–2.3-fold). Despite different serotype 19A trends, all-serotype IPD declined similarly between products among children younger than 5 years (58–74%); among adults aged 65 years or older, declines were greater at PCV13 (25–29%) than PCV10 (4–14%) sites, but other differences between sites precluded attribution to product. Long-term use of PCV10 or PCV13 reduced IPD substantially in young children and more moderately in older ages. Non-vaccine-type serotypes increased approximately two-fold to three-fold by 6 years after introduction of PCV10 or PCV13. Continuing serotype 19A increases at PCV10 sites and declines at PCV13 sites suggest that PCV13 use would further reduce IPD at PCV10 sites.

07

**SPECIAL SUPPLEMENT: “Neonatal & Maternal Immunization Supplement Featuring the 6th International Neonatal & Maternal Immunization Symposium (INMIS): “Fostering Scientific Collaboration Across Nations”.**

**Published:** *Pediatr Infect Dis J* 2025; 4: February Supplement 2S.10.1097/INF.0000000000004695.

**Editorial comment:** This supplement includes the reports of the 2024 meeting and of the Latin American Symposium held in conjunction with the Latin American Society of Pediatric Infectious Diseases (SLIPE), and covers a range of current topics in the field of maternal and neonatal immunization based on work presented by leading international experts in the field and original work submitted by participants. This unique collection of articles will be of relevance and importance to specialists in immunizations, pediatric infectious diseases, obstetrics, midwifery and all those who care for pregnant women, newborns and infants worldwide.

**Related Articles:**

Fostering Collaboration Across Nations: Report of the 6th International Neonatal and Maternal Immunization Symposium (INMIS), Costa Rica, 2024

Immunizing Pregnant Women and Infants (IMPRINT) Network: Building and Sustaining an Interdisciplinary Network Tackling the Complex Challenges of Vaccination in Pregnancy and Early Life

How Can We Accelerate Maternal Vaccination Globally?

Research Priorities for Maternal Immunization

Opportunities to Advance Maternal Immunization Research

Identifying Gaps and Opportunities for Maternal and Neonatal Immunization Research and Implementation in Latin America

Respiratory Syncytial Virus Epidemiology in Argentina: From COVID-19 Pandemic to the Maternal Immunization Strategy

Immunogenicity of COVID-19 Vaccines During Pregnancy: A Systematic Review and Comparison of Pregnant Versus Nonpregnant Persons

Maternal and Placental Antibody Responses in SARS-CoV-2 Vaccination and Natural Infection During Pregnancy

Systematic Literature Review of Maternal Antibodies in Human Milk Following Vaccination During Pregnancy or Lactation: Tetanus, Pertussis, Influenza and COVID-19

Comparative Analysis of Transplacental SARS-CoV-2 Antibody Transfer in Pregnancy Phenotypes With Pre-eclampsia and/or Small-for-gestational-age Infants

Impact of HIV Status on Group B Streptococcus Colonization and Antibody Responses in Serum and Vaginal Mucosa

What Is the Impact of Maternal Pertussis Immunization in Pregnancy on the Quantity, Quality and Longevity of Infant Vaccine Responses?: A Review of the Current Evidence

Infant Responses to Primary Immunization Following Vaccination in Pregnancy With Varying Doses of Recombinant Acellular Pertussis Vaccine Alone or Combined With Tetanus-Diphtheria

Cytokine Levels in Mother-infant Pairs at Term and Preterm Delivery

Antibody in Breastmilk Following Pertussis Vaccination in Three-time Windows in Pregnancy

Heterologous Effects of Pertussis and Influenza Vaccines During Pregnancy on Maternal and Infant Innate Immune Responses: A Pilot Study

Effect of the Ten-valent Pneumococcal Conjugate Vaccine on Invasive Pneumococcal Disease and Pneumonia in Infants Younger Than Ten Weeks of Age in Southern Mozambique: A Population-based Prospective Surveillance Study

Pertussis Vaccination During Pregnancy: Regional Situation and Impact of Implementation on National Immunization Programs in Latin America

08

**"Postnatal Zika and Dengue Infection and their Effects on Neurodevelopment Among Children Living in Rural Guatemala".**

**Published:** *Pediatr Infect Dis J* 2025; 44: 290–8. [10.1097/INF.0000000000004646](https://doi.org/10.1097/INF.0000000000004646).

**Editorial comment:** This is a prospective study that enrolled infants 0–3 months of age and their mothers, and children 1.5–3.5 years of age in rural Guatemala from 2017 and were followed for 12 months until 2019. In summary, postnatal ZIKV infection in children from rural Guatemala was not associated with worse neurodevelopmental outcomes. However, dengue virus seropositivity was associated with a higher risk of microcephaly in infants and worse neurodevelopmental outcomes in children.

09

**“Global, regional and national trends in incidence and mortality of pertussis from 1990 to 2021 and the comparison before and during COVID-19: A modelling analysis.”**

**Published:** J. Infect. Public Health 2025; 18: 102696. <https://doi.org/10.1016/j.jiph.2025.102696>

**Editorial comment:** This study assessed the disease burden of pertussis worldwide from 1990 to 2021. Using the GBD 2021, the authors extracted age-standardized incidence rates (ASIR) and death rates (ASDR) of pertussis and analyzed the trends of them through calculating the estimated annual percentage change (EAPC) at global, regional and national levels from 1990 to 2021. Besides, they compared the EAPCs before and during the COVID-19 pandemic to explore the difference. From 1990–2021, global burden of pertussis showed a downward trend, with significant drops during the COVID-19 pandemic. However, before the COVID-19, Southern Sub-Saharan Africa saw rising ASIR and ASDR, contrary to the majority. Besides, SDI was proved negatively correlated with ASR, indicating that low-SDI countries, especially in Sub-Saharan Africa, faced high disease burden, which highlighted the need for improving immunization, surveillance, and healthcare resource allocation to control pertussis effectively.

10

**“Safety and immunogenicity of mRNA-1345 RSV vaccine coadministered with an influenza or COVID-19 vaccine in adults aged 50 years or older: an observer-blinded, placebo-controlled, randomised, phase 3 trial.”**

**Published:** Lancet Infect Dis 2025; 25: 411–423. [https://doi.org/10.1016/S1473-3099\(24\)00589-9](https://doi.org/10.1016/S1473-3099(24)00589-9)

**Editorial comment:** The authors conducted a two-part, phase 3, observer-blinded, placebo-controlled, randomised trial in medically stable adults aged 50 years or older in the USA. In part A, participants were randomly assigned in a 7:10:10 ratio to receive 50 µg mRNA-1345 plus placebo (0.9% sodium chloride) or coadministered with 60 µg of a standard-dose quadrivalent inactivated influenza vaccine (SIIV4), or SIIV4 plus placebo. In part B, participants were randomly assigned in a 1:1:1 ratio to receive 50 µg mRNA-1345 plus placebo or coadministered with 50 µg SARS-CoV-2 mRNA-1273.214 (bivalent [Wuhan-Hu-1 plus omicron BA.1]), or mRNA-1273.214 plus placebo. Coadministered mRNA-1345 plus SIIV4 or mRNA-1273.214 vaccines had acceptable safety profiles and elicited mostly non-inferior immune responses compared to individual vaccines in adults aged 50 years or older; only the seroresponse rate difference in nAbs against RSV-A in part A did not meet the non-inferiority criterion. Overall, these data support coadministration of mRNA-1345 with these vaccines in this population; longer-term evaluation continues in this study.

11

**“Anti-Dengue Virus Antibody Avidity Correlates with Protection Against Symptomatic Dengue Virus Infection”.**

**Published:** J Infect Dis. 2025; 3: jiaf171. <https://doi.org/10.1093/infdis/jiaf171>

**Editorial comment:** Antibody avidity reflects the maturation of antibody affinity following viral infection or vaccination. To investigate the correlation between preexisting anti-dengue virus (DENV) antibody avidity and outcomes of secondary DENV exposure, the authors measured antibody avidity—expressed as the avidity index (antibody response/dissociation rate)—in serum samples from participants in the Nicaraguan Pediatric Dengue Cohort Study prior to symptomatic or inapparent secondary DENV infections. The study found that the avidity index was significantly higher in individuals who later developed inapparent infections compared to those with symptomatic infections, suggesting a potential role of antibody avidity in protection against severe disease. These findings indicate that the antibody avidity index may serve as a valuable tool for characterizing protective immune responses against DENV.

12

**“Rethinking the evidence on COVID-19 in Africa” – Review**

**Published:** The Lancet Infectious Diseases, on-line first – Published April 4, 2025  
[https://doi.org/10.1016/S1473-3099\(25\)00071-4](https://doi.org/10.1016/S1473-3099(25)00071-4)

**Editorial Comment:** Due to the high prevalence of asymptomatic infection, low mortality, and evidence of reduced inflammatory responses, authors have hypothesized that some populations in Africa might have reduced susceptibility to symptomatic COVID-19. The reduced inflammatory responses might result from immunoregulation or cross-reactive, pre-pandemic cellular immunity, although the evidence is not definitive. Local data are essential to develop public health policies that align with the reality on the ground rather than external perceptions.

13

### “Effect of Pneumococcal Conjugate Vaccines on Viral Respiratory Infections: A Systematic Literature Review”

**Published:** The Journal of Infectious Diseases, Volume 230, Issue 3, 15 September 2024, Pages e657–e667, <https://doi.org/10.1093/infdis/jjae125>

**Editorial Comment:** A new systematic review published in The Journal of Infectious Diseases highlights the broader benefits of pneumococcal conjugate vaccines (PCVs), including protection against certain viral respiratory infections such as influenza and seasonal coronaviruses.

#### Key findings include:

Strongest evidence in children, particularly against influenza

Consistent, though limited, evidence in adults

Potential contribution to reducing all-cause pneumonia through prevention of bacterial-viral co-infections

These insights underscore the broader public health value of PCVs.

14

### “Respiratory Virus Vaccines: Pathways to Recommendations and Enhanced Coverage for At-Risk Population”

**Published:** Infect Dis Ther (2025) 14 (Suppl 1):S99–S114  
<https://doi.org/10.1007/s40121-024-01082-2>

**Editorial Comment:** VIRAL RESPIRATORY DISEASES PREVENTION: A MUST

– Potential strategies to overcome barriers and improve uptake include strengthening and harmonizing immunization guidelines, improving respiratory disease surveillance systems, and implementing vaccination-focused healthcare provider training and consumer education.

– Co-administration of vaccines and administration of combination vaccines against multiple respiratory viruses are additional strategies to enhance coverage by simplifying immunization schedules and improving access.

15

### “Expansion of Oropouche virus in non-endemic Brazilian regions: analysis of genomic characterisation and ecological drivers”

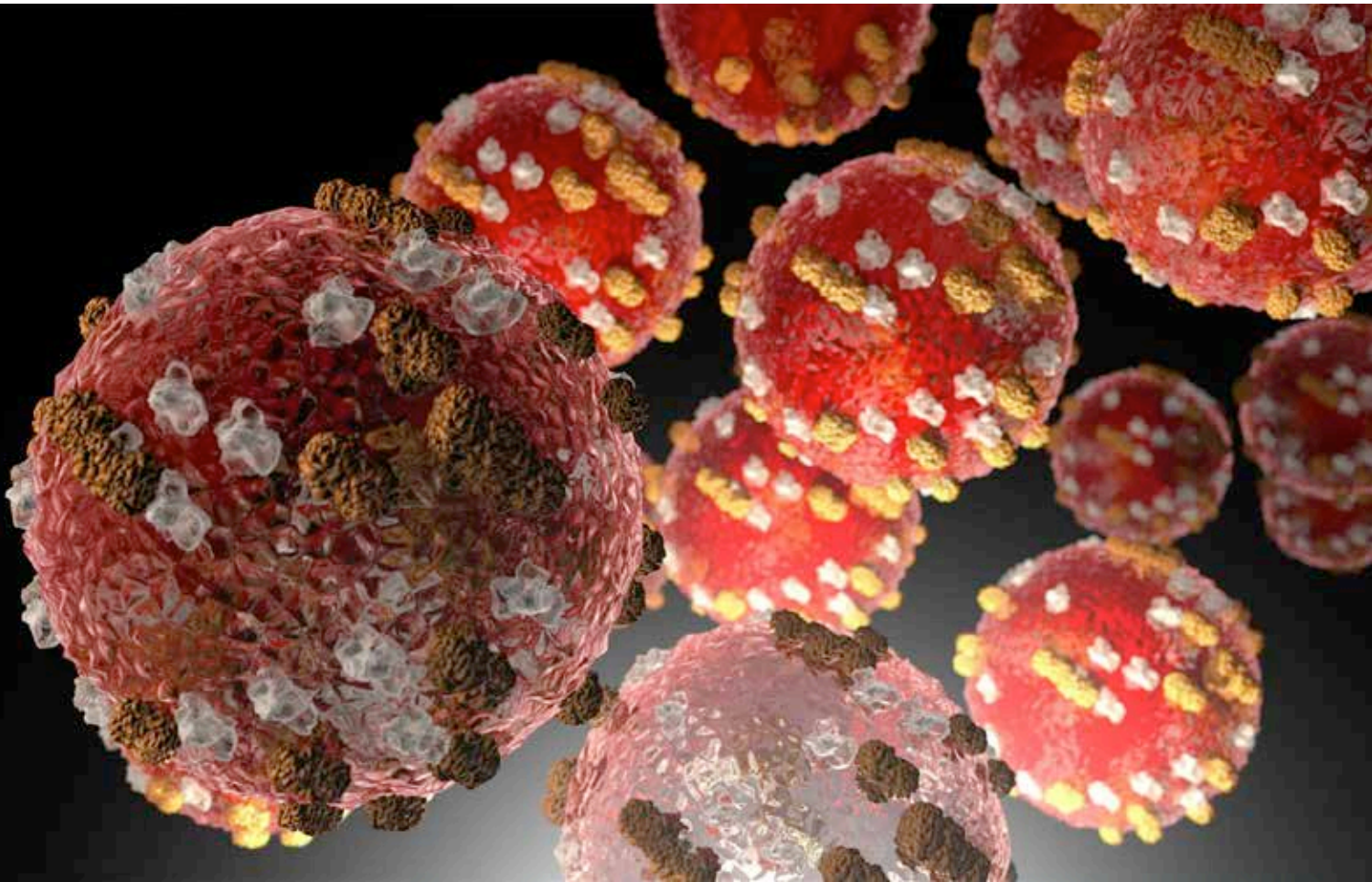
**Published:** The Lancet Infectious Diseases, Volume 25, Issue 4, 379 – 389.  
[https://doi.org/10.1016/S1473-3099\(24\)00687-X](https://doi.org/10.1016/S1473-3099(24)00687-X)

**Editorial Comment:** Epidemic data show that outside the Amazon region, OROV cases frequency was 3.9-times higher in small municipalities than in large municipalities. The planted areas of some agricultural products, such as banana plantations, were positively correlated ( $r=0.39$ ,  $p<0.0001$ ) with OROV cases. The linear mixed model revealed that, besides banana, cassava also has larger ( $p<0.05$ ) planted areas in municipalities with OROV cases when compared with those with no cases. The phylogenetic analysis of 32 new OROV genomes reconstructed multiple exportation events of the newly identified reassortant lineage from the Amazon to other Brazilian regions between January and March 2024. At least three of the previously described OROV phylogenetic clades circulating in the Amazon were the source of viral introductions. Molecular clock analysis estimated that viral introductions happened from 50 days to 100 days before detecting the outbreaks in each state.

**Interpretation:** These results confirm that the novel OROV reassortant lineage spread from the Amazon to other regions in early 2024, successfully establishing local transmission. The fact that outbreaks were observed in small municipalities, instead of large urban centers, suggests that local ecological conditions that are ideal for OROV vector occurrence, such as the banana plantation environment, might be important factors driving its spread in Brazil.

**Editors Corner**

# MEASLES IS BACK AND WE CAN DEFEAT IT!

**What to know about measles**

Measles is one of the most contagious diseases of humans. Estimates suggest nine out of 10 nonimmune people exposed to measles will become infected. Measles is far more contagious than the flu, COVID-19, or even Ebola.

Before the introduction of measles vaccine in 1963, major epidemics occurred approximately every 2 to 3 years and it is estimated that 30 million cases of measles and more than 2 million deaths occurred globally each year, and that by

the age of 15 years, more than 95% of individuals had been infected with measles virus.}

*Measles is preventable and can be eliminated by vaccination.* Before the introduction of measles vaccine in 1963, major epidemics occurred approximately every 2 to 3 years and it is estimated that 30 million cases of measles and more than 2 million deaths occurred globally each year, and that by the age of 15 years, more than 95% of individuals had been infected with measles virus.

Measles is preventable and can be eliminated by vaccination.

### Vaccination is highly effective

Two doses of the current vaccine provide 97% protection — much higher than most other vaccines. Rarely, a person gets measles despite being fully vaccinated. When that happens, the disease tends to be milder and less likely to spread to others.

The safety profile of the measles vaccine is excellent. Common side effects include temporary soreness in the arm, low-grade fever, and muscle pain, as is true for most vaccinations.

*A suggestion that measles or other vaccines cause autism has been convincingly discredited.* However, this often-repeated misinformation has contributed to significant vaccine hesitancy and falling rates of vaccination.

### Early diagnosis

It usually takes seven to 14 days for symptoms to show up once a person gets infected. Common early symptoms — fever, cough, runny nose — are similar to other viral infections such as colds or flu. A few days into the illness, painless, tiny white spots in the mouth (called Koplik spots) appear. But they're easy to miss and are absent in many cases. A day or two later, a distinctive skin rash develops.

### Measles can be serious and even fatal

Measles is not just another cold. A host of complications can develop, including brain

inflammation (encephalitis), which can lead to seizures, hearing loss, or intellectual disability pneumonia eye inflammation (and occasionally, vision loss) poor pregnancy outcomes, such as miscarriage subacute sclerosing panencephalitis (SSPE), a rare and lethal disease of the brain that can develop years after the initial measles infection.

Complications are most common among children under age 5, adults over age 20, pregnant women, and people with an impaired immune system. Measles is fatal in up to three of every 1,000 cases.

### Cost-effectiveness

Due to the availability of an inexpensive effective vaccine, measles immunization is one of the most cost-effective public health interventions in a wide range of development settings.

### The bottom line

Infectious Diseases and Vaccine Experts warn that the number of cases (and possibly deaths) are likely to increase. And due to falling vaccination rates, outbreaks are bound to keep occurring.

The good news: measles outbreaks can be contained and the disease itself can be eliminated by vaccination, and during the past 50 years, has saved an estimated 94 million lives.

To limit the impact of measles outbreaks, WHO recommends surveillance for early detection, thorough assessment of the risk of spread and of severe disease outcomes, identification of immunity gaps, and planning rapid responses.

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## Best Practice

# PHARMACOECONOMICS IN VACCINES

A Key Driver of Informed Decision-Making,  
Sustainability, and Public Health Success



## Introduction

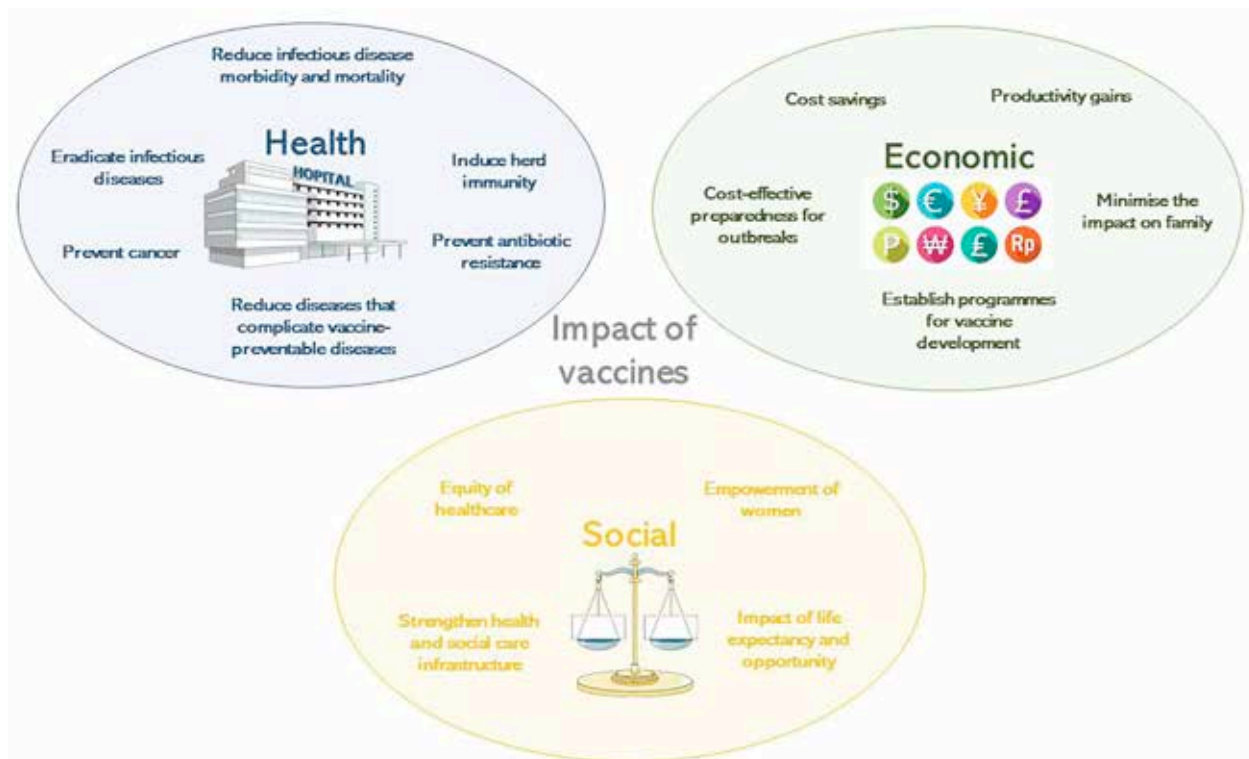
Vaccines success throughout time has been more than evident, global immunization efforts have saved an estimated 154 million lives – or the equivalent of 6 lives every minute of every year – being the measles vaccination with the most significant impact on reducing infant mortality, accounting for 60% of the lives saved due to immunization.

Over the past 50 years, vaccination against 14 diseases (diphtheria, *Haemophilus influenzae* type B, hepatitis B, Japanese encephalitis, measles, meningitis A, pertussis, invasive

pneumococcal disease, polio, rotavirus, rubella, tetanus, tuberculosis, and yellow fever) has directly contributed to reducing infant deaths by 40% globally, and by more than 50% in the African Region.

However, the impact of vaccines and vaccination extends beyond health, influencing social and economic aspects as well.

Figure -1: Overall impact of vaccines and vaccination. (Taken from Rodrigues CMC, Plotkin SA. *Front Microbiol* 2020; 11: 1526. 10.3389/fmicb.2020.01526. eCollection 2020).



Vaccines rank among the highest-return interventions, yielding up to ~\$40 USD for every dollar invested.

However, when deciding whether to implement a vaccine in a region or country, the costs associated with the biologic and its administration often pose the greatest barrier, as evidenced by numerous studies worldwide.

Therefore, pharmacoeconomic studies are essential in demonstrating to health authorities worldwide that vaccines are either cost-beneficial or cost-effective.

### Requirements for Conducting a Pharmacoeconomic Study on Vaccines

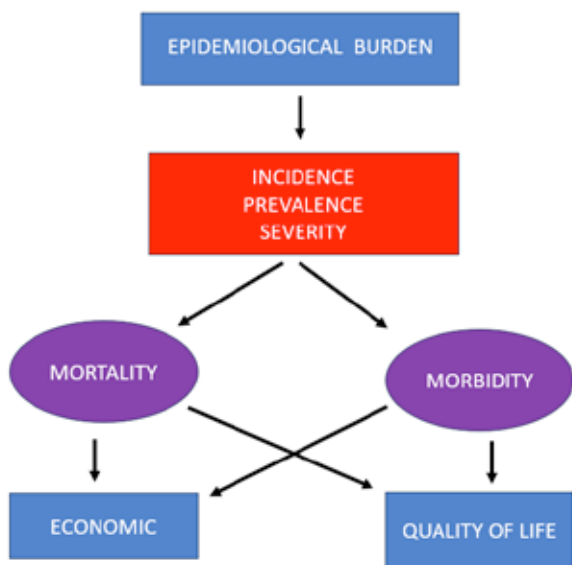
Epidemiologically, the disease burden is measured on incidence, prevalence and severity, as well on mortality and morbidity, with consequential impacts on economy and quality of life.

Figure -2: Overall burden of a vaccine-preventable disease (multiple references):

To conduct a pharmacoeconomic study on vaccines, the following assessments are essential:

#### Epidemiological burden of the disease:

The most reliable methods for data collection are passive or active surveillance, with the latter being preferred as a prospective approach. Additionally, for diseases where surveillance is technically challenging—such as non-mandatory notifiable diseases or cases where surveillance data is unreliable—serosurveys combined with epidemiological catalytic studies can serve as valuable alternatives.



## Economic burden of the disease:

In this field we need to assess the following:

**Direct Costs:** These encompass all healthcare-related expenses, including laboratory tests, hospitalizations, medications, outpatient visits, surgical procedures, and the treatment and management of disease-related complications, among many others. National cost references are available for various diseases, and in cases where active surveillance is conducted, real-life cost data can often be directly obtained.

**Indirect Costs:** These include expenses associated with wage loss, transportation, and other non-medical costs incurred by patients and/or caregivers. For large retrospective studies, average salary costs can be estimated using the country's annual average wage.

## Cost of the Vaccine and Vaccination:

The price of the same vaccine can vary significantly between countries, largely depending on the purchasing mechanism. Vaccines may be procured directly from manufacturers or through support programs from organizations such as GAVI, the PAHO Revolving Fund, and others. Additionally, the cost of vaccine administration is considered; however, many studies often overlook the expenses associated with delivering vaccines to hard-to-reach regions.

## Selection of the appropriate study pharmacoeconomic model or methodology:

**Cost-Minimization Analysis:** This approach focuses on selecting the most affordable vaccine brand, with government decisions based solely on the purchase price.

**Cost-Benefit Analysis (CBA):** This method compares monetary costs and benefits. The cost of vaccination, including both direct and indirect expenses, is assessed against the financial burden of the disease. A Benefit-Cost Ratio (BCR) lower than 1 ( $BCR < 1$ ) indicates that vaccination is more cost-effective than treating the disease.

**Cost-Effectiveness Analysis (CEA):** This evaluates the cost per life year gained (LYG) due to vaccination. LYG quantifies the additional years of life a person gains as a result of immunization. The cost per LYG is typically assessed using a nationally established benchmark or, if unavailable, the per capita gross domestic product (GDP). Additionally, the *Incremental Cost-Effectiveness Ratio (ICER)* is calculated, which measures the difference in cost between vaccination and no vaccination, divided by the difference in their effects. A lower cost per LYG signifies a more favorable intervention.

**Cost-Utility Analysis (CUA):** These studies assess the quality-adjusted life year (QALY), a measure that combines both the quality and quantity of life. It represents the number of life years saved, adjusted for the quality of those years, by multiplying the years of life gained by the utility value for each year.

## Conclusions

Pharmacoeconomic studies have become a crucial tool for public health authorities in deciding whether to introduce a new vaccine into the National Immunization Program (NIP) or to procure a new vaccine for an existing disease. Ideally, all countries should conduct these analyses before implementing any vaccine, but political will plays a vital role—without it, even the most rigorous scientific evidence can be overlooked.

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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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