VACCINES BEAT

SHAPING AFRICA'S HEALTH SOVEREIGNTY

Prof. Nicaise Ndembi shares his continent's quest for self-reliance

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"IMMUNIZATION IS A GLOBAL HEALTH AND DEVELOPMENT SUCCESS STORY SAVING MILLIONS OF LIVES EVERY YEAR"

WORLD HEALTH ORGANIZATION

Shaping Africa's Health Sovereignty

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Prof. Nicaise Ndembi is the Deputy Director General of the International Vaccine Institute (IVI) and Regional Director for Africa. A virologist whose early research helped shape global HIV drug resistance policy, Prof. Ndembi has been at the forefront of Africa's pandemic preparedness and response architecture, from the evolution of the Africa Centres for Disease Control and Prevention (Africa CDC) to the continent's ambitious push for vaccine manufacturing and research & development sovereignty.

He also serves as an Associate Professor at the Institute of Human Virology, University of Maryland School of Medicine, and as a Research Professor in the Department of Viral Infection and International Public Health at Kanazawa University School of Medicine, where he earned his doctorate in virology.

Before joining IVI in 2025, Prof. Ndembi was Principal Advisor to the Director General of Africa CDC, where he spearheaded the Partnerships for African Vaccine Manufacturing, establishing a framework for regional vaccine production and self-reliance. He also served as Deputy Incident Manager for the Mpox–Marburg Continental Preparedness and Response Plan for Africa.

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LETTER FROM EDITOR

Welcome to Vaccines Beat 20th issue!

In our *"Coffee with the Expert"* section, we were honored to feature **Professor Nicaise Ndembi, PhD**. Prof. Ndembi is Deputy Director General and Regional Director of the IVI Africa Regional Office in Kigali, Rwanda, and also serves as an Associate Professor at the Institute of Human Virology, University of Maryland School of Medicine, and a Research Professor at Kanazawa University School of Medicine. Previously, he was Principal Advisor to the Director General of Africa CDC, where he established the Partnerships for Africa Vaccine Manufacturing (PAVM) and led continental preparedness and response efforts for mpox and Marburg disease. In recognition of his impact, he was named to the **2025 TIME100 Health list** and the **2025 100 Most Notable Peace Icons in Africa** list. Our engaging conversation with **Prof. Ndembi** explored the evolving role of **Africa CDC**, including its growth since its establishment in 2017. We discussed the most significant obstacles currently affecting vaccine research and development (R&D) and the implementation of immunization programs across Africa, as well as the primary objectives, opportunities, and challenges of the **ACHIEVE Africa** initiative (*Accelerating Health Innovation, Equity, and Development of Vaccines and Biologics in Africa*). The discussion also addressed several other critical issues shaping the future of vaccine equity and health security on the continent.

In the *Editor's Corner* section, we address Nipah virus from a historical and public health perspective, highlighting its recurrent outbreaks—predominantly in Asia—and its potential to cause more widespread epidemics. We discuss the current landscape of vaccine candidates and examine how global inequities between high-income countries and low- and middle-income countries have contributed to the absence of an approved vaccine to date, despite the virus's high lethality and pandemic potential.

In our *Best Practice* section, we summarize the current landscape of cholera vaccines, emphasizing their critical role as an urgent public health intervention alongside sustained investments in water, sanitation, and hygiene (WASH) and broader equity in living conditions. We highlight how vaccination complements—rather than replaces—structural improvements, particularly in settings affected by humanitarian crises, climate-related disruptions, and fragile health systems, where the risk of cholera outbreaks remains high.

Finally, in our *Guest Contributor* section, **Dr. Malook Vir Singh, MBBS, MSc, FRSM**, Associate Medical Safety Director at IQVIA (India) and an internationally recognized expert in pharmacovigilance, provides valuable insight in *"Safeguarding Vaccine Safety: A Snapshot of Pharmacovigilance."* He outlines pharmacovigilance as the essential, systematic discipline dedicated to detecting, assessing, and preventing adverse events following immunization across the entire vaccine lifecycle—from development and clinical trials to post-marketing surveillance—highlighting its critical role in maintaining public trust and ensuring that the benefits of vaccination consistently outweigh potential risks.

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 February issue both informative and engaging, and we look forward to continuing this shared commitment to advancing global health and building a healthier planet.

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

Dr. 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.

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 the President of the Immunization Committee of the Mexican Association of Pediatric Infectious Diseases, he is a member of the Mexican Committee for the Elimination of Measles, Rubella, and Congenital Rubella, member of the Immunization and of the Health Equity Committees of the European Society of Medicine and Overseas Fellow, Royal Society of Medicine, United Kingdom. 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.

Coffee with the Expert

SHAPING AFRICA'S HEALTH SOVEREIGNTY

Prof. Nicaise Ndembi shares his continent's quest for self-reliance

Authors:
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Prof. Nicaise Ndembi is the Deputy Director General of the International Vaccine Institute (IVI) and Regional Director for Africa. A virologist whose early research helped shape global HIV drug resistance policy, Prof. Ndembi has been at the forefront of Africa's pandemic preparedness and response architecture, from the evolution of the Africa Centres for Disease Control and Prevention (Africa CDC) to the continent's ambitious push for vaccine manufacturing and research & development sovereignty.

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Prof. Ndembi has authored and co-authored over 300 peer-reviewed papers and book chapters. He is the Editor-in-Chief of the *African Journal for AIDS and Infectious Diseases (AJAID).*

Over a virtual coffee with Vaccines Beat's editorial team spanning Houston, Lisbon, and Africa, he reflects on his scientific journey, the transformation of Africa's health security landscape, and why the continent must now take ownership of its research and development agenda.

From HIV Origins to Drug Resistance and Policy Formulation

For Prof. Ndembi, his scientific calling is rooted in equity and urgency. Multiple factors are contributing to the rise of emerging infectious diseases in Africa, with more than 200 disease outbreaks reported every year.

"It is why Africa needs a coordinated strategy to develop, finance, manufacture and deliver vaccines across the continent," he says.

As an African scientist, he was motivated by the need for Africa to have a voice in the HIV response.

"My inspiration stems from supporting what we can bring to the continent," he adds.

Antiretroviral drugs to treat HIV became available in the mid-1990s. However, the initial pricing of these medications made them largely inaccessible in many low-income countries. While death rates declined significantly in wealthier nations, access to treatment in parts of Africa remained limited. It is estimated that between 1997 and 2007, millions of Africans died during a period when life-saving therapies were not yet widely available across the continent.

Ensuring equitable access to diagnostics, therapeutics, vaccines, and other medical countermeasures became Prof. Ndembi's mission.

"My goal was to contribute to the science and find ways to make it accessible so that these drugs could actually reach the people who needed them," he recalls. "I pursued a PhD in molecular virology, in part because there was scepticism at the time about whether Africans could adhere to antiretroviral therapy (ART)."

Demonstrating adherence, he explains, is not just about counting pills. It involves measuring drug levels in the blood and monitoring viral fitness, evolution and dynamics over time. Coming from a background studying HIV evolution and simian viruses -transmission from monkeys and chimpanzees to humans in Central Africa- he was well-positioned to explore the origins of HIV.

"So it was natural for me to apply the concept of viral evolution to HIV drug resistance," he says.

In the early phase of his career, Prof. Ndembi focused on drug resistance. He published extensively, showing that treatment could not rely on a single drug or a fixed-dose combination indefinitely in low and middle-income countries.

"If one drug fails, how do we transition to another and optimize the regimen?" he explains. "That challenge became my inspiration."

Africa CDC: From Ebola to COVID-19 and Beyond

The 2014–2015 Ebola Virus Disease (EVD) outbreak in West Africa served as a turning point, accelerating efforts to establish a continent-wide public health institution. The crisis exposed significant weaknesses in national health systems and underscored the profound economic and social consequences that infectious disease outbreaks can generate.

In response, African heads of state formally launched the Africa Centres for Disease Control and Prevention (Africa CDC) on January 31, 2017, tasking it with strengthening public health institutions across the continent to better detect, prevent, control, and respond swiftly and effectively to health threats.

The founding of Africa CDC in 2017, along with the appointment of Ambassador Dr. John Nkengasong, represented what Prof. Ndembi describes as a transformative shift in Africa's public health landscape.

Established by the African Union, Africa CDC was designed to facilitate faster, more coordinated responses across member states, working in partnership with the World Health Organization (WHO).

Yet, the scale of public health demand remains substantial. According to reports, Africa experienced more than 200 outbreaks in 2024, with a similar estimate in 2025.

As in many parts of the world, the COVID-19 pandemic marked a defining period for the continent. However, Africa did not receive COVID-19 vaccines until approximately six months after the pandemic began, underscoring persistent challenges related to equity and timely access to essential medical countermeasures.

Among the flagship initiatives was the Partnerships for African Vaccine Manufacturing (PAVM), with an ambitious goal: to manufacture 60% of Africa's vaccines locally by 2040.

"Africa previously produced only one vaccine antigen, yellow fever at the Institut Pasteur in Dakar," Prof. Ndembi notes. "By 2030, we aim to produce eight more antigens locally."

Today, more than 25 vaccine manufacturing initiatives are underway across the continent, representing a critical step toward Africa health sovereignty and New Public Health Order.

The Eight Enablers: Financing, Human Capital Development, R&D, and the Engine of Innovation

The Framework for Action recommends that the African vaccine manufacturing ecosystem focus on strengthening eight enablers, which will require it to roll out eight bold programs. Initially, a collaborative pooled-procurement mechanism can help ensure consistent and sustainable vaccine supply by leveraging economies of scale. A deal preparation facility will help attract the significant investments needed. Meanwhile, ongoing efforts in technology transfer, regulation, research and development, and infrastructure will continue to build a supportive environment for long-term success.

Prof. Ndembi notes that very few countries in Africa spend more than 1% of their GDP on R&D, fewer than ten out of fifty-five African countries, covering 1.5 billion people. With global funding cuts affecting pandemic preparedness, domestic investment has never been more urgent. Financing, he emphasizes, is equally critical.

"They need to find better ways to mobilize resources for research. Without strong research ecosystems, intellectual property ownership and meaningful technology transfer remain out of reach," he mentions. "R&D is the engine for local manufacturing."

Human capital development forms another bold program. He cites South Korea's transformation as an example: within two decades, the country went from producing 5% of its vaccines to 50–60%, driven by strategic financing, human capital development, and strong R&D and regulatory systems.

"When we talk about producing 60% of Africa's vaccines locally by 2040, we need the people behind it," he says. "Ultimately, biotechnology will drive innovation and manufacturing," he concludes. "That's the core model."

Regulatory Harmonization and AMA

Fragmented regulatory systems remain a major challenge for Africa's health agenda. In this context, the African Medicines Agency (AMA) is intended to strengthen national regulatory systems and support more consistent oversight of medical products. By advancing regulatory harmonisation and fostering cooperation among national regulatory authorities (NRAs) of African Union member states, the AMA aims to facilitate more timely and equitable access to quality, safe, and efficacious medicines across the continent.

However, 31 African countries have ratified the AMA Treaty, with major economies such as Nigeria and South Africa still pending. An advocate of regulatory harmonization in the region, Prof. Ndembi notes that there are still some challenges to overcome.

"The remaining 24 countries are all supportive," he notes, "but there are still national legislative processes to overcome before having the benefits of a unified African regulatory system and that's essential for the continent's health sovereignty."

ACHIEVE Africa: Owning the R&D Agenda

ACHIEVE Africa (Accelerating Health Innovation, Equity, and Development of Vaccines and Biologics) is a regionally connected and globally relevant initiative and perhaps the most transformative initiative led by Prof. Ndembi. It aims to build the continent's end-to-end research and development ecosystem for vaccines and therapeutics.

"R&D capability exists on the continent, but it is unevenly distributed and often disconnected from product development," he says. "The ultimate question is: how many technology transfers or intellectual property outcomes have actually been generated over years?"

Over the past decade, substantial investment has been directed toward research and development in Africa. However, the translation of research findings into practical applications has at times been limited. Lately, there has been growing recognition of the need to strengthen pathways that connect research more directly to implementation, innovation, and societal impact.

"There needs to be a paradigm shift - R&D that leads to manufacturing," Prof. Ndembi emphasizes, adding that many current initiatives are attempting to close that gap.

He also highlights the lack of domestic investment and claims Africa's gross expenditure on R&D, as a proportion of GDP, stands at about 0.5% compared to world average of 2.2%. Without sufficient resources from member states, Africa cannot drive its own research priorities. To achieve genuine leadership, he believes all regional stakeholders must work together.

"Right now, we don't fully own the R&D agenda. When funding comes from external sources, priorities are dictated externally, not by the continent," he says.

ACHIEVE Africa aims to unify leading institutions across North, West, Central, East, and Southern Africa regions. Its goals include conducting gap analyses, building infrastructure through a hub and spokes twinning capabilities enhancement model, and defining product pipelines for priority diseases.

Currently, less than 5% of global clinical trials take place in Africa, despite the continent bearing the highest burden of infectious diseases.

"We need clinical trial–ready centers compliant with international standards," he underscores.

By the end of its five-year program, ACHIEVE Africa aims to advance at least two vaccine candidates and one biologic toward manufacturing, and to progress two new intellectual properties (IPs) through non-GMP development and pre-clinical animal studies.

"It really unifies the continent," he says. "Rather than funding several projects across the continent, funders can invest in ACHIEVE Africa and undertake clinical trials across different regions."

Marburg, Cholera, emergency preparedness and response

Prioritization and risk ranking of epidemic-prone disease is important to inform strategic planning and help effective resource allocation to manage prevention/mitigation and response actions to health emergencies.

Historical modelling suggests that the frequency and severity of epidemics caused by wildlife zoonoses –driven by human activities and their environmental impact– are increasing. Such modelling estimates that the probability of a future zoonotic-spillover event resulting in a pandemic of COVID-19 magnitude or larger is between 2.5% and 3.3% annually. In other words, there is a 22%–28% chance that another outbreak of the magnitude of COVID-19 will occur within the next 10 years and a 47%–57% chance that it will occur within the next 25 years

Turning to **Marburg virus disease (MVD),** Prof. Ndembi highlights a rare but highly fatal viral hemorrhagic fever, with mortality rates up to 88%. Recent years have seen MVD emerge or cause outbreaks in areas (Ethiopia, Rwanda, Equatorial Guinea, Tanzania, Ghana and Guinea) where it was not previously detected, indicating a widening geographical range.

"Marburg today… but that's also the same question we can ask about cholera," he says, broadening the discussion to other persistent public health threats.

Last year alone, Africa recorded 6,000 cholera deaths, a vaccine-preventable disease. Yet, for over a decade, vaccine supply has consistently fallen short of demand.

Without public health prioritization and pooled funding -potentially involving organizations like the **Coalition for Epidemic Preparedness Innovations (CEPI), among others-** manufacturers may hesitate to invest. Nevertheless, promising vaccine candidates exist for both Marburg and Lassa fever.

"We really ought to put funding in place to move these candidates beyond phase 1 or phase 2," he insists, emphasizing the need for strategic investment in pandemic preparedness.

Beyond Vaccines: Water, Sanitation and One Health

On cholera prevention, Prof. Ndembi emphasizes that vaccines alone are not enough. Outbreak response often falls solely under Ministries of Health, while water and sanitation are managed by other ministries.

"We should start earlier," he says, advocating for multisectoral coordination under the **One Health** approach, which integrates health, water, energy, and environmental sectors.

One Health is a collaborative, multisectoral, and transdisciplinary framework that works at local, regional, national, and global levels. It aims to achieve optimal health outcomes by recognizing the interconnections between people, animals, plants, and their shared environment. The approach focuses on preventing, predicting, and responding to threats such as zoonotic diseases, antimicrobial resistance, and environmental degradation.

Vaccine Hesitancy: Engagement Not Assumptions

Vaccine hesitancy is rising across the globe, with more people postponing or declining recommended immunisations despite their availability. This increases community vulnerability to infectious diseases, contributing to recurring outbreaks that strain resources and result in preventable deaths.

Understandably, vaccine hesitancy is receiving unprecedented global attention. Yet, knowledge gaps remain, particularly in Africa. A recent article in *Human Vaccines & Immunotherapeutics* notes that: "The vast majority of research on this topic has been conducted in high-income countries. Little is therefore known about the nature and causes of vaccine hesitancy in Africa, and evidence-based interventions in the region to address it are also limited."

"Despite conducting only 5% of global clinical trials, Africa consumes a disproportionately high share of vaccines for immunization programs," Prof. Ndembi says. "I cannot explain why."

During COVID-19, Africa CDC conducted in-person surveys across 15 countries with over 15,000 participants.

"Africans wanted the COVID-19 vaccine -almost 80% or more," he asserts.

Prof. Ndembi draws a distinction between strong childhood immunization uptake (above 80% in most countries) and the more complex dynamics surrounding adult outbreak vaccines. However, he points out that delayed access of the COVID-19 vaccine -six to eight months after the global rollout- eroded trust.

"People would say, 'If I survive for eight months, I can survive another eight months,'" he remembers. "That's when vaccine acceptance dropped, turning into hesitancy. Primarily due to lack of access, misinformation, and disinformation," 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.

Hidden mpox exposure detected in healthy Nigerian adults, revealing under-recognised transmission.
University of Cambridge The mpox virus appears to be circulating silently in parts of Nigeria, in many cases without the symptoms typically associated with the disease, according to new research led by scientists from the University of Cambridge and partners in Nigeria. The findings may have implications for controlling the spread of the disease.
Published: January 21, 2026.
https://www.unmc.edu/healthsecurity/transmission/2026/01/21/hidden-mpox-exposure-detected-in-healthy-nigerian-adults-revealing-under-recognised-transmission/#:~:text=University%20of%20Cambridge%20The%20mpox,Cambridge%20and%20partners%20in%20Nigeria

CEPI backs updated Zaire ebolavirus vaccine that aims to improve vaccine affordability and accessibility.
A vaccine used to help protect against *Zaire ebolavirus* – one of the world's most severe infectious diseases – could become more affordable and easier to deploy in low-resource settings thanks to a new collaboration between CEPI and MSD. Backed by up to $30 million in CEPI funding, MSD will leverage Hilleman Laboratories, a joint venture of MSD and Wellcome, to develop an Ebola vaccine with an updated manufacturing process that is designed to help make the vaccine more affordable and accessible for low- and middle-income countries.
Published: January 21, 2026.
https://cepi.net/cepi-backs-updated-zaire-ebolavirus-vaccine-aims-improve-vaccine-affordability-and-accessibility

Shingles Vaccine Linked to Slower Biological Aging, Study Finds.
The findings suggest that the vaccine may have "broad" and lingering effects on "aging-related processes," according to the authors, gerontologists Jung Ki Kim and Eileen Crimmins from the University of Southern California.
Published: January 22, 2026.
https://www.sciencealert.com/shingles-vaccine-linked-to-slower-biological-aging-study-finds

Not all vaccines fight infections. An experimental fentanyl shot shows why.
From classic toxoid vaccines to experimental shots targeting cancer and addiction, vaccines are steadily expanding beyond their traditional role of preventing infectious disease. The fentanyl vaccine works by attaching fentanyl-like molecules to a larger carrier protein, training the immune system to recognize the drug and generate antibodies that bind fentanyl before it can reach the brain.
Published: January 22, 2026.
https://www.gavi.org/vaccineswork/not-all-vaccines-fight-infections-experimental-fentanyl-shot-shows-why

Neglected tropical diseases: the need for an integrated approach to achieve the 2030 roadmap.
Neglected tropical diseases are ancient maladies that continue to disproportionately affect more than one billion of the world's poorest people. In 2021, as part of its strategy to achieve the Sustainable Development Goals, the World Health Organization renewed its commitment to end their neglect by 2030. On World Neglected Tropical Diseases Day 2026, we discuss the need for an integrated approach to overcome the "last mile" barriers to achieving their eradication and elimination.
Published: ***January 31, 2026.***
https://www.nature.com/articles/s41467-026-69020-z

Ending neglected diseases requires partners willing to go where markets won't.
An IAVI Statement on World Neglected Tropical Diseases (NTDs) Day 2026.
Published: January 29, 2026.
https://www.iavi.org/features/iavi-statement-on-world-neglected-tropical-diseases-ntds-day-2026/.

WHO: Nipah virus infection – India.
On 26 January 2026, the National IHR Focal Point for India notified WHO of two laboratoryconfirmed cases of Nipah virus (NiV) infection in West Bengal State. Both are healthcare workers at the same private hospital in Barasat (North 24 Parganas district). NiV infection was confirmed at the National Institute of Virology in Pune on 13 January. One case remains on mechanical ventilation as of 21 January, the other case experienced severe neurological illness but has since improved.
Published: January 30, 2026.
https://www.who.int/emergencies/disease-outbreak-news/item/2026-DON593

New dashboard helps predict and plan for disease outbreaks.
A new tool developed by UC San Diego with UNICEF and New Light Technologies helps Peru and Brazil anticipate dengue and malaria, plan resources and lay the groundwork for global expansion. The researchers at the University of California San Diego School of Global Policy and Strategy have designed the new platform to translate academic disease forecasting into actionable guidance for decision-makers. The Disease Incidence and Resource Estimator (DIRE) is an interactive map using geospatial predictive analytics that shows where dengue and malaria outbreaks are likely to occur—and what health resources may be needed to control and treat them.
Published: February 1, 2026.
https://medicalxpress.com/news/2026-01-dashboard-disease-outbreaks.html

Valneva and Instituto Butantan Announce Initiation of a Pilot Vaccination Campaign in Brazil with Single-Shot Chikungunya Vaccine IXCHIQ®.
Valneva and Instituto Butantan have announced the initiation of a pilot vaccination campaign in Brazil, conducted in the absence of an active outbreak, using the single-dose chikungunya vaccine Ixchiq®. The campaign targets approximately 500,000 adults aged 18–59 years.
Published: February 3, 2026.
https://valneva.com/press-release/valneva-and-instituto-butantan-announce-initiation-of-a-pilot-vaccination-campaign-in-brazil-with-single-shot-chikungunya-vaccine-ixchiq/

Fortune Business Insights: Poultry Vaccines Market Size, Share & Industry Analysis, By Technology Source.
The global poultry vaccines market size was valued at USD 1.32 billion in 2025. The market is projected to grow from USD 1.38 billion in 2026 to USD 2.38 billion by 2034, exhibiting a CAGR of 6.99% during the forecast period. North America dominated the poultry vaccines market with a market share of 46.11% in 2025. The poultry vaccines market is witnessing a significant growth trajectory during the forecast period. The rising demand for poultry products and rising incidences of infectious diseases such as avian influenza, Newcastle disease, and infectious bronchitis have heightened the need for effective vaccination strategies.
Published: January 19, 2026.
https://www.fortunebusinessinsights.com/poultry-vaccines-market-113875

Reuters: PAHO calls for increased surveillance amid rising measles cases in the Americas.

The Pan American Health Organization (PAHO) on Wednesday called for intensifying epidemiological surveillance and vaccination, as a widening outbreak led to a spike in measles cases across the Americas. The agency's alert comes after cases and outbreaks across several countries in the region, amid a sustained rise in measles infections in 2025 compared with the previous five years, a trend that appears to be continuing.
Published: February 4, 2026.
https://www.reuters.com/business/healthcare-pharmaceuticals/paho-calls-increased-surveillance-amid-rising-measles-cases-americas-2026-02-04/

WHO Confirms Loss of Measles Elimination Status in Spain and UK.
The World Health Organization (WHO) has removed the designation of "eliminated endemic measles transmission" from both Spain and the United Kingdom, reflecting a resurgence of the highly contagious disease across the WHO European Region. The change affects multiple countries after independent expert review of surveillance data showed sustained or renewed transmission that no longer met the criteria for elimination.
Published: January 27, 2026.
https://euroweeklynews.com/2026/01/27/who-confirms-loss-of-measles-ilimination-status-in-spain-and-uk/

Malawi under public health emergency after polio virus resurgence in Lilongwe.
The halls of Bwaila Hospital in Lilongwe were crowded with concerned parents this Huwebes, as news of a polio resurgence spread through the capital. The Malawian government officially declared the outbreak on Pebrero 3, after samples confirmed the presence of circulating vaccine-derived poliovirus type 2. Among the confirmed cases is an eight-year-old girl, a stark reminder that the virus remains a threat years after it was thought to be contained.
Published: February 6, 2026.
https://smninewschannel.com/malawi-under-public-health-emergency-after-polio-virus-resurgence-in-lilongwe/#google_vignette

UNICEF: Preventive cholera vaccination resumes as global supply reaches critical milestone.
First preventive campaign in over three years launches in Mozambique, with others planned in Bangladesh and the Democratic Republic of the Congo
Published: February 4, 2026.
https://www.unicef.org/press-releases/preventive-cholera-vaccination-resumes-global-supply-reaches-critical-milestone

WHO: Four in ten cancer cases could be prevented globally.
Up to four in ten cancer cases worldwide could be prevented, according to a new global analysis from the World Health Organization (WHO) and its International Agency for Research on Cancer (IARC). Three cancer types – lung, stomach and cervical cancer – accounted for nearly half of all preventable cancer cases in both men and women, globally, the latter prevented by a vaccine.
Published: February 3, 2026.
https://www.who.int/news/item/03-02-2026-four-in-ten-cancer-cases-could-be-prevented-globally#:~:text=Up%20to%20four%20in%20ten,Research%20on%20Cancer%20%28IARC%29

Gavi: Malaria researchers are getting closer to outsmarting the world's deadliest parasite.
After decades of stalled progress, new vaccines, treatments and genetic tools are helping scientists protect children and save lives worldwide.
Published: January 28, 2026.
https://www.gavi.org/vaccineswork/malaria-researchers-are-getting-closer-outsmarting-worlds-deadliest-parasite#:~:text=Cross%2DpostsMalaria-,Malaria%20researchers%20are%20getting%20closer%20to%20outsmarting%20the%20world's%20deadliest,children%20and%20save%20lives%20worldwide.&text=Every%20year%2C%20malaria%20kills%20more%20than%20600%2C000%20people%20worldwide

Bilinski A. Why It Is Unethical Not to Conduct Randomized Trials in Pregnancy. *JAMA.* **2026 Feb 9. doi: 10.1001/jama.2026.0805.**
Editorial comment: This Viewpoint highlights the urgent need to establish systematic and standardized processes for evaluating the safety and efficacy of medications during pregnancy. In particular, it argues for the routine inclusion of pregnant individuals in randomized clinical trials (RCTs), rather than the current reliance on observational data collected after widespread clinical use. The authors discuss how the

exclusion of pregnant populations from RCTs has led to persistent evidence gaps, delayed guidance, and uncertainty in clinical decision-making. They further emphasize that ethically designed and carefully monitored trials are essential to generate robust, timely data that can better inform treatment recommendations, improve maternal and fetal outcomes, and reduce inequities in drug development and regulatory approval.

Sanofi: Press Release: Sanofi completes the acquisition of Dynavax.
Sanofi today announced that it has completed the acquisition of Dynavax Technologies Corporation (Dynavax). The acquisition includes Dynavax's adult hepatitis B vaccine HEPLISAV-B, which is currently marketed in the US and is differentiated by its two-dose regimen over one month. It also includes Dynavax's shingles vaccine candidate (Z-1018), which is currently in phase 1/2 studies, and additional vaccine pipeline projects.
Published: February 10, 2026.
https://www.sanofi.com/en/media-room/press-releases/2026/2026-02-10-14-00-56-3235419

PAHO: Chikungunya cases increasing in several countries in the Americas; PAHO recommends preparedness.
The Pan American Health Organization (PAHO) has issued an epidemiological alert following a sustained increase in chikungunya cases in several countries in the Americas since late 2025 and into early 2026. The alert also highlights the re-emergence of local transmission in areas that had not reported virus circulation in several years.
Published: February 11, 2026.
https://www.paho.org/en/news/11-2-2026-chikungunya-cases-increasing-several-countries-americas-paho-recommends-preparedness

Making Ebola Vaccines refrigerator-ready for Africa's next crisis.
Hilleman Laboratories is stepping into a critical gap in global epidemic preparedness, and its latest work on a more deployable Ebola vaccine could be a game-changer for Africa and other vulnerable regions.
Published: February 13, 2026.
https://capitalethiopia.com/2026/02/13/making-ebola-vaccines-refrigerator-ready-for-africas-next-crisis/

African leaders launch ACHIEVE Africa during AU Summit to drive vaccine research, development, and self-reliance.
H.E. Hakainde Hichilema, President of the Republic of Zambia, announces the official launch of a five-year, US$100+ million initiative to accelerate Africa's end-to-end vaccine and biologics R&D ecosystem.
Published: February 15, 2026.
https://www.ivi.int/african-leaders-launch-achieve-africa-during-au-summit-to-drive-vaccine-research-development-and-self-reliance/#:~:text=and%20self%2Dreliance-,African%20leaders%20launch%20ACHIEVE%20Africa%20during%20AU%20Summit%20to%20drive,%2C%20development%2C%20and%20self%2Dreliance&text=H.E.,vaccine%20and%20biologics%20R%26D%20ecosystem

Uganda: Anthrax outbreak in Lyantonde District results in 4 deaths.
The Uganda Ministry of Health has confirmed an anthrax outbreak in Lyantonde District in southern Central Uganda, according to a local media report.
Published: February 15, 2026.
https://outbreaknewstoday.substack.com/p/uganda-anthrax-outbreak-in-lyantonde

Anti-Marburg antibody from Vanderbilt Health sent to Ethiopia during outbreak.
There currently are no approved treatments or vaccines to protect against the infection, which can cause internal bleeding, organ failure, and in roughly 50% of cases, death.
Published: February 13, 2026.
https://news.vumc.org/2026/02/13/anti-marburg-antibody-from-vanderbilt-health-sent-to-ethiopia-during-outbreak/#:~:text=MBP091%2C%20an%20investigational%2C%20anti%2D,viral%20infection%20late%20last%20year

WHO prequalifies an additional novel oral polio vaccine, strengthening global outbreak response.
The World Health Organization (WHO) has prequalified an additional novel oral polio vaccine type 2 (nOPV2), further strengthening the global supply of a vaccine at the heart of efforts to stop poliovirus type 2 outbreaks more sustainably and accelerate progress towards polio eradication.
Published: February 13, 2026.

https://www.who.int/news/item/13-02-2026-who-prequalifies-additional-novel-oral-polio-vaccine

WHO: Statement on the planned hepatitis B birth dose vaccine trial in Guinea-Bissau.
Based on questions raised in publicly available information and consultation with relevant experts, WHO has significant concerns regarding the study's scientific justification, ethical safeguards, and overall alignment with established principles for research involving human participants.
Published: February 13, 2026.
https://www.who.int/news/item/13-02-2026-statement-on-the-planned-hepatitis-b-birth-dose-vaccine-trial-in-guinea-bissau

Up-to-date evidence-based information on emerging vaccines in pregnancy and childhood.
A regularly updated, comprehensive database and synthesis of published literature related to COVID-19 vaccines in pregnancy through a living systematic review and meta-analyses.
Published: Updated regularly.
https://www.safeinpregnancy.org/

$70.5 Million Funds Dengue Vaccination Campaign in Brazil.
To help reduce the number of Dengue fever infections, the Brazilian Ministry of Health recently launched a nationwide vaccination campaign targeting approximately 1.2 million frontline healthcare professionals.
Published: February 16, 2026.
https://www.vax-before-travel.com/2026/02/16/705-million-funds-dengue-vaccination-campaign-brazil

Excruciating tropical disease can now be transmitted in most of Europe.
Shocking' data shows the climate crisis and invasive mosquitos mean chikungunya could spread in 29 countries. Higher temperatures due to the climate crisis mean infections are now possible for more than six months of the year in Spain, Greece and other southern European countries, and for two months a year in south-east England. Continuing global heating means it is only a matter of time before the disease expands further northwards.
Published: February 18, 2026.
https://www.theguardian.com/science/2026/feb/18/tropical-disease-chikungunya-transmitted-europe-study

Reliefweb: Epidemic and emerging disease alerts in the Pacific as of 17 February 2026, emphasis on dengue.
Published: February 17, 2026.
https://reliefweb.int/map/world/epidemic-and-emerging-disease-alerts-pacific-17-february-2026

WHO: Mpox: recombinant virus with genomic elements of clades Ib and IIb – Global.
Recombination of monkeypox virus (MPXV) strains has been documented in recent months, with two cases of a recombinant strain comprising clade Ib and IIb MPXV reported. Recombination is a known natural process that can occur when two related viruses infecting the same individual exchange genetic material, producing a new virus. The first case was detected in the United Kingdom of Great Britain and Northern Ireland (hereafter "United Kingdom"), with travel history to a country in South-East Asia, and the second in India, with travel history to a country in the Arabian Peninsula.
Published: February 14, 2026.
https://www.who.int/emergencies/disease-outbreak-news/item/2026-DON595

Latest Relevant Publications

LATEST PUBLISHED PAPERS AND COMMENTARIES FROM THE CHIEF EDITOR

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

Pomirchy M, Chung S, Bommer C, Strobel S, Geldsetzer P. **Herpes zoster vaccination and incident dementia in Canada: an analysis of natural experiments.** *Lancet Neurol.* 2026 Feb;25(2):170-180.
doi: https://doi.org/10.1016/S1474-4422(25)00455-7

Editorial comment: The authors evaluated the impact of live attenuated herpes zoster vaccination on incident dementia among adults aged ≥70 years using natural experiments in Ontario, Canada, complemented by a quasi-experimental analysis across multiple Canadian provinces. The study included 232,124 individuals born in Ontario. Following program implementation, eligible birth cohorts in Ontario had significantly fewer new dementia diagnoses compared with the same cohorts in provinces without a herpes zoster vaccination program. These findings from natural and quasi-experimental analyses support a likely causal association between herpes zoster vaccination and the prevention or delay of incident dementia.

02

Lyke KE, Berry AA, Laurens MB, Winkler J, Joshi S, Koudjra AR, Butler L, Billingsley PF, Pascini T, Patil A, Sim BKL, Fitzgerald G, Riegel J, Andrews K, Levi M, Anderson AB, Wells CD, Liu H, Huleatt J, Miller RS. **Human monoclonal antibody MAM01 for protection against malaria in adults in the USA: a first-in-human, phase 1, dose-escalation, double-blind, placebo-controlled, adaptive trial.** *Lancet Infect Dis.* 2026 Feb;26(2):170-181.
doi: https://doi.org/10.1016/S1473-3099(25)00481-5

Editorial comment: Monoclonal antibodies targeting the *Plasmodium falciparum* circumsporozoite protein may simplify malaria prophylaxis. This human challenge trial evaluated the safety, pharmacokinetics, and efficacy of MAM01, a monoclonal antibody targeting the conserved NANP repeat region. Of 63 participants screened, 38 were enrolled and 37 randomized. Following controlled human malaria infection, parasitaemia occurred in all controls (6/6) and in 18/22 participants receiving MAM01, whereas none of the three participants given 40 mg/kg intravenously developed parasitaemia. MAM01 was well tolerated and demonstrated proof-of-principle protection in malaria-naïve adults.

03

Van Dijck C, Berens-Riha N, Zaeck LM, Kremer C, Verschueren J, Coppens J, Vanroye F, Willems E, Bosman E, De Cock N, Smekens B, Vandenhove L, Goovaerts O, Van Hul A, Wouters J, Jacobs BKM, Bracke S, Hens M, Brosius I, De Vos E, Bangwen E, Houben S, Tsoumanis A, Dantas PHLF, Rutgers J, Lipman A, Wijnans K, Soentjens P, Bottieau E, Kenyon C, van Griensven J, Reyniers T, Horst N, Ariën KK, Van Esbroeck M, Torneri A, Vercauteren K, Adriaensen W, de Vries RD, Mariën J, Liesenborghs L. **Long-term consequences of monkeypox virus infection or modified vaccinia virus Ankara vaccination in Belgium (MPX-COHORT and POQS-FU-PLUS): a 24-month prospective and retrospective cohort study.** *Lancet Infect Dis.* 2026 Feb;26(2):190-202.
doi: https://doi.org/10.1016/S1473-3099(25)00545-6

Editorial comment: Individuals previously infected with MPXV show strong and durable immunological memory lasting up to 2 years after infection, in contrast to the less robust and shorter-lived response observed after MVA-BN vaccination. These findings suggest that MPXV infection confers long-term protection against reinfection, whereas vaccine-induced immunity can wane over time and requires boosting.

04

Ballivian J, Parker EPK, Berrueta M, Ciapponi A, Argento F, Bardach A, Brizuela M, Castellana N, Comande D, Kampmann B, Mazzoni A, Sambade JM, Stegelmann K, Xiong X, Munoz FM, Stergachis A, Buekens P. **Immunogenicity of COVID-19 Vaccines During Pregnancy: A Systematic Review and Comparison of Pregnant Versus Nonpregnant Persons.** *Pediatr Infect Dis J.* 2025 Feb 1;44(2S):S27-S31.
doi: https://doi.org/10.1097/INF.0000000000004633

Editorial comment: This systematic review included 62 studies, predominantly analyzing maternal sera (87%), with limited data from cord, neonatal, and infant samples. Most studies evaluated mRNA vaccines (97%) and focused on primary vaccination (82%), with fewer assessing booster doses (15%). Following primary vaccination, antibodies were detectable in most pregnant individuals, with concentrations comparable to—or modestly lower than—those in nonpregnant individuals (spike-specific IgG ratios >0.7 in 5 of 6 estimates). Although modest differences in antibody quality and kinetics were observed, long-term antibody waning was similar between pregnant and nonpregnant individuals for up to 8 months post-vaccination.

05

Sturrock S, Cavell B, Alexander F, Apostolakis K, Barro C, Daniel O, Dixon L, Halkerston R, Hall T, Hesp JR, Hill AM, Leung S, Lim S, McStraw N, Otter A, Ramkhelawon L, Watts R, Etti M, T Heath P, Lee-Wo C, Greening V, Khalil A, Turner K, Taylor S, Le Doare K, Ladhani S. **Maternal and Placental Antibody Responses in SARS-CoV-2 Vaccination and Natural Infection During Pregnancy.** *Pediatr Infect Dis J.* 2025 Feb 1;44(2S):S32-S37.
doi: https://doi.org/10.1097/INF.0000000000004704

Editorial comment: This prospective, multisite observational study across 14 centers in England (April 2020–December 2022) showed that both maternal vaccination and infection induced antibody responses in all mothers and in most neonates (93.8% and 92.9%, respectively), with persistence at 6 weeks in 95%. The strongest responses occurred in mothers who were both vaccinated and infected. Anti-spike antibody levels declined nearly 25-fold from first- to third-trimester vaccination (P=0.013). Placental antibody transfer varied by assay, with higher transfer ratios for Fc-mediated and IgG-specific responses. Overall, maternal vaccination demonstrated robust immunogenicity and effective neonatal antibody transfer, particularly when administered early in pregnancy.

06

Deese J, Schaible K, Massierer D, Tingir N, Fell DB, Atwell JE. **Systematic Literature Review of Maternal Antibodies in Human Milk Following Vaccination During Pregnancy or Lactation: Tetanus, Pertussis, Influenza and COVID-19.** *Pediatr Infect Dis J.* 2025 Feb 1;44(2S):S38-S42.
doi: https://doi.org/10.1097/INF.0000000000004634

Editorial comment: This study included 18 studies reporting vaccine-induced antibodies in human milk (HM) or protection against infant illness. HM antibody levels increased following pertussis, influenza, and COVID-19 vaccination during pregnancy or lactation. However, limited evidence prevents conclusions about any added benefit of breastfeeding after maternal vaccination during pregnancy beyond the benefits of breastfeeding alone, highlighting the need for dedicated studies to inform vaccine policy.

07

Pedersen K, Di Silvestre J, Sy S, Portnoy A, Castle PE, Kim JJ, Burger EA. **Optimizing Cervical Cancer Screening by Age at Vaccination for Human Papillomavirus: Health and Resource Implications.** *Ann Intern Med.* 2026 Feb 3.
doi: https://doi.org/10.7326/ANNALS-25-03192

Editorial comment: In this Norwegian modeling study, hypothetical cohorts of women vaccinated at seven age ranges (12 to 30 years) with either bivalent or nonavalent HPV vaccines were evaluated. Across all age groups and vaccine types, less frequent cervical screening with intervals longer than the currently recommended 5 years was consistently preferred at a threshold of $55,000 per QALY, although optimal strategies varied by age at vaccination. For women vaccinated between ages 12 and 24 years, the preferred approach involved screening every 15–25 years, corresponding to only two to three lifetime screens.

08

Honda K, Karaki T, Kunishima Y, Kawaguchi Y, Takemura N, Matsuzaki T, Fukada SI, Saitoh T, Hirai T, Yoshioka Y. **Inflammatory mediators of mRNA vaccine-induced adverse reactions in mice.** *Mol Ther.* 2026 Jan 20:S1525-0016(26)00023-7.
doi: https://doi.org/10.1016/j.ymthe.2026.01.022

Editorial comment: Researchers led by Koyo Honda at Osaka University provide mechanistic evidence explaining why mRNA vaccines commonly induce short-term adverse reactions such as fever, fatigue, and malaise. Using a controlled mouse model, the study demonstrates that lipid nanoparticles (LNPs)—rather than antigen expression—are the primary drivers of systemic inflammatory responses. These findings are important because they shift the safety discussion away from antigen-related toxicity and perhaps toward delivery-platform design, with direct implications for mRNA vaccines currently in use that rely on first-generation LNP formulations.

09

Chow FC, Granerod J, Kim CY, Nurye T, Thakur KT. **The global threat of vaccine-preventable neurological diseases.** *Nat Rev Neurol.* 2026 Feb;22(2):110-122.
doi: https://doi.org/10.1038/s41582-025-01172-w

Editorial comment: This review highlights the substantial global burden of vaccine-preventable neurological diseases, which cause severe acute and chronic complications and remain associated with high case-fatality rates. Recent outbreaks of dengue, poliomyelitis, measles, pertussis, meningococcal disease, and Japanese encephalitis have been linked to limited vaccine access, strained health-care systems, misinformation about vaccine safety, environmental disruptions, and geopolitical conflict. The authors emphasize that preventing a resurgence of these diseases will require coordinated global strategies, including equitable vaccine access, targeted public education, integration with public health services, and advances in next-generation vaccine technologies, particularly to address antimicrobial resistance and serotype replacement, with a focus on protecting vulnerable populations and safeguarding global health security.

10

Ko H, Kim CJ, Choi S, Noh J, Kim SW, Lee J, Byun S, Lee H, Park JC, Park HE, Sharma A, Park M, Park J, Lee CG, Cha KH, Im SH. **Commensal microbe-derived butyrate enhances T follicular helper cell function to boost mucosal vaccine efficacy.** *Microbiome*. 2026 Jan 21;14(1):37.
doi: https://doi.org/10.1186/s40168-025-02284-7

Editorial comment: The gut microbiota plays a critical role in mucosal immunity, with secretory immunoglobulin A (IgA) serving as a key effector in pathogen neutralization and the maintenance of host–microbiota homeostasis. In this study, the authors highlight the pivotal role of the gut microbiota—particularly neomycin-sensitive, butyrate-producing taxa—in regulating Peyer's patch T follicular helper (PP-Tfh) cell function and IgA production. These findings demonstrate how microbiota-derived signals shape Tfh responses and IgA-mediated immunity, with important implications for optimizing mucosal vaccine efficacy.

11

Kristoffersen AB, Bøås H, Meijerink H, LeBlanc M, Gjerdrum HSV, Greve-Isdahl M, Seppälä E. **Increasing incidence of pertussis before scheduled primary school booster vaccinations in Norway, 1998-2019**. *Vaccine*. 2026 Feb 6;76:128309.
doi: https://doi.org/10.1016/j.vaccine.2026.128309

Editorial comment: In Norway, infant pertussis vaccination is scheduled according to date of birth, whereas primary school and adolescent booster doses are administered to entire school cohorts during the 2nd and 10th school years, respectively. As a result, the interval between completion of the infant series and the primary school booster varies widely, ranging from approximately 5.5 to 7.5 years. To assess the adequacy of the primary school booster timing, the authors estimated pertussis incidence among children aged 2–18 years. Among 782,875 children eligible for the primary school booster, 93% had been vaccinated by the end of the 2nd school year. Pertussis incidence increased following school entry, peaking at approximately 15 reported cases per 10,000 children per year, before declining to around 5 cases per 10,000 after booster uptake. These findings suggest that the current timing of the primary school pertussis booster may be suboptimal.

12

Ma X, Jin L, Li J, Jin P, Liu Y, Wen F, Zeng G, Li J. **Long-term protection of an inactivated enterovirus type 71 vaccine against hand, foot, and mouth diseases in children: a modelling study**. *Vaccine*. 2026 Feb 5;76:128286.
doi: https://doi.org/10.1016/j.vaccine.2026.128286

Editorial comment: The authors analyzed data from a phase 3 randomized controlled trial in which infants and young children received either two doses of an inactivated EV71 vaccine (400 U per dose) or placebo. Neutralizing antibody (NTAb) responses were assessed in an immunogenicity subcohort followed for up to five years. Using these data and accounting for the current epidemiological patterns of EV71 circulation in China, the two-dose vaccination regimen was estimated to confer durable protection exceeding 72% for at least 20 years.

13

Akgör U, Temiz BE, Cengiz M, Ege HV, Joura E, Gültekin M. **New HPV Vaccines on the Market and Future Trends: A State-of-the-Art Review.** *Vaccines*. 2026; 14(2):140.
doi: https://doi.org/10.3390/vaccines14020140

Editorial comment: Next-generation human papillomavirus (HPV) vaccines include newly licensed and emerging formulations that use alternative platforms, expanded valency, or novel antigenic targets beyond traditional L1-based vaccines. Available data suggests comparable efficacy, immunogenicity, and safety to existing products, although long-term effectiveness and real-world impact data are still needed. Advances in L2-based platforms may further broaden cross-type protection, simplify manufacturing, and enable thermostable formulations, improving suitability for resource-limited settings. Favorable cost-effectiveness analyses underscore the potential of these vaccines to expand access, reduce inequities, and accelerate progress toward cervical cancer elimination.

14

Wu Y, Zhao Y, Liu Z, Zhu A. **Influenza vaccination and the risk of myocardial infarction: a meta-epidemiology study.** *BMC Public Health*. 2026 Feb 7.
doi: https://doi.org/10.1186/s12889-026-26541-y

Editorial comment: This meta-epidemiological study highlights the protective role of influenza vaccination in reducing cardiovascular risk, including the incidence of myocardial infarction. By synthesizing evidence across multiple study designs and populations, the findings support influenza vaccination as an effective cardiovascular risk–modifying intervention, particularly among individuals with underlying cardiovascular disease. These results reinforce the importance of influenza immunization not only for infection prevention but also as a complementary strategy in cardiovascular disease prevention and public health policy.

15

Lim JT, Chong CS, Chang CC, Mailepessov D, Dickens B, Lai YL, Deng L, Lee C, Tan LY, Chain G, Zulkifli MF, Liew JWK, Vasquez K, Chau ML, Ng Y, Lee V, Wong JCC, Sim S, Tan CH, Ng LC; Project Wolbachia–Singapore Consortium. **Dengue Suppression by Male Wolbachia-Infected Mosquitoes.** *N Engl J Med.* 2026 Feb 11.
doi: https://doi.org/10.1056/NEJMoa2503304

Editorial comment: Wild-type female *Aedes aegypti* mosquitoes that mate with males infected with the *Wolbachia pipientis* wAlbB strain produce nonviable offspring due to cytoplasmic incompatibility. Repeated releases of *Wolbachia*-infected males can therefore suppress mosquito populations and reduce dengue transmission. In a field trial in Singapore, releases of wAlbB-infected male *A. aegypti* mosquitoes were associated with a 71–72% reduction in dengue risk after 3 to ≥12 months of exposure (odds ratios, 0.28–0.29). Overall, this intervention effectively reduced vector density and dengue incidence.

16

Ikonen N, Haveri A, Lindh E, Liedes O, Vara S, Pakkanen SH, Kantele A, Nieminen T, Anttila VJ, Välimaa H, Melin M, Savolainen-Kopra C, Nohynek H. **Reduced neutralising antibody responses against emerging 2025/26 influenza A(H1N1)pdm09 subclade D.3.1 and A(H3N2) subclade K viruses among healthcare workers, Finland, August to October 2025.** *Euro Surveill.* 2026 Feb;31(6).
doi: https://doi.org/10.2807/1560-7917.ES.2026.31.6.2600094

Editorial comment: In this **Finnish study**, the authors evaluated neutralizing antibody responses to influenza A strains from the 2024/25 vaccine and the 2025/26 epidemic season in 46 Finnish healthcare workers, assessed before and after vaccination with the 2024/25 influenza vaccine. Although the vaccine contained an identical A(H1N1)pdm09 component, it included a different A(H3N2) strain compared with the 2025/26 vaccine. Neutralizing antibody responses were substantially reduced against the A(H3N2) subclade K virus, and antibody titers against certain A(H1N1)pdm09 strains were also lower.

17

Carvalho N, Watts E, Oliver VL, Clark A, Ozturk MH, Akauola S, Whelan C, Naseri T, Jenkins K, Mikkelsen-Lopez I, Lam KFK, Rabanal R, McLeod R, Jit M, Russell FM. **Evaluation of rotavirus, pneumococcal conjugate and human papillomavirus vaccination in four Pacific island countries: A cost-effectiveness modelling study.** *PLoS Med.* 2026 Feb 12;23(2):e1004604.
doi: https://doi.org/10.1371/journal.pmed.1004604

Editorial comment: A 10-year vaccination program starting in 2021 was modeled, with lifetime costs and disability-adjusted life years (DALYs) discounted at 3%. Vaccine prices were based on PAHO Revolving Fund costs, with lower-priced scenarios also assessed. Introducing HPV vaccine (HPVV), pneumococcal conjugate vaccine (PCV), and rotavirus vaccine (RVV) across the evaluated countries was projected to prevent over 1,000 deaths. At PAHO prices, the cost per DALY averted ranged from 42% to 73% of per capita GDP, and from 15% to 58% with lower-priced vaccines. With external support, introduction may represent good value for money in Samoa, Tonga, Tuvalu, and Vanuatu, although it would impose substantial financial and operational demands on immunization programs.

18 Hausdorff WP, Cavaleri M, Gruber MF, Nyarko KA, Pollard AJ, Hasso-Agopsowicz M, Joseph J, Aggarwal R, Agyei-Kwame E, Dull PM, Neels P, Bogaerts HH, Gill CJ, Salts N, Tang W, Giersing BK. **Report of a one-day convening on regulatory science, practices, and innovative approaches to facilitate approval of novel combination vaccines**. *Vaccine*. 2026 Jan 23;75:128257.
doi: https://doi.org/10.1016/j.vaccine.2026.128257

Editorial comment: As part of efforts to advance combination vaccine development, the World Health Organization and PATH convened a one-day meeting in March 2025 with regulators, vaccine developers, funders, procurement agencies, and public health officials. Discussions focused on innovative approaches to demonstrating vaccine efficacy, including the use of multiple immune markers and controlled human infection models (CHIM), as well as reliance on clinical endpoints when individual component contributions cannot be etiologically distinguished. Regulators emphasized openness to scientifically robust and creative proposals, underscoring that the overall benefit–risk profile of the combination vaccine should remain the primary consideration.

19 Gomez Rial J, Redondo E, Rivero-Calle I, Mascarós E, Ocaña D, Jimeno I, Gil Á, Linares M, Onieva-García MÁ, González-Romo F, Yuste J, Martinón-Torres F. **Immunofitness in the elderly: The role of vaccination in promoting healthy aging.** *Hum Vaccin Immunother.* 2026 Dec;22(1):2624234.
doi: https://doi.org/10.1080/21645515.2026.2624234

Editorial comment: Vaccination enhances adaptive immune memory, optimizes antigen presentation through adjuvants, and can induce trained innate immunity, conferring benefits beyond the target pathogen. Evidence in older adults shows that influenza, RSV, pneumococcal, COVID-19, and recombinant zoster vaccines reduce respiratory events, cardiovascular outcomes, hospitalization, and mortality. Emerging platforms and precision vaccinology offer opportunities to tailor schedules according to immune age, comorbidity, and frailty. Integrating routine, age-appropriate vaccination with lifestyle interventions represents a practical, high-impact strategy to promote immunofitness.

20 Melchinger H, Krutika Kuppalli K, Rlharake JA, Omer SB. Malik AA. **Intention to vaccinate children against measles: findings from a national survey in the United States.** *The Lancet Regional Health – Americas.* 2026;55:101393.
doi: https://doi.org/10.1016/j.lana.2026.101393

Editorial comment: The authors conducted a nationally representative survey of 1,166 U.S. adults (≥18 years) to assess knowledge, attitudes, and intentions regarding measles vaccination. Although childhood measles vaccination remains the prevailing social norm—with nearly 80% expressing intent to vaccinate—an important minority of adults reported unwillingness to vaccinate children even if recommended. Given that measles requires vaccination coverage exceeding 90% to maintain population-level protection, this hesitancy poses a significant public health concern.

21 Velásquez García HA, Wong S, Jeong D, Naveed Z, Mahmood B, McKee G, Janjua NZ. **Long-Term Risk of Incident Type 2 Diabetes Following SARS-CoV-2 Infection: A Population-Based Study in British Columbia, Canada**. *Diabetes Metab Res Rev.* 2026 Feb;42(2):e70136.
doi: https://doi.org/10.1002/dmrr.70136

Editorial comment: This retrospective cohort study included all British Columbia residents aged ≥18 years tested for SARS-CoV-2 by RT-PCR between January 2020 and January 2024, excluding individuals with pre-existing diabetes or living in long-term care. Among more than 2 million individuals followed for a median of 874 days, 2.3% developed incident type 2 diabetes mellitus (T2DM). SARS-CoV-2 infection was associated with an 18% higher risk of developing T2DM compared with uninfected individuals (HR 1.18; 95% CI 1.15–1.22), with risk increasing according to illness severity. The elevated risk persisted for up to three years and was greatest among unvaccinated and severely ill individuals.

22

Hominal A, Gualtieri R, Lemaitre B, Pósfay-Barbe KM, Cao-Van H, Blanchard-Rohner G. **Vaccine Immunity Against Pneumococcus in Children With Cochlear Implants.** *Pediatr Infect Dis J.* 2026 Feb 1;45(2):187-193.

doi: https://doi.org/10.1097/INF.0000000000004999

Editorial comment: This study aimed to evaluate adherence to Swiss pneumococcal vaccination guidelines among children with cochlear implants. Fifty children were included, with a median age at implantation of 1.5 years. An overall decline in seroprotection was observed within five years after vaccination, most notably around five years of age. Vaccine-induced immunity varied by serotype: serotypes 6B, 14, and 19 elicited higher antibody levels, whereas serotypes 4, 9V, and 18C were associated with lower responses. Notably, children aged 2–5 years tended to demonstrate lower overall pneumococcal immunity. These findings support the proactive administration of an additional pneumococcal vaccine dose at the time of cochlear implant surgery planning for children aged ≥2 years.

Editor's Corner

NIPAH VIRUS: HISTORICAL PERSPECTIVE, PUBLIC HEALTH THREAT, AND PROGRESS IN VACCINE DEVELOPMENT AMID GLOBAL INEQUITIES

Nipah Virus Overview

- Nipah virus (*Henipavirus nipahense*, NiV) is a zoonotic, single-stranded, negative-sense RNA virus in the genus *Henipavirus*, family *Paramyxoviridae*.
- First identified in Malaysia and Singapore in 1999, primarily affecting pig farmers and abattoir workers.
- Causes severe neurological and respiratory disease, ranging from fever and headache to acute encephalitis.

Clades and Geographic Patterns

- **NiV-Malaysia (NiVM) clade**
  - Responsible for Malaysia and Singapore outbreaks.
  - Spread mainly through infected pigs.
  - No sustained person-to-person transmission observed.
- **NiV-Bangladesh (NiVB) clade**
  - Associated with recurring outbreaks in Bangladesh and India since 2001.
  - High person-to-person transmission:
    - ~29% of cases in Bangladesh
    - 50% of cases in India
  - Much higher transmissibility than NiVM.
- **NiV-India clade**
  - A distinct phylogenetic lineage identified in India.
  - Not yet formally classified as separate from NiVB.

Transmission Routes

- Zoonotic spillover primarily linked to:
  - Consumption of raw date palm sap contaminated by bat excreta (Bangladesh, India).
  - Close contact with infected pigs (Malaysia, Singapore).
- In the Philippines (2014):
  - Transmission associated with slaughter/ consumption of infected horses and subsequent human-to-human spread.
- Reservoir hosts include *Pteropus medius* fruit bats.

Incubation Period and Disease Course

- **Malaysia:**
  - 4 days to 2 months; 92% of cases ≤14 days.
- **Bangladesh:**
  - Typically 6–11 days.
- Disease progression is rapid:
  - Mean time from symptom onset to death is ~8 days (range 3–31 days).

Case Fatality Rates

- Extremely high mortality:
  - ~78% in Bangladesh.
  - ~93% in India.
  - There are no antivirals for NiV.

Clinical and Pathophysiological Features

- Broad cellular tropism, infecting:
  - Endothelial cells
  - Neuronal cells
  - Respiratory epithelial cells [Citation18–21]
- Severe cases characterized by encephalitis, respiratory distress, and multiorgan involvement.

Key Viral Glycoproteins (Targets for Vaccines)

- **Attachment glycoprotein (G):**
  - Binds to ephrin-B2 and ephrin-B3 receptors [Citation24–26].
- **Fusion glycoprotein (F):**
  - Mediates membrane fusion and viral entry.
- Both glycoproteins are central platforms for vaccine development.

Epidemiology:

Since 1998 NiV outbreaks have been reported in Bangladesh, India, Malaysia, the Philippines, and Singapore. In India, NiV infections have occurred multiple times since 2001 with outbreaks in West Bengal State in 2001 and 2007, and in Kerala State regularly since 2018. Since 2018, Kerala has reported a total of nine NiV outbreaks.

Outbreaks during 2025:

India: Between 17 May and 12 July 2025, the Information and Public Relations Department, Government of Kerala through a series of official press releases informed about four confirmed NiV

cases, including two deaths, due to NiV infection from two districts of Kerala State. Of the four cases, two were reported from Malappuram and two from Palakkad district. This marks the first-ever outbreak in Palakkad District. Of the four cases, one case was reported in May (with symptom onset in April) and three in July with symptom onset June (two cases), and July (one case). The sources of infection of the cases remain under investigation. None of these cases appear to be linked to each other, suggesting independent spillover events from the natural reservoir. A significant presence of fruit bats, the known reservoir for NiV has been observed in the affected areas.

Bangladesh: Between 1 January and 29 August 2025, the Bangladesh IHR NFP notified WHO of four confirmed fatal Nipah virus (NiV) infection cases that occurred at different times from four separate districts across three different divisions (Barisal, Dhaka, and Rajshahi) of Bangladesh. All cases were confirmed through Reverse Transcription Polymerase Chain Reaction (PCR) and Enzyme-Linked Immunosorbent Assay (ELISA) testing, and no epidemiological links were reported to have been identified between the cases.

The first case was a young adult woman from Pabna district, Rajshahi division, with symptom onset on 25 January. She was admitted to a community hospital on 26 January and referred to another hospital the next day. She died on 28 January, and laboratory confirmation of NiV was received on 29 January. A total of 96 contacts were reported to be identified, and all tested negative for NiV. The first three cases had a history of consuming raw palm sap. However, the fourth case had no history of consuming raw palm sap, and the likely source/s of infection remain under investigation. None of the cases appears to be linked to each other. Fruit bats, the known reservoir for NiV, are present in the affected regions.

Current Progress and Key Challenges in Developing Nipah Virus Vaccines:

There is no licensed vaccine for NiV.

Current Vaccine Candidates:

mRNA Vaccines

The mRNA-1215 vaccine is a lipid nanoparticle–formulated mRNA candidate targeting the Nipah virus Malaysia strain (NiVM) [Citation41,Citation42]. Developed by Moderna in collaboration with the NIAID Vaccine Research Center, it encodes the F (fusion) and G (attachment) glycoproteins to elicit protective immunity. A Phase 1 dose-escalation trial in healthy adults in the US (NCT05398796) evaluating safety, tolerability, and antibody responses was completed in September 2024. Preclinical studies showed strong immunogenicity, generating neutralizing antibodies against NiVM and NiVB, with cross-reactive responses to Hendra virus (HeV) in mouse models.

Inactivated Virus Vaccines

Traditional inactivated whole-virus formulations are being explored. Several candidates have shown protective efficacy in animal models, but none have yet advanced to human trials.

Viral Vector Vaccines

The ChAdOx1 NipahB vaccine is a recombinant adenoviral vector vaccine developed by the University of Oxford in collaboration with CEPI. It uses the same chimpanzee adenovirus platform as the Oxford/AstraZeneca COVID-19 vaccine, engineered to express the Nipah virus G glycoprotein to induce protective immunity. An ongoing Phase 1 clinical trial in the UK (ISRCTN87634044) is assessing safety and immunogenicity in healthy adults, evaluating both single-dose and two-dose regimens. In preclinical studies, the vaccine protected African green monkeys in a lethal challenge model, eliciting strong NiV-G–specific IgG and neutralizing antibody responses after one or two doses. These glycoprotein-specific immune responses, shown to be protective in non-human primates, are being further evaluated as secondary outcomes in the Phase 1 trial. Additionally, the University of Oxford and the International Centre for Diarrhoeal Disease Research, Bangladesh, with funding from the Coalition for Epidemic Preparedness Innovations (CEPI), have initiated a Phase 2 clinical trial in Bangladesh with this platform.

Protein Subunit Vaccines

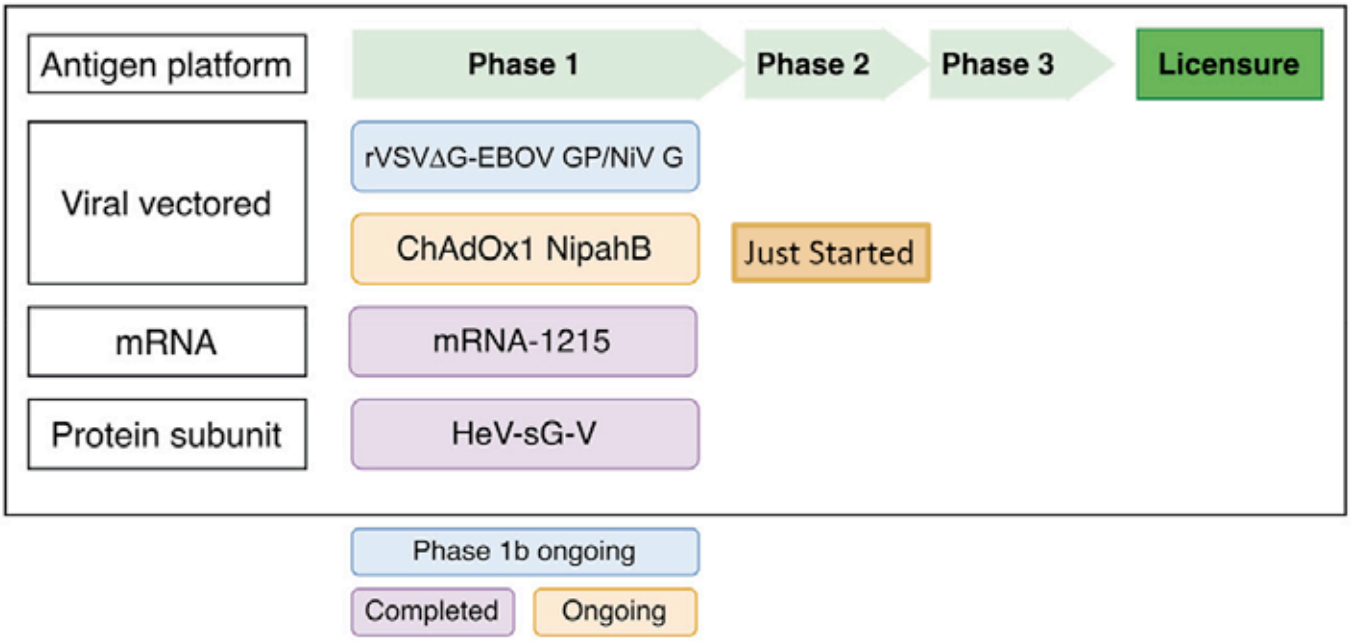
The HeV-sG-V vaccine is a protein-subunit candidate designed to protect against both Nipah virus (Bangladesh and Malaysia strains) and Hendra virus by using the soluble Hendra G glycoprotein (HeV-sG) formulated with aluminum hydroxide adjuvant. Developed by Auro Vaccines LLC in partnership with PATH and CEPI, it has shown strong preclinical performance: in non-human primates, a single dose provided complete protection against lethal Nipah and Hendra virus challenge, generating robust neutralizing antibodies and clearing detectable viral RNA. A Phase 1 dose-escalation trial in 192 healthy adults in the US (NCT04199169) evaluated single-dose and two-dose regimens for safety, tolerability, and immunogenicity. Early findings (preprint) indicate that one dose elicited limited immune responses, whereas two doses—particularly 100 µg administered 28 days apart—generated strong neutralizing antibody responses.

Conclusions:

Although Nipah virus infection is not globally distributed and its outbreaks remain relatively localized—primarily in South and Southeast Asia—the pathogen represents a significant pandemic threat. Its **zoonotic origin**, recurrent spillover events from animal reservoirs (notably fruit bats of the *Pteropus* genus), and **documented human-to-human transmission in certain clades** underscore its potential for wider spread under the right ecological or sociobehavioral conditions. Most critically, Nipah virus exhibits an **extremely high case-fatality rate**, ranging from 40% to 75% in reported outbreaks, which elevates its risk profile considerably despite its limited geographic footprint.

A major concern is the **absence of a licensed vaccine** or specific antiviral therapy. This gap reflects, in part, longstanding **global health inequities**, where pathogens that predominantly affect low- and middle-income countries receive less investment and slower research prioritization. The lack of commercial incentives—given the sporadic and regionally confined nature of outbreaks—further delays development and underscores the need for **sustained international funding**, public–private partnerships, and proactive platform-based research strategies

Figure-1: Landscape of Nipah Virus Vaccine Candidates (adapted from: Kim S, et al. *Expert Rev Vaccines*. **2025 Dec;24(1):183-193. doi: 10.1080/14760584.2025.2476523):**



aligned with epidemic preparedness frameworks.

Fortunately, progress is accelerating. Several **vaccine candidates** are currently in preclinical or early clinical development, including recombinant viral-vector platforms (e.g., ChAdOx1, VSV-based constructs), subunit vaccines targeting the G glycoprotein, and mRNA candidates. This expanding pipeline, supported by organizations such as CEPI and national research institutes, offers realistic prospects for deploying a **Nipah vaccine for outbreak response**, ring vaccination strategies, or protection of high-risk populations in endemic regions.

Continued investment, equitable access planning, and international collaboration will be essential to ensure that once a safe and effective Nipah vaccine becomes available, it can be rapidly and fairly distributed—particularly in the regions where it is most urgently needed.

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Best Practice

CHOLERA VACCINES: AN URGENT PUBLIC HEALTH NEED ALONGSIDE WASH AND EQUITY IN LIVING CONDITIONS

Introduction:

The global cholera situation continues to worsen, driven by conflict, poverty, and fragile health systems, and now represents a major public health emergency across several WHO regions. Between 1 January and 17 August 2025, 409,222 cholera or Acute Watery Diarrhoea (AWD) cases and 4,738 deaths were reported in 31 countries. Alarmingly, six of these countries recorded case-fatality rates above 1%, highlighting serious gaps in case management, timely access to care, and essential health services.

Cholera is resurging in nations that have not seen substantial transmission in years—such as Chad and the Republic of Congo—while other countries, including the Democratic Republic of the Congo, South Sudan, and Sudan, continue to experience large, expanding outbreaks originating from 2024. This sustained geographic spread complicates containment efforts and places intense pressure on already overstretched health systems.

Multiple overlapping crises are fueling this deterioration. Conflict, mass displacement, natural disasters, and climate change have significantly increased vulnerability, especially in rural and flood-affected communities where water and sanitation infrastructure is limited. These conditions delay treatment, disrupt surveillance, and accelerate transmission. Cross-border population movement has further increased the complexity of outbreaks, making them harder to predict, control, and contain.

Long-term control relies on safe drinking water, sanitation, and hygiene (WASH)—the only sustainable solution to ending recurrent cholera emergencies. However, given the current scale and interconnected nature of outbreaks, the risk of continued and expanded transmission remains very high. Without urgent, coordinated, and multisectoral action, cholera is likely to spread further across borders.

A comprehensive response is underway. WHO is working closely with Ministries of Health and partners to strengthen surveillance, reinforce laboratory capacity, improve the availability and quality of treatment, implement effective WASH and infection-prevention measures, enhance community engagement, and facilitate access to oral cholera vaccines (OCV) and campaign rollout.

On 26 August 2025, Africa CDC and WHO jointly launched the Continental Cholera Emergency Preparedness and Response Plan for Africa 1.0, supported by a coordinated Incident Management Team. This initiative builds on the recent Call to Action by African Heads of State and Government, who have elevated cholera to a continental priority and pledged to control and eliminate outbreaks by 2030.

Types of Cholera Vaccines:

1. Killed Whole-Cell Oral Cholera Vaccines (kOCVs)

Examples: *Shanchol®, Euvichol®, Euvichol-Plus® (including the simplified Euvichol-S formulation)*

Killed whole-cell OCVs form the foundation of global cholera prevention and control efforts. These vaccines contain inactivated *Vibrio cholerae* O1 (and in some formulations, O139) bacteria that stimulate protective mucosal and systemic immune responses without risk of infection.

Key characteristics:

- Primary tool for endemic and outbreak settings, endorsed by WHO for all ages ≥1 year.
- Two-dose regimen provides optimal and long-lasting protection, with immunity lasting up to 5 years in many settings.
- Single-dose strategy offers meaningful short-term protection and is often used during emergencies or when vaccine supply is limited.
- Extensively deployed through the global Oral Cholera Vaccine Stockpile, with millions of doses administered in high-risk regions across Africa and Asia.
- Newer formulations like Euvichol-S® aim to increase production capacity and reduce costs, addressing chronic global supply shortages.

2. Live Attenuated Oral Cholera Vaccine

Example: *Vaxchora® (CVD 103-HgR)*

Live attenuated vaccines contain a genetically

weakened strain of *Vibrio cholerae* that triggers strong intestinal immunity, closely mimicking natural infection.

Key characteristics:

- Licensed primarily for travelers in the United States and several other high-income countries.
- Single-dose regimen provides rapid onset of protection—typically within 10 days—making it ideal for short-notice travel.
- Demonstrates high short-term efficacy, particularly against severe diarrhea caused by *V. cholerae* O1 Ogawa.
- Not used for mass campaigns or outbreak response due to cost, limited supply, and lack of WHO prequalification.
- Offers a distinct immunologic profile with robust mucosal IgA responses, but duration of immunity is generally shorter than that of kOCVs.

Cholera Vaccines: Current Evidence and Future Directions:

Oral cholera vaccines (OCVs) are essential tools for protecting travelers to cholera-endemic regions and for controlling outbreaks. They provide substantial protection, particularly with the full two-dose regimen—against moderate to severe cholera, although effectiveness decreases over time and is lower in young children (<5 years). Global use relies heavily on WHO-prequalified vaccines such as Shanchol® and Euvichol®, though supply constraints continue to challenge response capacity.

Systematic reviews consistently show strong vaccine performance: individuals receiving OCVs are 4.5 times less likely to develop severe cholera, and two-dose regimens demonstrate up to 80% efficacy at five years. However, reviews highlight ongoing needs for expanded supply, simplified regimens, and improved protection for young children.

Key Findings from Reviews and Field Studies:

- Effectiveness:
  - Two-dose OCV schedules show long-lasting protection, with efficacy up to 80% at 5 years.
  - One-dose regimens provide meaningful short-term protection but wane more quickly.
- Severity Reduction:
  - OCVs substantially reduce the risk of severe cholera, an important outcome for preventing mortality.
- Age-Related Effectiveness:
  - Vaccine performance is significantly lower in children under 5 years, who remain among the most vulnerable.
- Use Cases:
  - Effective in both endemic settings and outbreak response, with strong real-world evidence supporting their impact.

Challenges and Future Directions:

Supply Limitations

- Demand frequently exceeds the global stockpile, complicating timely outbreak response.

Feature	kOCVs (Shanchol, Euvichol)	Live Attenuated (Vaxchora)
Type	Killed whole-cell	Live attenuated
Doses	2 doses (optimal); 1 dose short-term	Single dose
Onset of Protection	After full series	Rapid (~10 days)
Duration	Up to 5 years	Short-term
Use Case	Outbreak response & endemic control	Travelers mostly
WHO Status	WHO-prequalified	WHO-prequalified
Age Range	≥1 year	2–64 years
Effectiveness	High; best with 2 doses	High early protection
Limitations	Supply constraints; logistics of 2 doses	Limited experience in mass campaigns

Operational Constraints

- Two-dose schedules can be logistically challenging during emergencies.
- This has spurred interest in **single-dose strategies** for rapid protection.

Vaccine Development Priorities:

- Heat-stable formulations to support remote or high-temperature settings.
- Single-dose or improved short-interval regimens to simplify deployment.
- Next-generation vaccines such as Euvichol-S® to expand manufacturing capacity.
- Ongoing African vaccine production initiatives aimed at regional self-sufficiency.

Conclusions:

Cholera vaccination remains a critical public-health intervention, particularly in the context of the expanding global outbreaks seen across Africa, the Middle East, and South Asia. **WHO currently recommends oral cholera vaccines (OCVs) for two major indications**:

1. **Outbreak Response:** OCVs are a core component of rapid response strategies. They reduce transmission, protect high-risk communities, and help stabilize health systems during active epidemics. A single-dose regimen is often used when vaccine supply is limited, providing meaningful short-term protection while enabling wider population coverage.
2. **Prevention in Endemic Areas:** Populations living in regions with recurrent or seasonal transmission benefit from full two-dose OCV schedules, which offer longer and stronger protection, reduce disease burden, and mitigate the risk of severe illness.

In the current global context—marked by conflict-driven displacement, climate-related disasters, and deteriorating water and sanitation systems—the role of cholera vaccination is more essential than ever. However, **vaccination alone cannot end outbreaks**. Sustainable control requires integration with **safe water, sanitation, hygiene (WASH)** interventions, strengthened surveillance, rapid case management, and cross-border coordination.

Overall, cholera vaccines serve as an indispensable, rapidly deployable tool for outbreak containment and population protection—buying critical time while long-term infrastructure solutions are implemented.

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Guest Contributors

SAFEGUARDING VACCINE SAFETY: A SNAPSHOT OF PHARMACOVIGILANCE

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Pharmacovigilance in vaccines is the indispensable science and systematic discipline dedicated to detecting, assessing, understanding, and preventing adverse events following immunization, thereby safeguarding unwavering vaccine safety across its entire lifecycle. This rigorous process is critical for maintaining public trust and ensuring that the benefits of vaccination consistently outweigh any potential risks. It encompasses a vigilant and ongoing process, spanning from the initial stages of vaccine development through pre-clinical and clinical studies to post-market surveillance.

Adverse events following immunization are primarily detected through spontaneous reporting mechanisms from healthcare professionals, patients, clinical trials, immunization programs, and post-marketing surveillance systems. These reports encompass a spectrum of reactions, ranging from minor to serious adverse events. This initial data collection is pivotal for capturing diverse safety information across varied populations and geographical regions. The comprehensive nature of these reporting systems allows for the identification of both common and rare adverse events, which are crucial for a complete safety profile. These unsolicited adverse events are systematically coded using standardized medical terminologies, such as the Medical Dictionary for Regulatory Activities, to ensure consistency and facilitate comprehensive analysis. Furthermore, regulatory bodies often implement enhanced passive surveillance to encourage reporting and improve data capture for new vaccines, particularly during mass vaccination campaigns.

GVP, The Good Pharmacovigilance Practices guidelines, provide a comprehensive framework for conducting pharmacovigilance activities, ensuring standardized and high-quality safety monitoring throughout the European Union. These guidelines delineate detailed processes for signal detection, risk management, and communication, thereby fostering a harmonized approach to vaccine safety surveillance across member states. In the United States, similar rigorous guidelines are enforced by the Food and Drug Administration through its regulatory frameworks, including the Vaccine Adverse Event Reporting System and the Biologics Effectiveness and Safety System, which collectively contribute to a robust pharmacovigilance infrastructure. Beyond passive surveillance, active surveillance systems, such as Brighton Collaboration and the Vaccine Safety Datalink, proactively monitor vaccine safety by systematically collecting health data from large defined populations, enabling more precise incidence rate calculations and the identification of less common adverse events.

Reported adverse events are entered into pharmacovigilance databases. Individual cases undergo review for completeness, medical accuracy, and validity. Relevant clinical details, vaccination history, and patient outcomes are documented. This involves consulting and screening medical records to ensure data consistency, followed by the creation of a case narrative detailing vaccination dates, vaccine types, AEFI occurrence dates, and relevant medical history.

A rigorous causality assessment is conducted to meticulously determine the likelihood of a causal relationship between the vaccine and the reported adverse event, safeguarding vaccine safety through systematic scrutiny of temporal associations, biological plausibility, alternative

etiologies, and alignment with established safety profiles. This intricate process involves applying standardized algorithms and expert clinical judgment to classify the relationship, which may range from certain to unlikely, between the vaccine administration and the observed adverse reaction. Expert committees, often multidisciplinary, critically review these assessments, considering all available clinical and epidemiological information to reach a consensus on causality. This rigorous evaluation aims to ascertain whether the reported event is consistent with known product safety information and to identify any previously unrecognized risks.

Aggregated pharmacovigilance data are systematically analyzed through statistical methodologies and expert medical review to identify safety signals, defined as potential new risks or changes to the profile of known risks, thereby determining the necessity for further investigation.

Upon confirmation of a safety signal, the potential risk is rigorously assessed in relation to the vaccine's benefits to inform benefit-risk evaluations. Risk minimization measures are subsequently implemented where warranted, including updates to product labeling, issuance of safety communications to healthcare providers and the public, or modifications to vaccination recommendations and guidelines. These actions are crucial for maintaining public trust and ensuring that the benefits of vaccination continue to outweigh any potential risks, while artificial intelligence and machine learning are increasingly leveraged to enhance these pharmacovigilance processes by optimizing or automating tedious tasks and surfacing data insights more rapidly.

Safety findings from pharmacovigilance activities are promptly disseminated to regulatory agencies and public health organizations. Authorities may then enact measures such as issuing safety alerts, revising product labeling and information, or, in exceptional circumstances, restricting access to or withdrawing the vaccine from the market.

Pharmacovigilance stands as an unyielding, lifelong pledge to supreme vaccine safety. Across every phase of a vaccine's journey, uncompromising surveillance guarantees its immense benefits decisively eclipse any risks, thereby fortifying and perpetuating ironclad public trust in immunization efforts. This indispensable ongoing watch is crucialfor protecting public health and ensuring that vaccination remains a cornerstone of preventive medicine.

Conclusion

This continuous monitoring, often termed vaccinovigilance, encompasses all pharmacovigilance activities related to the comprehensive data collection and case management, rigorous causality assessment, signal detection and evaluation, risk assessment and management, regulatory communication, and lifelong continuous monitoring. This multi-step, evidence-driven framework ensures early safety signal detection, informed benefit-risk decisions, proactive risk minimization, and sustained public confidence in immunization.

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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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