VACCINES BEAT

ANIMAL VACCINATION: AN OVERLOOKED PILLAR OF PUBLIC HEALTH

Dr. Monserrat Arroyo explains why veterinary health must become central to global health security

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WORLD HEALTH ORGANIZATION

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Dr. Monserrat Arroyo explains why veterinary health must become central to global health security

Dr. Montserrat Arroyo is the Deputy Director General for Standards Setting and Implementation of the World Organisation for Animal Health (WOAH). She holds a degree in Veterinary Medicine and Animal Sciences from the National Autonomous University of Mexico (UNAM) and a master's degree in Preventive Veterinary Medicine from the University of California, Davis.

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LETTER FROM EDITOR

Welcome to Vaccines Beat 23rd issue!

In our *"Coffee with the Expert"* section, **Dr. Montserrat Arroyo Kuribreña** serves as Deputy Director General for Standards Setting and Implementation of the World Organisation for Animal Health (WOAH). A veterinarian with a Master's degree in Preventive Veterinary Medicine from the University of California, Davis, she is internationally recognized for her expertise in animal health, zoonoses, and the One Health approach. Throughout her career, she has focused on transboundary animal disease prevention, veterinary public health, international trade, and strengthening veterinary services. At WOAH, she leads global efforts to develop and implement international animal health standards, advancing preparedness and international collaboration against emerging zoonotic and public health threats.

Our conversation with Dr. Arroyo Kuribreña offered a compelling One Health perspective on the increasingly critical role of animal vaccination in global health. Reflecting on her journey from veterinary medicine to senior leadership at WOAH, she emphasized that animal vaccines are not only vital for livestock health and productivity, but also indispensable tools for preventing zoonotic spillover events that can trigger human outbreaks and future pandemics. She underscored how stronger animal health systems contribute directly to reducing infectious diseases in humans, improving food security, enhancing climate resilience, and lowering antibiotic use and antimicrobial resistance. Dr. Arroyo also highlighted the urgent need for greater global investment, stronger political commitment, and broader implementation of animal vaccination programs, particularly in low- and middle-income countries where the human–animal interface is often most vulnerable.

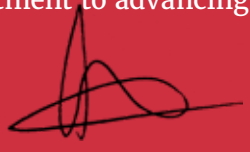
In our "Editor's Corner" section, we examine "Aluminum Adjuvants in Vaccines: Evidence-Based Safety in the Context of Routine Dietary Aluminum Exposure." This article reviews the extensive scientific evidence supporting the safety and importance of aluminum adjuvants, which have been used effectively in vaccines for decades to enhance immune responses. We also place vaccine-related aluminum exposure into perspective by comparing it with the much greater everyday exposure from food, water, infant formula, and the environment, reinforcing that the small amounts used in vaccines are highly regulated, biologically manageable, and supported by a strong body of safety data.

In our "*Best Practice*" section, we review the critical role of vaccination in adults with chronic pulmonary diseases, highlighting how immunization can significantly reduce respiratory infections, exacerbations, hospitalizations, and mortality in this highly vulnerable population.

Finally, in our "*Guest Contributor*" section, Dr. Jessabelle Basa, MSc, an internationally recognized immunologist and vaccinologist from the Philippines, currently serves as Regional Technical Lead for ASEAN at the Regionalized Vaccine Manufacturing Collaborative (RVMC), where she contributes to advancing regional vaccine manufacturing capacity and preparedness, provides valuable insights into the strategic interventions needed to develop and strengthen the ASEAN region's regionalized vaccine manufacturing ecosystem, advancing vaccine security, sustainability, and regional preparedness.

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

We hope you find this May 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

ANIMAL VACCINATION: AN OVERLOOKED PILLAR OF PUBLIC HEALTH

Dr. Monserrat Arroyo explains why veterinary health must become central to global health security

Authors:

Felicitas Colombo
Dr. Enrique Chacon-Cruz

Dr. Montserrat Arroyo is the Deputy Director General for Standards Setting and Implementation of the World Organisation for Animal Health (WOAH). She holds a degree in Veterinary Medicine and Animal Sciences from the National Autonomous University of Mexico (UNAM) and a master's degree in Preventive Veterinary Medicine from the University of California, Davis.

Dr. Arroyo began her career within the Mexican Veterinary Services, where she focused on the prevention and control of foreign animal diseases, zoonotic disease prevention, trade-related animal health issues, and the production of diagnostics and vaccines. Between 2004 and 2013, she held several leadership positions in Mexico related to animal disease prevention and control, laboratory management, and import-export regulation, including serving as Director General of the National Veterinary Biologics Laboratory (PRONABIVE).

In 2015, she joined WOAH as Subregional Representative for Central America and the Caribbean. She later moved to WOAH Headquarters in Paris in 2018, where she first served as Head of the World Animal Health Information Department and subsequently as Head of the Regional Activities Department, overseeing the coordination of WOAH's 13 regional offices worldwide.

Throughout her career, Dr. Arroyo has developed extensive expertise in international animal health policy, veterinary services, disease prevention, laboratory systems, and global health standards, with a strong focus on strengthening One Health collaboration and global animal health governance.

Career and inspiration

Dr. Arroyo's connection to veterinary medicine began at home. Her father was a veterinarian, and from an early age she was exposed to the many dimensions of the profession. What fascinated her most was not only the clinical side of caring for animals, but also the broader impact veterinarians could have on public policy and society.

"He showed me the beauty of clinical practice, but also the impact that as veterinarians we can have in policy," she recalled.

Although her mother had hoped she would become a physician, Dr. Arroyo chose veterinary medicine because it combined her love of science, nature, and public service. During her studies, she found herself equally drawn to immunology, pathology, epidemiology, and clinical medicine, making it difficult to choose a single professional direction. After graduating, she joined Mexico's Ministry of Agriculture, initially working in exports while preparing for postgraduate studies.

That experience exposed her to the realities of international animal trade, disease prevention, and food safety. She soon transitioned into foreign animal disease prevention, where she witnessed firsthand the devastating effects outbreaks can have on countries unprepared for emerging diseases. During avian influenza outbreaks in Mexico, she saw how animal disease could disrupt economies, threaten food systems, and create enormous pressure on veterinary services.

One lesson from those years has remained with her throughout her career: prevention is difficult to defend politically because its success is often invisible.

"It's very difficult to sell prevention," she explained. "When nothing happens, people sometimes don't realize the value of what prevented it."

Her growing involvement with international animal health standards eventually led her to WOAH. Today, she oversees work related to international standards and implementation, helping countries establish common frameworks for disease reporting, trade, diagnostics, and vaccine quality.

"All these different stages in my career have really prepared to give me a very wide view of the different areas where animal health standards are really important," she asserts.

The underestimated power of animal vaccination

Animal vaccination is often viewed through the narrow lens of livestock productivity and disease control. But for Dr. Arroyo, its implications extend far beyond the farm. She argues that animal vaccination is one of the world's most underappreciated public health tools, capable not only of protecting livestock, but also of reducing antimicrobial resistance, strengthening food security, and helping prevent future pandemics.

For Dr. Arroyo, the greatest misunderstanding surrounding animal vaccination is that its benefits are too often evaluated only at the farm level. She believes vaccination creates resilience across entire health and economic systems.

"Vaccination is not only a control tool," she said. "If you invest in vaccines, you are investing in sustainability, resilience, and the economic viability of the livestock system worldwide."

Healthy livestock populations allow farmers, especially smallholders, to invest more confidently in nutrition, husbandry, and genetics without the constant fear of devastating outbreaks. More stable animal health systems also help improve productivity, strengthen food security, and reinforce confidence in trade and agricultural markets.

At the same time, healthier animal populations reduce pathogen circulation, decrease the need for antimicrobials, and limit the emergence of antimicrobial resistance (AMR). Vaccination programs also strengthen veterinary surveillance systems and contribute to broader sustainability and climate resilience efforts.

The implications for human health are profound. Because most emerging infectious diseases originate in animals, reducing disease burden in livestock directly lowers the risk of zoonotic spillover into human populations. For Dr. Arroyo, this broader public health value remains one of the most overlooked aspects of animal vaccination.

Rabies: the clearest example of One Health in action

Dr. Arroyo pointed to rabies as one of the clearest examples of how animal vaccination can save human lives. Vaccinating dogs against rabies has eliminated human deaths in several regions of the world, yet many countries still rely primarily on post-exposure treatment after a bite occurs.

"In 2026, it is still incredible that

children continue dying from rabies when we have a preventive tool that works and is inexpensive," she said.

For Dr. Arroyo, rabies vaccination demonstrates how relatively modest investments in animal health can generate enormous public health gains. By preventing disease transmission at its source, countries can protect vulnerable populations and avoid the human and economic costs associated with preventable infections.

She also highlighted several other successful examples of how animal vaccination contributes to both public health and sustainability. Vaccination against brucellosis has helped reduce transmission to farmers and consumers exposed through dairy products, while Japanese Encephalitis control programs combining animal vaccination with mosquito control have lowered human disease incidence in affected regions.

Dr. Arroyo also pointed to East Coast Fever vaccination programs, which have improved livestock productivity while reducing climate-related emissions. In Norway, widespread vaccination in salmon farming significantly reduced antibiotic use, while poultry vaccination programs in the United Kingdom lowered both medication costs and antimicrobial consumption.

Among the most important achievements in veterinary medicine, she emphasized the global eradication of rinderpest in 2011, made possible through coordinated international vaccination efforts.

"Perhaps the greatest historical success was the global eradication of rinderpest, only the second disease ever eradicated worldwide after smallpox," she noted.

Pandemic preparedness

Despite these successes, Dr. Arroyo believes the world still fails to fully integrate animal health into discussions about pandemic preparedness. Her experience working during avian influenza outbreaks gave her a deep appreciation for the economic and social consequences of animal disease, as well as the difficulty of convincing policymakers to invest in prevention before a crisis emerges.

"Pandemic prevention cannot start in hospitals," she said. "Once it reaches hospitals, prevention has already failed."

Instead, she argues that prevention must begin on farms, in markets, and throughout the animal value chain. By identifying zoonotic hotspots and strategically investing in animal vaccination programs, countries could dramatically reduce the probability of future pandemics.

Although collaboration between organizations such as WOAH and CEPI is increasing under the One Health framework, Dr. Arroyo acknowledged that veterinary perspectives remain underrepresented in many global health discussions.

"When we talk about global health security, veterinarians are still not consistently at the table," she noted.

One of the greatest challenges, she believes, is communication. Even among healthcare professionals, the relationship between animal health and human health is often poorly understood. She reflected on conversations with physicians and pediatricians who focused almost exclusively on childhood vaccination schedules while overlooking the role animal vaccination can play in protecting communities and preventing disease spillover.

Yet the connection between animal and human health is already part of everyday life. Millions of households around the world live in close contact with pets and livestock, often without recognizing how animal vaccination contributes to safer environments for humans.

"We rarely stop to think about how vaccinating those animals also protects human health," she said.

As global leaders continue preparing for future pandemics, Dr. Arroyo's message remains both simple and urgent: protecting human health starts long before patients arrive at hospitals. It begins with healthier animals, stronger veterinary systems, and a broader understanding in public health is fundamentally interconnected.

Coordinated action

Dr. Arroyo emphasized that meaningful progress would require coordinated action from governments, industry, and international organizations alike. Vaccine manufacturers, she said, must continue innovating with formulations adapted to different climates and farming realities, including products suitable for smallholder farmers. Governments, meanwhile, must begin treating vaccination as a strategic public good directly linked to food security, antimicrobial resistance reduction, and pandemic prevention.

Equally important is investment in veterinary infrastructure. Vaccines alone, she stressed, are insufficient without strong veterinary services capable of surveillance, diagnostics, cold chain management, and rapid outbreak response.

Dr. Arroyo believes the private sector has a critical role to play in improving access to animal vaccination globally. This includes investing in thermostable and multivalent vaccines, developing products adapted to the needs of smallholder farmers, improving affordability and supply predictability, and aligning innovation with broader public health priorities.

Governments, she argued, must also adopt a more systematic and preventive approach to animal vaccination. That means integrating vaccination into food security and antimicrobial resistance policies, investing in veterinary infrastructure and workforce capacity, and supporting sustainable financing mechanisms for vaccination programs.

International organizations likewise have an essential responsibility in strengthening global animal health systems. According to Dr. Arroyo, this includes continuing to develop standards and technical guidance, supporting country capacity-building efforts, promoting public-private partnerships, and strengthening One Health integration at the global level.

Ultimately, Dr. Arroyo believes the scientific rationale for investing in animal health is already overwhelming. The challenge now lies in generating the political commitment and economic evidence necessary to transform One Health from an aspirational concept into a functioning global strategy.

"Investing in animal health protects human health," she said. "Now we need the world to fully recognize that reality."

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.

WHO: World immunization Week (April 24-30, 2026).
Published: April 2026.
https://www.who.int/campaigns/world-immunization-week

Lower-income countries investing record amount in immunisation programmes.
Against a backdrop of aid cuts, lower-income countries contributed a record US$ 302 million towards Gavi-supported vaccines for 2025. Over the last five years, countries have mobilized US$ 1.1 billion for immunization, matching the total raised over the previous 13 years combined.
Published: April 16, 2026.
https://www.gavi.org/news/media-room/lower-income-countries-investing-record-amount-immunisation-programmes

International Vaccine Institute (IVI) Annual Report 2025.
IVI's 2025 Annual Report captures progress across our scientific portfolio—from early discovery to clinical development and final delivery—alongside the partnerships, capacity-building, and global collaboration that help ensure vaccines reach those who need them most.
Published: April 22, 2026.
https://www.ivi.int/ivi-annual-report-2025/

WHO: World Malaria Day 2026.
Published: April 25, 2026.
https://www.who.int/campaigns/world-malaria-day/2026

University of Maryland (UMD) Study: Declining measles vaccinations could cost the U.S. economy $7 billion by 2030.
Published: April 22, 2026.
https://www.wmar2news.com/news/region/baltimore-city/umd-study-declining-measles-vaccinations-could-cost-the-u-s-economy-7-billion-by-2030#google_vignette

WHO: Global hepatitis report 2026.
Published: April 28, 2026.
https://www.who.int/publications/i/item/9789240122383

Eight vaccines linked to a lower risk of dementia.
A growing body of research is beginning to reveal the impact that regular routine vaccines could be having on the likelihood of conditions like dementia. Here are the jabs with the strongest evidence so far. Multiple large observational studies have found that routine adult vaccines are associated with a reduced risk of dementia, with some showing risk reductions of 25% to 40%. The strongest evidence exists for shingles, flu, RSV, pneumococcal and diphtheria, tetanus and pertussis-containing (DTP) vaccines. Researchers believe vaccination may reduce dementia risk by preventing infections that cause brain inflammation, though some evidence points to a more general immune effect.
Published: April 28, 2025.
https://www.gavi.org/vaccineswork/eight-vaccines-linked-lower-risk-dementia

Andes hantavirus outbreak in cruise ship, 14 May 2026.
ECDC was notified on 2 May 2026 of a cluster of severe respiratory illness on MV Hondius, a Dutch-flagged cruise ship with passengers and crew from 23 countries, including nine EU/EEA countries.
Published: May 14, 2026.
https://www.ecdc.europa.eu/en/infectious-disease-topics/hantavirus-infection/surveillance-and-updates/andes-hantavirus-outbreak

WHO's response to hantavirus cases linked to a cruise ship.
Dr Tedros Adhanom Ghebreyesus, WHO Director-General, briefed media today on a cluster of hantavirus cases linked to a cruise ship, the MV Hondius. Eight cases have been reported so far, including three deaths. Five of the 8 cases have been confirmed as hantavirus. The hantavirus involved is the *Andes* virus, the only species known to be capable of limited transmission between humans, linked to close and prolonged contact. Describing the situation, Dr Tedros said, "While this is a serious incident, WHO assesses the public health risk as low." He noted that given the incubation period, "it's possible that more cases may be reported." WHO is coordinating closely with multiple countries under the International Health Regulations or IHR, rules that define the rights and obligations of countries and WHO in responding to public health events. This event demonstrates why the IHR exists, demonstrating the importance of global cooperation and solidarity in responding to health threats that have no borders.
Published: May 7, 2026.
https://www.who.int/news/item/07-05-2026-who-s-response-to-hantavirus-cases-linked-to-a-cruise-ship

Message by the WHO Director-General to the people of Tenerife regarding the hantavirus response.
"To the people of Tenerife. My name is Tedros, and I serve as the Director-General of the World Health Organization, the United Nations agency responsible for global public health. It is not common for me to write directly to the people of a single community, but today I feel it is not only appropriate, it is necessary. I want to speak to you directly, not through press releases or technical briefings, but as one human being to another, because you deserve that. I know you are worried. I know that when you hear the word "outbreak" and watch a ship sail toward your shores, memories surface that none of us have fully put to rest. The pain of 2020 is still real, and I do not dismiss it for a single moment. But I need you to hear me clearly: this is not another COVID. The current public health risk from hantavirus remains low. My colleagues and I have said this unequivocally, and I will say it again to you now. The virus aboard the MV Hondius is the Andes strain of hantavirus. It is serious. Three people have lost their lives, and our hearts go out to their families. The risk to you, living your daily life in Tenerife is low. This is the WHO's assessment, and we do not make it lightly."
Published: May 9, 2026.
https://www.who.int/news/item/09-05-2026-message-by-the-who-director-general-to-the-people-of-tenerife-regarding-the-hantavirus-response

South Africa secures Europe-backed $90 million vaccine plant deal amid hantavirus outbreak fears, 7,000 jobs expected.
South Africa has secured a Europe-backed $90 million deal to build Africa's first fully integrated vaccine plant, a project expected to create over 7,000 jobs amid growing hantavirus outbreak fears.
Published: May 8, 2026.
https://africa.businessinsider.com/local/markets/south-africa-secures-europe-backed-dollar90-million-vaccine-plant-deal-amid/nf8mz8b

Preliminary analysis of Orthohantavirus andesense virus sequences from a cruise-ship related cluster, May 2026.
The overall high level of genetic similarity — with a maximum of one detected SNP per individual — strongly suggests that the outbreak most likely originated from a single zoonotic spillover event, or a very limited number of closely related spillover events. The limited and consistent variation observed in the L segment is interpreted as true viral mutations rather than methodological artifact. Taken together, these findings support a scenario of initial zoonotic introduction followed by subsequent humantohuman transmission during the outbreak. The lack of diversity observed in the outbreak is similar to that observed during a

cluster of human-to-human transmission in the Epuyén 2018 outbreak, in Argentina. The genomic data cannot exclude the possibility that the initial environmental exposure involved more than one passenger infected from the same source.
Published: May 10, 2026.
https://virological.org/t/preliminary-analysis-of-orthohantavirus-andesense-virus-sequences-from-a-cruise-ship-related-cluster-may-2026/1029

Large tuberculosis outbreaks in US doubled from 2017 to 2023, CDC reports.
Analyzing national surveillance and genomic data, researchers from the Centers for Disease Control and Prevention identified 50 large TB outbreaks (defined as 10 or more related cases within a three-year period) across 23 states from 2017 through 2023. Together, the outbreaks accounted for 1,092 of the 61,993 cases reported during that period. The number of large outbreaks is a sharp increase from the 24 identified from 2014 to 2016, suggesting that transmission within family and social networks is an ongoing issue, despite the United States having one of the lowest TB incidence rates in the world.
Published: May 1, 2026.
https://www.cidrap.umn.edu/tuberculosis/large-tuberculosis-outbreaks-us-doubled-2017-2023-cdc-reports

ASCO: Moderna, Merck melanoma vaccine set for phase 3.
Moderna's move into personalized cancer therapy continues to proceed at a rapid pace, with Merck & Co-partnered melanoma vaccine mRNA-4157 heading for a pivotal phase 3 program after a phase 2b data drop at ASCO.
Published: May 6, 2026.
https://pharmaphorum.com/news/asco-moderna-merck-melanoma-vaccine-set-phase-3.

Systematic review reaffirms HPV vaccine safety, supports single-dose regimen potential.
According to a news release from the University of Minnesota, the university's Vaccine Integrity Project announced a comprehensive review of peer-reviewed evidence for human papillomavirus (HPV) vaccines, finding they remain safe and effective in preventing cervical cancer, precancerous lesions, and persistent HPV infection. Additionally, evidence continues to emerge supporting the potential efficacy of a single-dose regimen for women.
Published: May 5, 2026.
https://www.contemporaryobgyn.net/view/systematic-review-reaffirms-hpv-vaccine-safety-supports-single-dose-regimen-potential

Could nasal vaccines replace syringes?
Evidence is emerging that nasal vaccines could be more effective than previously believed, boosting a crucial form of immunity hiding in plain sight.
Published: May 5, 2026.
https://www.gavi.org/vaccineswork/could-nasal-vaccines-replace-syringes

Hantavirus is on the rise in Argentina, where a stricken cruise ship began its journey.
Officials and experts in Argentina are scrambling to determine if their country is the source of a deadly hantavirus outbreak that has gripped an Atlantic cruise. The health emergency aboard the ship that's moored across the ocean comes as Argentina sees a surge of hantavirus cases that many local public health researchers attribute to the recently accelerating effects of climate change. Argentina, where the cruise to Antarctica departed, is consistently ranked by the World Health Organization as having the highest incidence of the rare, rodent-borne disease in Latin America. Higher temperatures expand the virus' range because, in part, as it gets warmer and ecosystems change, rodents that carry the hantavirus can thrive in more places, experts say. People typically contract the virus from exposure to rodent droppings, urine or saliva.
Published: May 7, 2026.
https://apnews.com/article/argentina-hantavirus-cruise-ship-5841c25be9aa6dd3cd6edc81c74609de

More than 100 sickened in norovirus outbreak aboard Caribbean Princess cruise.
The Centers for Disease Control and Prevention said the outbreak was reported Thursday during the ship's April 28 to May 11 voyage through the Caribbean.
Published: April 9, 2026.
https://www.nbcnews.com/world/caribbean/norovirus-outbreak-princess-cruise-caribbean-rcna344359

IVI Board of Trustees convenes in Helsinki, appoints Prof. Helen Rees as new Chair and advances global health priorities.
The Board of Trustees of the International Vaccine Institute (IVI) convened in Helsinki this week, advancing key priorities for the international organization's next phase of growth and global health impact.
Published: May 8, 2026.
https://www.ivi.int/ivi-board-of-trustees-convenes-in-helsinki-appoints-new-chair-and-advances-global-health-priorities/

From Hantavirus to HPV: Understanding Risk and Following the Science.
Published: May 12, 2026.
https://www.linkedin.com/pulse/from-hantavirus-hpv-understanding-risk-following-science-gavi-rzste/

Whooping cough surge exposes gaps in adult vaccination.
Cases of whooping cough (pertussis) have surged across Europe, with England recording a 1,600% increase in 2024 alone, according to a review of the evidence from the International Longevity Centre UK (ILC).
Published: May 1, 2026.
https://www.vaccinestoday.eu/stories/whooping-cough-surge-exposes-gaps-in-adult-vaccination/

Africa CDC: Africa CDC Launches the African Strategic Advisory Group on Genomics.
Africa CDC today announced the launch of the African Strategic Advisory Group on Genomics (ASAG), a new continental advisory mechanism established to provide independent, multidisciplinary, and trusted technical guidance on the strategic governance and implementation of genomics across Africa.
Published: May 4, 2026.
https://africacdc.org/news-item/africa-cdc-launches-the-african-strategic-advisory-group-on-genomics/

Confederation of Meningitis Organizations (CoMO). A worldwide network driven by a shared purpose to defeat meningitis.
Meningitis has profoundly affected our lives. Some of us survived and live with lifelong disabilities. Some live with the shock and grief of losing a friend or family member. Some of us are healthcare professionals or researchers, working to support people affected or to advance medical science. Some are organizations dedicated to prevention and awareness.
We are civil society representatives determined that no more families go through what we have. We won't stop until this disease is defeated within our communities and countries.
https://www.meningitis.org/como/

Tracking Measles and the World's Vaccine-Preventable Diseases.
This weekly map visualizes outbreaks of nine childhood diseases in collaboration with the International Society for Infectious Diseases.
https://www.thinkglobalhealth.org/article/vaccine-preventable-disease-a-global-tracker

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

Pittet LF, Casalaz D, Donath S, Gardiner K, Goodall C, Flanagan KL, Robins-Browne R, Shann F, Curtis N, Messina NL; Melbourne Infant Study: **BCG for Allergy and Infection Reduction (MIS BAIR) Group. Effect of neonatal BCG vaccination on oral herpes in early childhood: A nested study within a randomised controlled trial.** *Vaccine*. 2026 Apr 15;81:128577.
doi: https://doi.org/10.1016/j.vaccine.2026.128577

Editorial comment: Emerging evidence continues to highlight the non-specific (off-target) benefits of BCG vaccination, extending beyond tuberculosis. In this exploratory analysis, neonatal BCG was associated with a reduced risk and recurrence of herpes labialis in early childhood, suggesting a potential role in modulating HSV-related disease. While these findings are promising—particularly given the lack of effective preventive strategies for recurrent HSV—they must be interpreted with caution due to methodological limitations, including sample size and incomplete follow-up. Nonetheless, this study reinforces the broader concept that vaccines may confer unexpected, clinically meaningful protection beyond their primary targets, warranting further rigorous investigation.

02

Clark AD, Feikin DR, Danovaro-Holliday MC, Sanderson CFB. **Timeliness of children's vaccinations in 91 low-income and middle-income countries: an analysis of survey data.** *Lancet Glob Health*. 2026 May;14(5):e714-e722.
doi: https://doi.org/10.1016/S2214-109X(25)00554-6

Editorial comment: Despite steady improvements in overall vaccine coverage across LMICs, timeliness remains a critical and underrecognized gap. This large, multi-country analysis shows that many children receive vaccines weeks later than recommended, with delays increasing across multi-dose series (notably DTP and measles vaccines), and only about half of doses administered on time for several key antigens. While coverage eventually rises with age, this "late protection" leaves children vulnerable during their highest-risk periods, undermining the full impact of immunization programs. The findings reinforce a crucial message: coverage alone is not enough—timeliness must become a central performance metric. Strengthening delivery systems, improving birth-dose implementation, and prioritizing early-life vaccination are essential to close this gap and maximize the life-saving potential of vaccines.

03

Steinhardt LC, Kwambai TK, Oneko M, Ouma E, Njoroge R, Callier V, Hu Z, Gutman JR, Yego R, Otieno K, Onoka K, Otieno L, Oduol K, Serebryannyy L, Lin BC, Adams W, Hickman S, Preston AC, Carlton K, Holdsworth M, Xiao Y, O Ter Kuile F, Odongo W, Murphy SC, Tran TM, Kariuki S, Crompton PD, Seder RA; Kenya Malaria mAb Trials Team. **Safety and efficacy of the monoclonal antibody L9LS for malaria prevention in children exposed to perennial malaria transmission in Kenya: a randomised, double-blind, placebo-controlled, phase 2 trial.** *Lancet.* 2026 Apr 25;407(10539):1614-1625.
doi: https://doi.org/10.1016/S0140-6736(26)00258-8

Editorial comment: This phase 2 trial adds to the growing momentum around monoclonal antibodies as a new tool for malaria prevention, particularly in high-burden settings. In young children exposed to intense perennial transmission, L9LS demonstrated a favorable safety profile and moderate protective efficacy (~43%), marking an important step beyond seasonal malaria strategies. While efficacy did not reach the high levels seen in older children or seasonal settings, these findings are encouraging. They suggest that long-acting antibodies could complement existing malaria interventions, especially for the most vulnerable age groups. However, optimization of dosing and durability of protection will be critical to unlock their full public health potential in endemic regions.

04

Heath PT, Zuma-Gwala N, Helmig RB, Horne E, Kjærbye-Thygesen A, Crusell MKW, Nchabeleng M, Strehlau R, Khalil MR, Jones CE, Biccler J, Dimsits J, Johansson-Lindbom B, Fischer PB, Oostvogels L, Madhi SA; MVX0004 study group. **Immunogenicity and safety of a group B Streptococcus vaccine (GBS-AlpN) in pregnant women and their infants: a phase 2, multicentre, observer-blind, randomised, placebo-controlled study.** *Lancet Infect Dis.* 2026 May;26(5):486-496. doi: 10.1016/S1473-3099(25)00659-0. Epub 2025 Dec 9. Erratum in: Lancet Infect Dis. 2026 Mar;26(3):e146.
doi: https://doi.org/10.1016/S1473-3099(26)00048-4

Editorial comment: This phase 2 study advances the promise of maternal immunization against group B streptococcus (GBS), a leading cause of neonatal sepsis and mortality. The novel GBS-AlpN vaccine demonstrated a favorable safety profile and robust immunogenicity, with high levels of transplacentally transferred antibodies in newborns—particularly with two-dose regimens. Importantly, the vaccine targets proteins covering the vast majority of invasive GBS strains, supporting its potential for broad protection. While clinical efficacy remains to be confirmed, these results represent a significant step toward a long-awaited maternal GBS vaccine, with the flexibility of dosing schedules adding practical value for real-world implementation.

05

Kareus E, Levenson D, Lee S, Gomez-Lopez N. **The maternal-fetal interface as an immunological barrier: Structure, regulation, and breakdown.** *Cell Rep.* 2026 Mar 26;45(4):117164.
doi: https://doi.org/10.1016/j.celrep.2026.117164

Editorial comment: The maternal–fetal interface represents a highly specialized and dynamic immunological environment, balancing tolerance to the fetus with protection against infection and the inflammatory signals required for labor. Across pregnancy, tightly regulated immune populations—ranging from regulatory T cells and macrophages to uterine NK cells—maintain this equilibrium, with a programmed shift toward inflammation at term to enable parturition. Importantly, disruption of this balance, as seen in chronic placental inflammation, can lead to harmful immune activation within fetal tissues. These insights underscore a critical message: maternal immunization is not only safe when appropriately implemented, but essential. By enhancing protective immunity without compromising this delicate balance, maternal vaccines play a key role in safeguarding both mother and infant during a uniquely vulnerable window of life—reinforcing their value as a cornerstone of early life disease prevention.

06

Sauré D, Zgheib A, Torres JP, Goic M, Thraves C, Pacheco J, Burgos J, Del Solar F, Neira I, O'Ryan M, Basso LJ. **Health care utilization and cost implications of Chile's 2024 nirsevimab strategy for RSV prevention: a counterfactual analysis**. *Lancet Reg Health Am.* 2026 Apr 20;59:101475.
doi: https://doi.org/10.1016/j.lana.2026.101475

Editorial comment: In 2024, Chile became the first country in the Southern Hemisphere to implement universal immunization with nirsevimab against Respiratory Syncytial Virus (RSV)—and the results are striking. Using nationwide data, this real-world analysis shows substantial reductions in infant disease burden, including tens of thousands fewer medical visits, hospital bed-days, ICU stays, and parental work-loss days. Importantly, the program was not only clinically impactful but also economically favorable, generating a net benefit of approximately **$23.5 million USD**, with both seasonal and catch-up cohorts contributing significantly to cost savings. These findings reinforce the transformative potential of long-acting monoclonal antibodies as a population-level prevention strategy, particularly when implemented universally and extended to infants born before the RSV season.

07

Singh T, Sinjana Y, Kapoor AP. **Aerial innovations in healthcare: A systematic review of drone-based logistics and regulatory barriers.** *Sustainable Futures* 2026 June;11:101758.
doi: https://doi.org/10.1016/j.sftr.2026.101758

Editorial comment: A PRISMA-guided review of 54 studies (2018–2025) highlights the growing role of unmanned aerial vehicles (UAVs) in healthcare logistics—particularly for improving timeliness and last-mile delivery of critical, lightweight medical products in resource-limited settings. When effectively integrated into health systems and supported by validated cold-chain processes, drones can enhance access during routine care and emergencies. However, scalability remains constrained by persistent challenges: limited battery life and payload capacity, weather sensitivity, cold-chain risks, fragmented regulatory frameworks (especially beyond visual line-of-sight approvals), and concerns around cybersecurity, privacy, and liability. While emerging technologies—AI-driven routing, IoT monitoring, blockchain traceability, and 5G connectivity—offer potential solutions, real-world, system-level validation is still limited. Notably, the evidence base remains heavily focused on technical performance, with insufficient attention to governance, ethics, and implementation readiness. Overall, UAVs represent a promising but still maturing tool for resilient and equitable healthcare delivery—requiring regulatory harmonization, stronger institutional capacity, and interoperable standards to achieve sustainable scale.

08

Stacey HD, Garin-Ortega L, Lopez PG, Ramezani-Rad P, Ramirez SI, Faraji F, Bhavsar D, Levi G, Krammer F, Crotty S. **Local B cell immunity and durable memory after live-attenuated influenza intranasal vaccination of humans**. *Sci Transl Med.* 2026 Apr 29;18(847):eadz8439.
doi: https://doi.org/10.1126/scitranslmed.adz8439

Editorial comment: Seasonal influenza vaccines are traditionally delivered intramuscularly, generating strong systemic antibody responses—primarily targeting the hemagglutinin (HA) head. However, this study highlights a critical gap in how we evaluate protection: **circulating immunity does not fully capture mucosal immune responses**, where respiratory viruses initiate infection.

Using longitudinal sampling of the upper airway, investigators show that the intranasal live-attenuated vaccine (FluMist) induces **robust, durable mucosal immunity**, characterized by sustained HA-specific IgA+ and IgG+ memory B cells with an activated phenotype, persisting up to six months post-vaccination. These local responses were observed across influenza A (H1, H3) and B strains and were associated with circulating T follicular helper cells. In contrast, intramuscular vaccination—while generating strong systemic antibodies—failed to elicit comparable **local memory B cell responses in the upper respiratory tract**. These findings underscore a paradigm shift: **effective protection against respiratory pathogens may depend as much on mucosal immunity as on systemic responses**. Intranasal platforms, despite lower measured systemic immunogenicity, may offer critical advantages by targeting the site of viral entry—supporting their broader role in next-generation influenza vaccines and other respiratory pathogens.

09

Brisson M, Drolet M, Gingras G et al. **Substantial increases in cervical cancer inequalities worldwide without enhanced human papillomavirus vaccination and screening efforts: a global modelling study.** *Lancet.* 2026; May 2;407:1726-1737.
doi: https://doi.org/10.1016/S0140-6736(26)00410-1

Editorial comment: Despite the World Health Organization call to eliminate cervical cancer, global progress remains deeply unequal. Modeling across 67 LMICs and 42 HICs shows that, under current strategies, high-income countries are on track to eliminate cervical cancer by mid-century—while low- and middle-income countries will see only modest reductions, with inequalities projected to increase dramatically. The analysis is clear: status quo approaches will fail LMICs. Achieving high HPV vaccination coverage in girls alone can reduce disparities, but true global equity—and elimination—requires full implementation of WHO targets, including vaccination, screening, and treatment, alongside expanded strategies such as gender-neutral and multi-age cohort vaccination. The message is unequivocal: cervical cancer elimination is scientifically within reach—but without accelerated, equitable prevention, it risks becoming a success story for some—and a failure for many.

10

Hoxie I, Vasilev K, Clark J, Amin H, Peña Alzua G, Bhavsar D, Puente-Massaguer E, Siram K, Short K, Tee R, Burkhart D, Evans JT, Krammer F. A **TRAC-478-adjuvanted recombinant N1 neuraminidase influenza virus vaccine induces balanced and broadly protective immune responses.** NPJ Vaccines. 2026 May 2.
doi: https://doi.org/10.1038/s41541-026-01456-2

Editorial comment: Current influenza vaccines, focused on hemagglutinin, offer limited protection against drifted strains. This study highlights a promising shift: targeting neuraminidase with a recombinant vaccine enhanced by combined TLR agonists. The result is a broader, more functional immune response—including cross-reactive antibodies with strong ADCC activity and robust Th1-biased cellular immunity—translating into protection against diverse H1N1 and H5N1 strains in preclinical models. These findings support neuraminidase-based strategies, particularly with optimized adjuvant systems, as a viable path toward broader and potentially pandemic-resilient influenza vaccines.

11

Miles AC, Vojicic J, Peyrani P, Rosenstock S, Li H, Vietri JT, Yan Q, Randall AE, Zhao X, Zhu W, Zhao B, Zhou A, Jodar L, Gessner BD, Theilacker C, Moïsi JC, Balmer P, Grant LR, Cane A. **Real-world effectiveness of 20-valent pneumococcal conjugate vaccine against all-cause outcomes among Medicare beneficiaries aged 65 years and older in the USA: a retrospective cohort study.** *Lancet Infect Dis.* 2026 Apr 30:S1473-3099(26)00115-5.
doi: https://doi.org/10.1016/S1473-3099(26)00115-5

Editorial comment: First real-world data following licensure show that PCV20 provides meaningful protection in adults ≥65 years, reducing invasive pneumococcal disease, pneumococcal pneumonia, and—most notably—all-cause pneumonia and LRTIs within the first year. While relative effectiveness is modest, the absolute public health impact is substantial, driven by large reductions in respiratory illness burden. These findings reinforce the value of adult pneumococcal vaccination and support broader implementation of PCV20 in aging populations.

12

Shapiro IE, Bassani-Sternberg M. **From prediction to precision: how immunopeptidomics advances neoantigen discovery.** *Trends Cancer.* 2026 Apr 1:S2405-8033(26)00034-8.
doi: https://doi.org/10.1016/j.trecan.2026.02.003

Editorial comment: Immunopeptidomics is transforming personalized cancer immunotherapy by directly identifying tumor-specific neoantigens presented by HLA molecules. Unlike traditional prediction-based approaches, this technology uses mass spectrometry to detect naturally presented peptides on tumor cells, improving neoantigen selection and immunogenicity assessment. Combined with AI and machine learning, immunopeptidomics has the potential to significantly advance precision cancer vaccines and T-cell–based therapies.

13

Leroux-Roels I, Huang G, Ferguson M, Kohli A, Clark R, Bickel M, Soens M, Du E, Pucci A, Hicks B, Eschen C, Das R, Wilson E; Fluent Trial Investigators. **Efficacy and Safety of an mRNA Seasonal Influenza Vaccine in Adults**. *N Engl J Med*. 2026 May 7;394(18):1803-1813.
doi: https://doi.org/10.1056/NEJMoa2516491

Editorial comment: The phase 3 trial of the investigational mRNA-based influenza vaccine mRNA-1010 marks an important milestone in the evolution of next-generation influenza vaccines. In adults ≥50 years of age, mRNA-1010 demonstrated superior protection compared with licensed standard-dose influenza vaccines, reducing RT-PCR-confirmed influenza-like illness by 26.6%. These findings reinforce the potential of mRNA technology beyond COVID-19, particularly for pathogens such as influenza where vaccine effectiveness has historically been suboptimal. Although local and systemic reactogenicity was more frequent with mRNA-1010, most adverse events were mild to moderate and transient, while serious vaccine-related events remained rare. If confirmed across multiple influenza seasons and populations, mRNA influenza vaccines could significantly reshape seasonal influenza prevention strategies, especially for older adults who remain at highest risk of severe disease and death.

14

Yalemwork Ewnetu, Tolulope Adeyemi Kayode, Colins O Oduma, Temitope M Adeyemi-Kayode, Aragaw Zemene, Wossenseged Lemma, Nega Berhane, Cristian Koepfli. **High-altitude *Plasmodium falciparum* and *Plasmodium vivax* reservoirs in Ethiopia are not linked to recent travel**. *Open Forum Infectious Diseases*, 2026;, ofag247,
doi: https://doi.org/10.1093/ofid/ofag247

Editorial comment: This study challenges the long-standing assumption that the Ethiopian highlands are largely protected from malaria transmission because of their altitude. Investigators identified substantial subclinical and clinical malaria prevalence at elevations up to 2800 meters, suggesting that local transmission may be more sustained than previously recognized. Importantly, only a minority of infected individuals reported recent travel to endemic lowland areas, indicating that imported infections alone cannot explain the observed burden. These findings raise important concerns regarding the potential impact of climate change, ecological shifts, and vector adaptation in expanding malaria transmission into traditionally low-risk regions. The study also highlights diagnostic implications, as LDH-based rapid tests detected significantly more subclinical P. falciparum infections than HRP2-based assays. Together, these data support intensified surveillance and malaria control interventions in highland regions now increasingly vulnerable to endemic transmission.

15

Mwapasa V, Asante K, Milligan P et al. **Impact of introducing RTS,S/AS01E malaria vaccine on mortality in young children in Ghana, Kenya, and Malawi: an observational evaluation of a cluster-randomised implementation programme.** *The Lancet*. 2026, May;407:1796-1808.
doi: https://doi.org/10.1016/S0140-6736(26)00248-5

Editorial comment: The 46-month evaluation of the RTS,S/AS01E malaria vaccine in Ghana, Kenya, and Malawi provides compelling real-world evidence that malaria vaccination can significantly reduce childhood mortality in sub-Saharan Africa. Despite only moderate uptake of the three-dose schedule and low coverage of the fourth dose, implementation of RTS,S was associated with a 13% reduction in all-cause mortality among vaccine-eligible children, preventing approximately one in eight deaths. These findings represent a major milestone for malaria prevention and reinforce the urgent need to accelerate the large-scale deployment of malaria vaccines in regions where malaria remains a leading cause of childhood death.

16

Ayesa Syenina, Christine Y.L. Tham, Danny J.H. Tng, Valerie S.Y. Chew, Jia Xin Yee, Yan Shan Leong, Noor Zayanah Hamis, Hwee Cheng Tan, Han Yi Joon, Jing Ti Chan, Yuchen Yang, Yin Bun Cheung, Eugenia Z. Ong, Jenny G. Low, Eng Eong Ooi. **Influence of obesity on susceptibility to systemic symptoms and host responses to orthoflaviviral infection: a prospective observational study using yellow fever vaccine to simulate acute infection.** *eBioMedicine* 2026;128:106290.
doi: https://doi.org/10.1016/j.ebiom.2026.106290

Editorial comment: This study highlights obesity as a potentially underestimated risk factor for severe orthoflaviviral diseases, including yellow fever and other flavivirus infections of growing global concern. Using the live attenuated yellow fever vaccine as a model of acute orthoflaviviral infection, investigators demonstrated that individuals with obesity experienced more systemic symptoms and inflammatory responses despite similar viral RNA levels compared with individuals without obesity. These findings suggest that the chronic pro-inflammatory state associated with obesity may amplify disease manifestations and potentially contribute to worse outcomes during flaviviral infections. In the context of the parallel global epidemics of climate change and obesity, this research raises important questions regarding host susceptibility, vaccine responses, and future prevention strategies against emerging arboviral threats.

17

Kumaresan V, Palanisamy R, Sivaperumal P, Bhatt P. **Editorial: Exploring immune evasion and vaccine strategies in host-pathogen interactions**. *Front Immunol.* 2026 Apr 14;17:1828398.
doi: https://doi.org/10.3389/fimmu.2026.1828398

Editorial comment: This editorial highlights the growing importance of understanding host–pathogen interactions to develop next-generation vaccines and immunotherapies. Advances in immunoinformatics, epitope design, host-targeted therapies, and mucosal adjuvants are transforming vaccinology by enabling more precise, scalable, and potentially broader protection against evolving infectious threats. Together, these innovations may play a critical role in improving pandemic preparedness and combating emerging infectious diseases in the future.

18

Williams JTB, Cruz H, Stein A, Breslin K, Brtnikova M, Crane B, Irving SA, Glenn S, Kenigsberg T, Lewin B, Tartof S, Sundaram ME, Fuller S, Schmidt T, O'Leary S, Canedo D, Glanz JM, DeSilva M, Fuller CC, Zerbo O, Hambidge SJ. **Hepatitis B Vaccine Series Completion by 18 Months in Infants Without a Birth Dose.** *JAMA Netw Open.* 2026 Apr 1;9(4):e269962.
doi: https://doi.org/10.1001/jamanetworkopen.2026.9962

Editorial comment: This large U.S. cohort study reinforces the critical importance of administering the hepatitis B vaccine at birth. Children who received the birth dose achieved exceptionally high completion rates of the hepatitis B vaccine series by 18 months (>97%), whereas vaccine completion among those who missed the birth dose declined substantially over time, falling to nearly 55% in recent birth cohorts. These findings highlight the birth dose not only as protection against perinatal hepatitis B transmission, but also as a powerful predictor of long-term adherence to routine immunization schedules. In an era of growing vaccine hesitancy and declining pediatric vaccine uptake, strengthening universal newborn hepatitis B vaccination policies remains essential for sustaining childhood immunization coverage and preventing future gaps in protection.

19

Tejada R, Baena A, Trujillo L, *et al.* **Impact of switching from a quadrivalent to a nonavalent HPV vaccine on HPV infections and cervical cancer in Colombia: a mathematical modelling study.** *The Lancet Regional Health – Americas.* 2026 May 5;58.
doi: https://doi.org/10.1016/j.lana.2026.101483

Editorial comment: This modeling study from Colombia highlights the substantial potential impact of transitioning from quadrivalent to nonavalent HPV vaccination strategies. While increasing vaccine coverage remains essential, the findings suggest that switching to the nonavalent vaccine could dramatically accelerate reductions in HPV prevalence and cervical cancer incidence, particularly under gender-neutral vaccination programs. Importantly, only the nonavalent strategy achieved projections consistent with cervical cancer elimination thresholds. In countries where HPV vaccine uptake remains suboptimal, these data reinforce that broader-valency vaccines, combined with high coverage, may play a decisive role in achieving the WHO goal of cervical cancer elimination.

20

Lahat A, Sharif K. **Vaccination in Immune-Mediated Intestinal Diseases: Efficacy, Safety, and Future Directions.** *Vaccines.* 2026; 14(5):426.
doi: https://doi.org/10.3390/vaccines14050426

Editorial comment: This special issue highlights that vaccination should be considered a core component of care for patients with immune-mediated intestinal diseases, including inflammatory bowel disease and celiac disease. Although non-live vaccines are generally safe and effective in these populations, immunosuppressive therapies—particularly anti-TNF agents—can significantly reduce vaccine immunogenicity and durability. Emerging evidence also suggests that systemic antibody responses alone may not fully reflect protection, as mucosal immunity often remains suboptimal despite vaccination. Together, these findings support a more personalized "precision vaccination" approach integrating disease type, immunosuppressive therapy, booster strategies, and future development of mucosal vaccine platforms for vulnerable patients.

21

Dhuri K, Ubhe A. **Emerging lipids-based adjuvant delivery technologies for vaccines.** *Vaccine.* 2026 May 6;84:128662.
doi: https://doi.org/10.1016/j.vaccine.2026.128662

Editorial comment: This review highlights the growing importance of lipid-based adjuvant delivery systems in the development of next-generation vaccines. As vaccine platforms evolve toward recombinant proteins, DNA, and mRNA technologies, more sophisticated delivery systems are required to enhance immune responses, stability, and safety. Lipid-based platforms—including emulsions, liposomes, and nano/microparticles—have emerged as highly versatile tools capable of efficiently delivering vaccine antigens and nucleic acids to antigen-presenting cells. The success of these technologies during recent pandemics underscores their central role in the future of vaccinology, pandemic preparedness, and the development of more effective and adaptable vaccines for both human and animal health.

22

Sreekanth S, Lahon A. **Strategies to enhance DNA vaccine efficacy against emerging arboviruses: lessons from ZIKA and Chikungunya viruses.** *Vaccine.* 2026 May 12;85:128680.
doi: https://doi.org/10.1016/j.vaccine.2026.128680

Editorial comment: This review highlights the growing potential of DNA vaccines as a promising strategy against emerging arboviral threats such as Zika and chikungunya viruses, which frequently co-circulate in *Aedes*-endemic regions. While chikungunya vaccines have recently achieved regulatory approval in some countries, Zika vaccine development continues to face major challenges because of its neurotropism, congenital complications, and potential for sexual and vertical transmission. The authors emphasize that advances in adjuvants and delivery technologies—including Toll-like receptor agonists and molecular adjuvants—may significantly enhance the immunogenicity of DNA vaccine platforms. The review also underscores the importance of multivalent vaccine strategies capable of targeting multiple arboviruses simultaneously, an increasingly relevant approach in the era of climate change, expanding vector distribution, and overlapping arboviral epidemics.

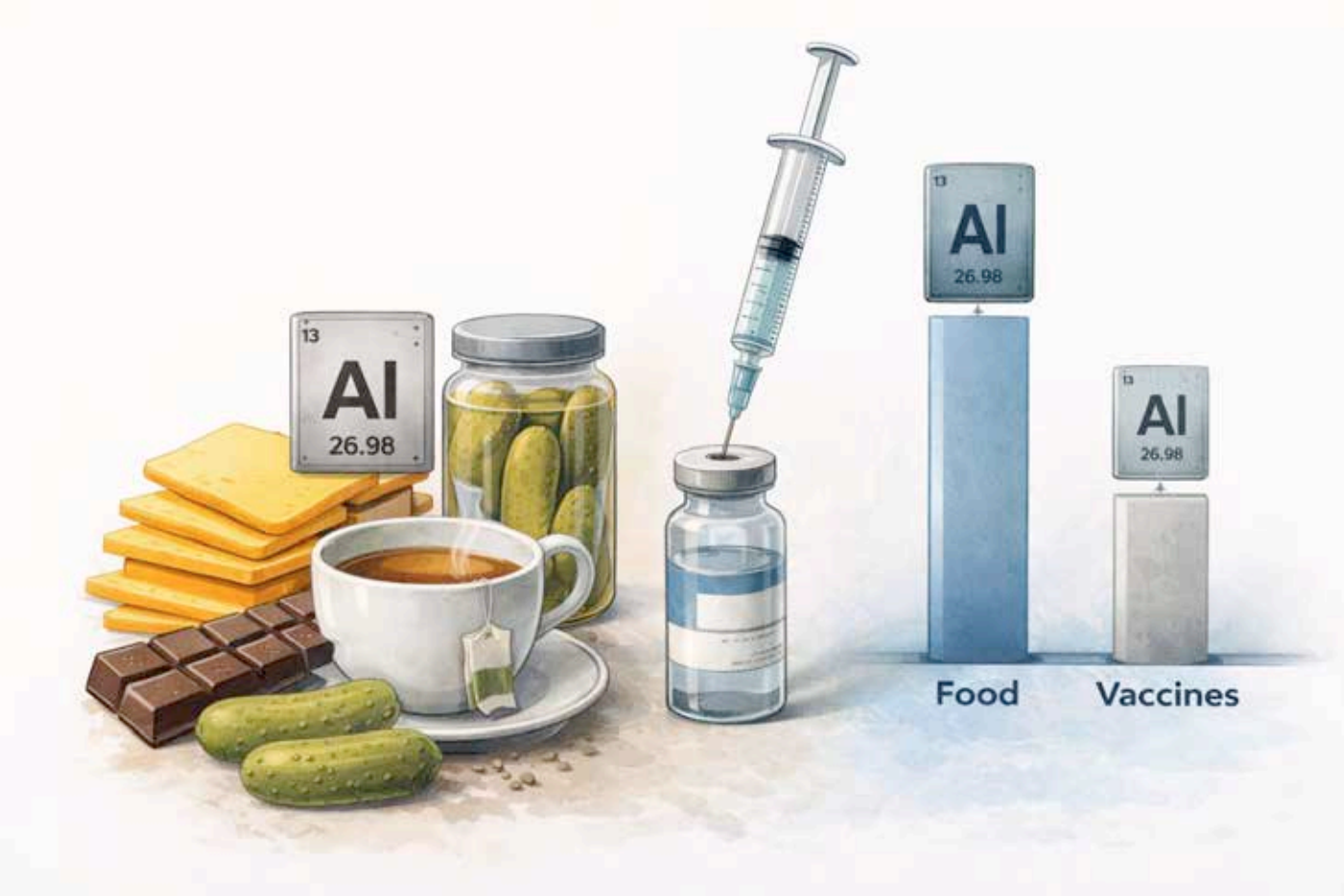
23

Homaira N, Qian J, Scaria A, Stepien S, Macartney K, Liu B. **Effectiveness of Maternal Influenza Vaccination on Influenza and Acute Respiratory Infection in Infants.** *Pediatr Infect Dis J.* 2026 Jun 1;45(6):554-560.
doi: https://doi.org/10.1097/INF.0000000000005111

Editorial comment: This large population-based study reinforces the value of maternal influenza vaccination in protecting young infants during the first six months of life—a period when they remain highly vulnerable and are too young to receive influenza vaccines themselves. Although vaccine effectiveness against infant influenza hospitalization was modest overall, maternal immunization still provided meaningful protection and supports current recommendations for influenza vaccination during pregnancy. These findings further highlight the critical role of maternal immunization strategies in reducing the burden of vaccine-preventable respiratory infections in early infancy.

Editor's Corner

ALUMINUM ADJUVANTS IN VACCINES: EVIDENCE-BASED SAFETY IN THE CONTEXT OF ROUTINE DIETARY ALUMINUM EXPOSURE



Introduction:

Aluminum is a ubiquitous element in the environment and a common component of the human diet, with regular exposure occurring through multiple food sources. Although aluminum salts are used as adjuvants in certain vaccines to enhance immune responses, the quantity per dose is low and carefully regulated. In contrast, daily dietary intake generally results in higher cumulative exposure. The following examples provide context by highlighting foods that may contain greater amounts of aluminum than a single vaccine dose. Importantly, extensive epidemiological and pharmacovigilance data have consistently shown no credible evidence linking aluminum exposure from vaccines to autism.

Aluminum Exposure: Vaccines and Common Dietary Sources

Aluminum is a ubiquitous element present in the environment, food, and medical products. While aluminum salts are used as adjuvants in certain vaccines to enhance immune responses, the amount per dose is small and tightly regulated. In contrast, routine dietary intake frequently results in higher cumulative exposure. The following comparison provides context:

1. Vaccines (Reference Benchmark)

Aluminum salts (e.g., aluminum hydroxide, aluminum phosphate) are used as adjuvants to improve immunogenicity. The amount of aluminum per vaccine dose is **≤0.85 mg**, depending on the formulation. This serves as a reference point when comparing exposure from other sources.

2. Processed Cheese and Cheese Spreads

Processed cheeses may contain aluminum-based additives such as sodium aluminum phosphate, used as emulsifiers to improve texture and stability. A single serving can contain approximately **1–5 mg of aluminum**, often exceeding the amount in a vaccine dose.

3. Baked Goods (Cakes, Pancakes, Biscuits)

Aluminum-containing baking powders (e.g., sodium aluminum sulfate) are commonly used in commercial baking. These products may contain **~5–10 mg or more per serving**, representing one of the highest dietary sources.

4. Pickled Foods

Aluminum salts may be used during processing to maintain firmness and crispness. Although levels vary, these foods can contain **>1 mg per serving**.

5. Tea (Especially Black Tea)

Tea plants naturally accumulate aluminum from soil. Brewed tea may contain **~1–3 mg per cup**, depending on preparation and origin.

6. Cocoa and Chocolate

Cocoa products also contribute to aluminum intake due to natural accumulation in plants, with **≥1 mg per serving** in some cases.

Key Comparison

- **Average daily dietary aluminum intake:** ~5–10 mg/day (and potentially higher depending on diet)
- **Aluminum per vaccine dose:** ≤0.85 mg

Interpretation: Dietary exposure to aluminum typically exceeds vaccine-derived exposure.

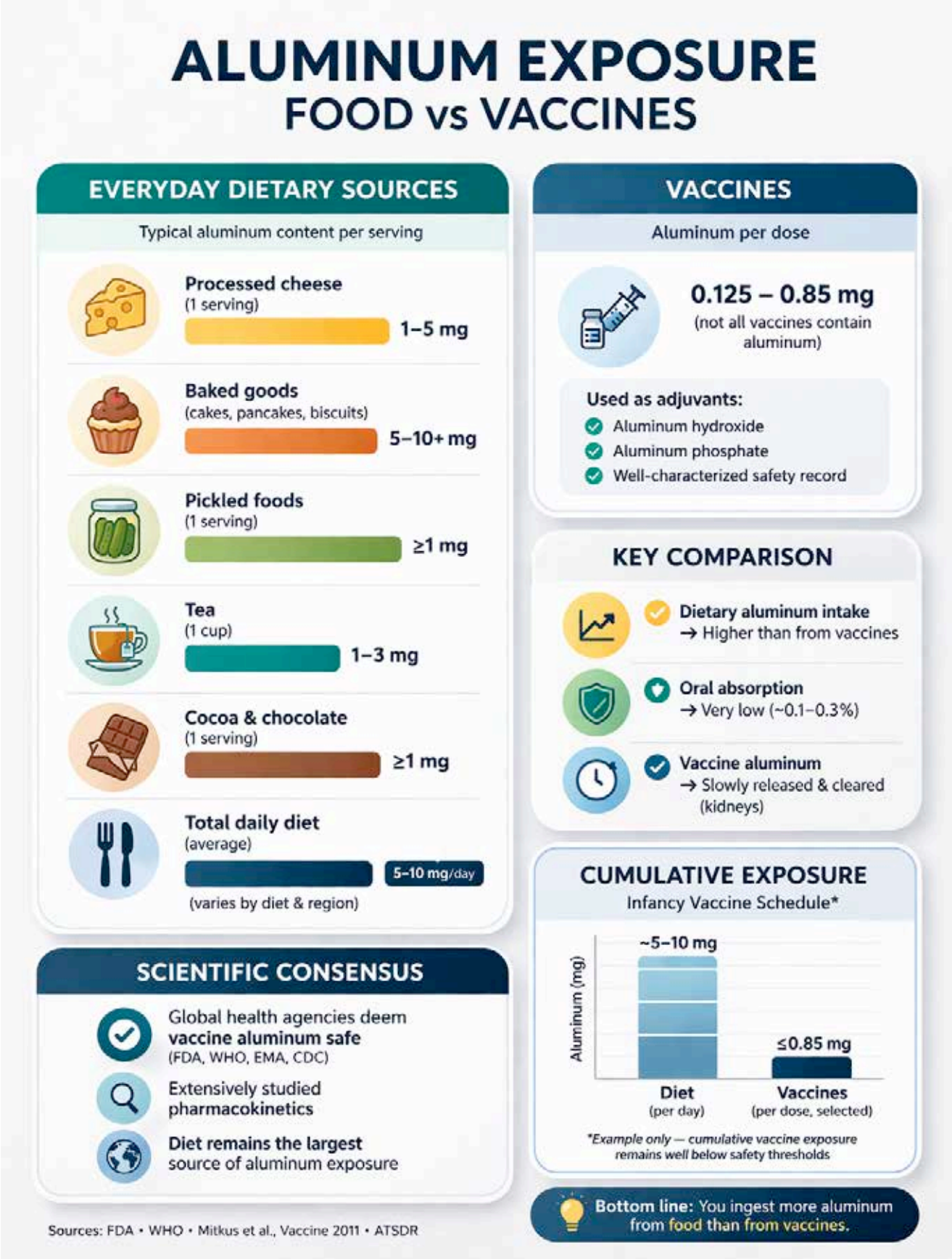
Pharmacokinetic Considerations

- **Oral absorption:** Very low (~0.1–0.3%), with most ingested aluminum excreted
- **Injected aluminum (vaccines):** Slowly released from the injection site and eliminated primarily via the kidneys
- **Safety framework:** Agencies such as the Food and Drug Administration and the World Health Organization evaluate aluminum exposure based on total body burden and clearance, ensuring established safety margins

Importantly, extensive epidemiological and clinical research—including large population-based studies—has consistently demonstrated that **neither aluminum exposure nor vaccines are associated with autism**.

Conclusions

- Aluminum exposure is **common and unavoidable** in everyday life
- The quantity of aluminum in vaccines is **low, controlled, and extensively studied**
- **Dietary sources contribute substantially more aluminum than vaccines**
- Robust scientific evidence shows that **neither aluminum nor vaccines are linked to autism.**


ALUMINUM EXPOSURE
FOOD vs VACCINES
EVERYDAY DIETARY SOURCES
Typical aluminum content per serving
Processed cheese
(1 serving)
1–5 mg
Baked goods
(cakes, pancakes, biscuits)
5–10+ mg
Pickled foods
(1 serving)
≥1 mg
Tea
(1 cup)
1–3 mg
Cocoa & chocolate
(1 serving)
≥1 mg
Total daily diet
(average)
5–10 mg/day
(varies by diet & region)
VACCINES
Aluminum per dose
0.125 – 0.85 mg
(not all vaccines contain aluminum)
Used as adjuvants:
Aluminum hydroxide
Aluminum phosphate
Well-characterized safety record
KEY COMPARISON
Dietary aluminum intake
→ Higher than from vaccines
Oral absorption
→ Very low (~0.1–0.3%)
Vaccine aluminum
→ Slowly released & cleared (kidneys)
CUMULATIVE EXPOSURE
Infancy Vaccine Schedule*
Aluminum (mg)
~5–10 mg
≤0.85 mg
Diet
(per day)
Vaccines
(per dose, selected)
*Example only — cumulative vaccine exposure remains well below safety thresholds
SCIENTIFIC CONSENSUS
Global health agencies deem vaccine aluminum safe
(FDA, WHO, EMA, CDC)
Extensively studied pharmacokinetics
Diet remains the largest source of aluminum exposure
Bottom line: You ingest more aluminum from food than from vaccines.
Sources: FDA • WHO • Mitkus et al., Vaccine 2011 • ATSDR

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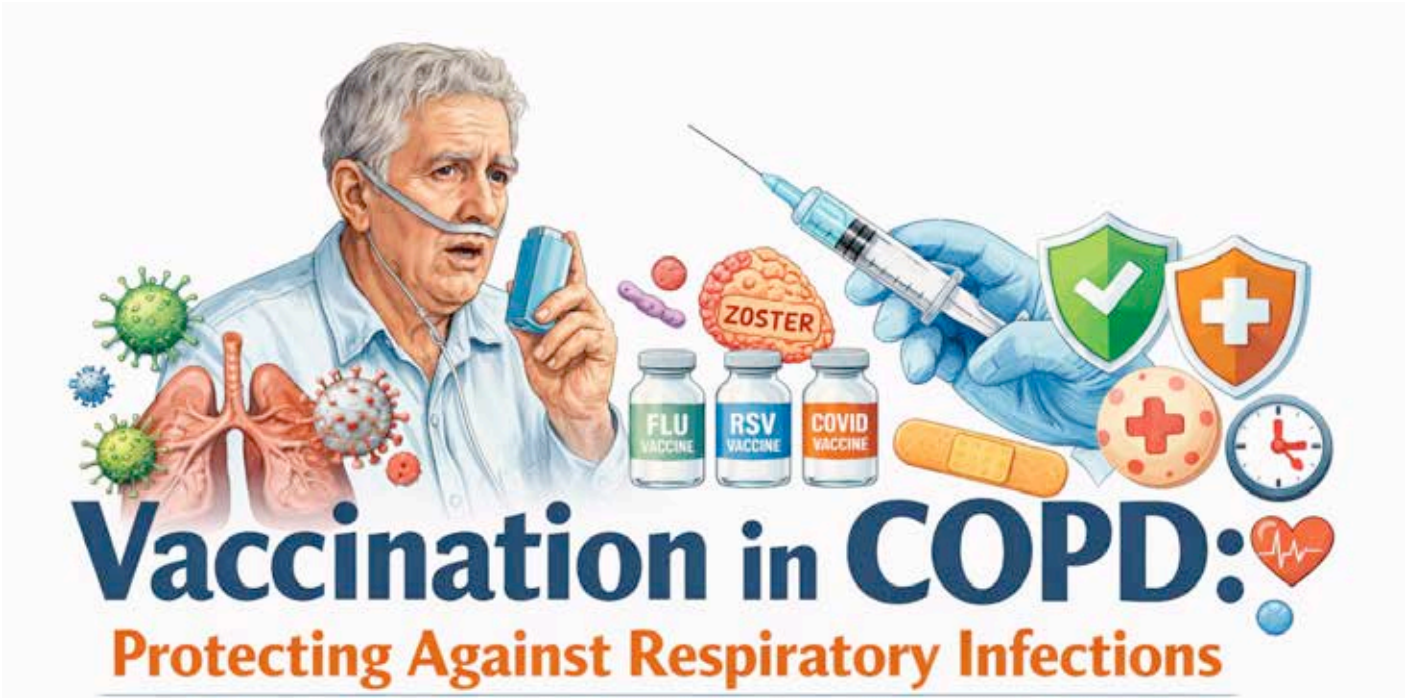
Best Practice

VACCINATION IN ADULTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE



Introduction:

Chronic obstructive pulmonary disease (COPD) is highly susceptible to infectious triggers, with respiratory viruses and bacteria playing a central role in precipitating acute exacerbations. These events are major drivers of disease progression, healthcare utilization, and mortality. Preventing infection is therefore a cornerstone of COPD management, positioning vaccination as a key intervention to reduce exacerbations and improve clinical outcomes. Current recommendations from the Global Initiative for Chronic Obstructive Lung Disease (GOLD) emphasize immunization against influenza, *Streptococcus pneumoniae*, respiratory syncytial virus (RSV), severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), pertussis, and varicella-zoster virus. This month's Best Practice section summarizes contemporary vaccination strategies in adult patients with COPD and examines the evidence supporting their clinical benefits.

Increased susceptibility to respiratory pathogens in adults with COPD:

Adults with COPD have increased susceptibility to respiratory infections due to impaired mucociliary clearance, chronic airway inflammation, structural lung damage, and both innate and adaptive immune dysfunction. These alterations facilitate airway colonization and reduce the ability to clear pathogens effectively. As a result, COPD patients are particularly vulnerable to infections caused by *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Moraxella catarrhalis*, influenza virus, respiratory syncytial virus (RSV), and SARS-CoV-2. Viral infections

may also predispose to secondary bacterial infections, further amplifying disease severity. This heightened susceptibility contributes to more frequent and severe exacerbations, accelerated lung function decline, increased healthcare utilization, and higher mortality.

Influenza:

Influenza remains a major respiratory pathogen, contributing substantially to morbidity, mortality, and healthcare burden worldwide. Recent estimates in the United States alone report millions of cases, with hundreds of thousands of hospitalizations and thousands of deaths occurring within a single influenza season.

In patients with COPD, influenza infection is a well-recognized trigger of acute exacerbations, often resulting in severe clinical outcomes, including hospitalization, respiratory failure, and increased mortality. The underlying mechanisms include heightened airway inflammation, impaired immune responses, and enhanced susceptibility to bacterial colonization, all of which amplify disease severity. In addition, COPD is associated with systemic inflammation, reflected by elevated circulating inflammatory markers, which contributes to a high burden of comorbid conditions. Notably, acute exacerbations are frequently accompanied by cardiovascular complications, further increasing the risk of adverse outcomes.

Given this interplay between influenza and COPD exacerbations, prevention is a critical component of disease management. Annual influenza vaccination is strongly recommended for all patients with COPD, regardless of disease severity, and represents a cost-effective strategy to reduce exacerbations, hospitalizations, and overall healthcare utilization.

Respiratory Syncytial Virus (RSV):

Respiratory syncytial virus (RSV) is an important cause of respiratory illness, ranging from mild upper respiratory infections to severe lower respiratory tract disease, including bronchiolitis and pneumonia. While traditionally associated with pediatric populations, RSV also poses a substantial risk to older adults and individuals with chronic conditions such as COPD.

In this population, RSV contributes meaningfully to disease burden, accounting for a notable proportion of acute exacerbations and leading to significant outpatient visits, hospitalizations, and mortality worldwide. The risk of severe disease increases with age, partly due to immunosenescence and diminished RSV-specific cellular immune responses, resulting in more severe and prolonged illness.

Management of RSV infection remains largely supportive; however, prevention has advanced considerably with the development of effective vaccines. Current recommendations advise RSV vaccination for adults with COPD beginning at 60 years of age. Available vaccines target the viral fusion (F) glycoprotein, a key mediator of viral entry, enabling protection against both RSV subtypes (A and B).

Recent large clinical trials have demonstrated that RSV vaccines provide high levels of protection against lower respiratory tract disease, severe illness, and acute respiratory infections, with efficacy generally ranging from approximately 65% to over 90%. These findings, as well as real-life evidence, position RSV vaccination as a critical strategy to reduce disease burden and improve outcomes in patients with COPD.

SARS-CoV-2:

The COVID-19 pandemic has posed substantial challenges worldwide, with disproportionate impact on individuals with chronic respiratory diseases such as COPD. These patients, characterized by impaired lung function, chronic inflammation, and frequent exacerbations, are particularly vulnerable to respiratory infections. Infection with SARS-CoV-2 can result in severe complications, including pneumonia, acute respiratory distress syndrome, and multi-organ failure, leading to higher rates of hospitalization, intensive care utilization, and mortality among patients with COPD.

Vaccination has emerged as a cornerstone in mitigating these risks, with COVID-19 vaccines demonstrating strong effectiveness in preventing severe disease and adverse outcomes. Accordingly, vaccination is strongly recommended for individuals with COPD in line with national guidelines.

In parallel, non-pharmaceutical interventions implemented during the pandemic—such as masking, physical distancing, and stay-at-home measures—were associated with a marked reduction in respiratory viral transmission. Notably, these measures coincided with a substantial decline in hospitalizations for COPD exacerbations, underscoring the central role of viral infections in driving disease instability and highlighting the importance of preventive strategies in this population.

Herpes zoster:

Herpes zoster, caused by reactivation of latent varicella-zoster virus, occurs more frequently in individuals with chronic conditions such as COPD, with potentially increased risk among those receiving inhaled corticosteroids. Beyond its acute dermatologic manifestations, herpes zoster can lead to post-herpetic neuralgia, a debilitating complication associated with persistent pain and reduced quality of life.

In patients with COPD, herpes zoster is also associated with increased healthcare utilization and higher costs, reflecting its broader clinical and economic impact. Preventive strategies are therefore essential in this population.

Vaccination against varicella-zoster virus has been shown to significantly reduce the incidence of herpes zoster and its complications. Current recommendations support vaccination in adults with COPD aged 50 years and older. Evidence indicates that the recombinant zoster vaccine substantially lowers the risk of both mild and severe disease, while additional data suggest potential cardiovascular benefits, including reduced risks of myocardial infarction and stroke in individuals with chronic diseases.

Streptococcus pneumoniae:

In addition to viral pathogens, bacterial infections play a major role in COPD morbidity. Among these, *Streptococcus pneumoniae* is a leading cause of pneumonia and invasive disease, contributing substantially to hospitalization and mortality. COPD patients are particularly susceptible due to impaired mucociliary clearance, chronic airway inflammation, and structural lung damage, which facilitate bacterial colonization and infection.

Episodes of pneumococcal pneumonia often initiate a cascade of adverse outcomes. Following community-acquired pneumonia, patients with COPD have a higher risk of subsequent exacerbations, reflecting a cycle of worsening lung injury, functional decline, and increased vulnerability to future infections. Recurrent exacerbations further impair host defenses, promoting persistent colonization and accelerating disease progression.

Vaccination is a key strategy to interrupt this cycle. Two main types of pneumococcal vaccines are available: polysaccharide and protein-polysaccharide conjugate vaccines, both targeting capsular polysaccharides of disease-causing serotypes. Current recommendations favor the use of pneumococcal conjugate vaccines in patients with COPD due to their enhanced immunogenicity and broader clinical benefits.

Pertussis:

Pertussis, or whooping cough, is a highly contagious respiratory infection caused by *Bordetella pertussis*. Although often underrecognized in adults, it represents a relevant risk for individuals with COPD, who are more susceptible to respiratory infections due to impaired airway defenses and chronic inflammation. In this population, pertussis infection may lead to prolonged cough, increased frequency of exacerbations, and greater healthcare utilization, including longer hospital stays.

Importantly, COPD does not appear to impair the immunogenicity of pertussis vaccination. Studies indicate that patients with COPD are capable of mounting robust immune responses following vaccination, characterized by activation of T-follicular helper cells, expansion of plasmablasts, and production of specific antibodies. These findings support the effectiveness of vaccination in this high-risk group.

Given the potential clinical impact of pertussis and the demonstrated vaccine responsiveness, immunization is a key preventive strategy. Current recommendations advise that adults with COPD who have not previously been vaccinated receive the reduced-antigen-content diphtheria-tetanus-acellular

Current Vaccination Recommendations for Adults with COPD:

Pathogen	Vaccine	Target Population	Schedule / Key Notes
Influenza	Inactivated influenza vaccine (IIV)	All adults with COPD	Annual vaccination, regardless of disease severity
SARS-CoV-2	mRNA or updated COVID-19 vaccines	All adults with COPD	Follow national recommendations (primary series + boosters as indicated)
Respiratory Syncytial Virus (RSV)	RSV prefusion F protein vaccines	Adults ≥60 years with COPD	Single dose; shared decision-making depending on risk
Streptococcus pneumoniae	Pneumococcal conjugate vaccine (PCV ± PPSV)	All adults with COPD	PCV preferred; schedule depends on age and prior vaccination history
Pertussis (*Bordetella pertussis*)	Tdap (tetanus, diphtheria, acellular pertussis)	Adults with COPD not previously vaccinated	One dose of Tdap, then Td/ Tdap boosters every 10 years
Varicella-zoster virus (Herpes zoster)	Recombinant zoster vaccine (RZV)	Adults ≥50 years with COPD	Two-dose series (0 and 2–6 months)

pertussis (Tdap) vaccine, consistent with broader adult immunization guidelines.

Conclusions:

Respiratory infections remain a major driver of morbidity, exacerbations, and mortality in adults with COPD, underscoring the critical role of vaccination as a cornerstone of disease management. Immunization against key pathogens—including influenza, pneumococcus, SARS-CoV-2, RSV, pertussis, and varicella-zoster virus—has demonstrated clear benefits in reducing disease burden, preventing complications, and improving clinical outcomes.

Despite strong evidence and consistent guideline recommendations, adult vaccination coverage remains suboptimal worldwide. Barriers such as limited awareness, fragmented healthcare delivery, access constraints, and vaccine hesitancy continue to impede effective implementation. These challenges are further amplified by inequities in vaccine access across regions and populations, leaving many high-risk individuals insufficiently protected.

Addressing these gaps requires a coordinated, multi-level approach that prioritizes vaccine equity, strengthens healthcare system integration, and promotes routine adult immunization as a standard of care. Improving coverage in adults—particularly those with chronic conditions such as COPD—remains a critical yet underachieved public health objective.

Advancing vaccination strategies in this population will depend not only on continued innovation in vaccine development, but also on more effective implementation, equitable access, and sustained efforts to increase uptake. Ultimately, closing the gap between recommendations and real-world coverage is essential to fully realize the benefits of vaccination in COPD.

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Guest Contributors

SUPPORTS STRATEGIC INTERVENTIONS TO DEVELOP AND STRENGTHEN THE ASEAN REGION'S REGIONALIZED VACCINE MANUFACTURING ECOSYSTEM

Jessabelle Basa, MSc. Regional Technical Lead – Association of Southeast Asian Nations (ASEAN), Regionalized Vaccine Manufacturing Collaborative (RVMC)

The Vaccine Manufacturing Landscape Pre-pandemic

While most countries have established routine immunization programs, the COVID-19 pandemic highlighted critical vulnerabilities in the vaccine manufacturing and supply chain systems and significant gaps in equitable access to vaccines as essential medical countermeasures.(1,2) During the COVID-19 pandemic, vaccines were developed at a record-breaking speed, only 10 months into the pandemic. However, access to COVID-19 vaccines was largely disparate with eight of every 10 vaccination doses having gone to high-income countries.(3) Of the just over six billion doses administered globally by the end of September 2021, 75% were administered in high- and upper-middle income countries (which constitute 50% of the global population) and only 25% in low- and low-middle income countries (which constitute the other 50%).(4)

This inequity in vaccine access and distribution during the COVID-19 pandemic has been partly due to the scale of vaccine nationalism seen throughout the pandemic and was enabled by the fact that global vaccine manufacturing capacity remains largely concentrated in certain geographical areas or few high- and upper-middle income countries.(2,5,6) Beyond China and India, vaccine manufacturers are mostly located in Europe, North America, Indonesia, and Japan.(6)

The concentration of vaccine manufacturing in high-income regions and few key upper-middle countries does not only present risk of slower vaccine access and pandemic response. It also leaves low- and middle-income countries vulnerable to supply shocks in routine immunization and regulatory bottlenecks in both routine and emergency cases.(7)

The COVID-19 pandemic have highlighted the need to establish and strengthen national and regional vaccine manufacturing capacity in low- and middle-income countries.(2,8) The COVID-19 pandemic exposed how regions without manufacturing capacity can struggle to access vaccines especially when they are needed most.(9) Expanding the geographic distribution of vaccine manufacturing capacity is critical to achieving vaccine equity.(3) Increased manufacturing capacity and significant efforts to address equitable geographical manufacturing have been initiated since the COVID-19 pandemic.(10)

The Global Push for Regional Vaccine Manufacturing

In response to ensuring geographic distribution of manufacturing capacity, governments and international organizations began investing in efforts to expand vaccine manufacturing across multiple regions.

- Some of the most prominent initiatives

aimed at distributed manufacturing capacity include:

- the World Health Organization (WHO) and Medicine Patents Pool (MPP) mRNA Technology Transfer program (11),
- the Partnerships for African Vaccine Manufacturing (PAVM) under the African CDC (12),
- the African Vaccine Manufacturing Initiative (AVMI) joined by 10 manufacturers (13),
- the Regionalized Vaccine Manufacturing Collaborative (14),

The WHO-MPP mRNA Technology Transfer Program aims to build sustainable regional production of mRNA-based health products for future pandemics and ensuring sustainability in-between global health emergencies. The program has 15 partners as of May 01, 2025 – the hub in South Africa which includes Afrigen Biologics, the South African Medical Research Council (SAMRC) and Biovac plus 14 additional global partners across 6 WHO regions in Argentina, Bangladesh, Brazil, Egypt, India, Indonesia, Kenya, Nigeria, Pakistan, Senegal, Serbia, Tunisia, Ukraine and Vietnam.(11)

The Partnerships for African Vaccine Manufacturing (PAVM) was established by the African Union (AU) in 2021 to deliver a bold goal: enabling the African vaccine manufacturing industry to develop, produce, and supply over 60 percent of the total vaccine doses required on the continent by 2040, up from less than 1 percent in 2021.(12)

The African Vaccine Manufacturing Initiative (AVMI) is a non-profit, advocacy group that promotes the establishment of sustainable human vaccine manufacturing capacity in Africa. Established in 2012, AVMI currently represents several vaccine manufacturers across the continent. AVMI was instrumental in the establishment of the Partnership for African Vaccine Manufacturing (PAVM) by the Africa Centres for Disease Control and Prevention (Africa CDC). AVMI continues to support Africa CDC through the PAVM's new iteration as the Platform for Harmonised African Health Manufacturing (PHAHM) to achieve the African Union's ambitious goal of supplying at least 60% of Africa's vaccine needs by 2040.(13)

Established in 2022, the Regionalized Vaccine Manufacturing Collaborative (RVMC) was formed to address inequities in the global vaccine production ecosystem revealed by the pandemic through the establishment of regional vaccine manufacturing (RVM) and supply chain networks capable of producing vaccines for routine use in a sustainable manner, with readiness for outbreak manufacturing.(7,14) RVMC released its first status report "Towards Regionalised Vaccine Manufacturing" in November 2025 which presents a baseline assessment of regionalized vaccine manufacturing (RVM) in Africa, Southeast Asia (the ASEAN member states), and Latin America and the Caribbean (LAC) and ways forward across three thematic areas of the RVMC Framework: Finance & Demand, Regulatory & Governance, and Technology & Supply.(15)

Regionalised Vaccine Manufacturing (RVM) seeks to develop capacity for development, production, procurement, and distribution of vaccines within a region, tailored to the region's needs and health priorities.(16) A successful and sustainable local or regional vaccine manufacturing require key components: strong political commitment and governance, sufficient financial resources, predictable demand, adequate infrastructure, skilled workforce, access to technology, research and development, a secured material supply chain, and a well-functioning regulatory system.(17) RVMC has put forth a framework which specifies eight pillars or building blocks of a regional ecosystem and recommends best practices that can be translated into regionally relevant and actionable strategic options to create sustainable regional vaccine manufacturing networks.(18)

RVM in 2026: Progress and Remaining Challenges

Activities for regional vaccine manufacturing has become increasingly visible over the recent years. Several regions are developing new manufacturing facilities, improving local fill-and-finish capacity, and expanding workforce training in biomanufacturing.

The African continent had 25 active vaccine projects by June 2024 that are in different stages

of project and facility maturity: five manufacturers with commercial-scale manufacturing have technology transfer signed or underway, five other manufacturers have commercial-scale capacity but have yet to sign TT agreements, and 15 additional were still in early development stages.(19) Kenya also officially launched its mRNA Technology Transfer agreement with the World Health Organization – Medicines Patent Pool (WHO–MPP) in February 2026.(20) ASEAN countries – Indonesia, Thailand, and Vietnam – have also developed and manufactured vaccines, including COVID-19, through fill-and-finish arrangements.(21)

Workforce training in biomanufacturing have been expanded with examples such as the WHO Biomanufacturing Workforce Training Initiative and the Global Training Hub for Biomanufacturing of WHO and the Republic of Korea for Low- and Middle-Income Countries (LMICs) (22), the African Union and African CDC's Industrial Fellowship and Biomanufacturing Fellowship Programmes (23,24), and the ASEAN Vaccine Security and Self-Reliance (AVSSR) Vaccine Human Resource Development Program (25).

Recent years have seen strong political commitment and growing investment in RVM.(26) However, RVM remains in its early stages and much of the momentum needs to be translated into a coordinated action across governments, industry and partners.(9,26) RVMC's first status report shows that regional manufacturers in Africa meet only 1% and LAC and ASEAN meet 25-29% vaccine demand in their respective regions. The regulatory environment in regions remain disparate and disjointed and technological capabilities remain uneven.(9)

WHO's recent Global Market Landscape of Vaccine Manufacturing and Procurement released in December 2025 advocates that a whole-of-ecosystem approach needs to be established for RVM which includes national and regional commitment to buy locally/regionally, demand certainty, strengthened regulatory authorities and harmonized requirements, infrastructure investments, and workforce development.(27)

RVMC's vision and call to action in its first status report is consistent with WHO's message, three priorities remain central to achieving sustainable regionalized vaccine manufacturing:

- **demand predictability** achieved through clear policy, budgetary commitments, and supportive mechanisms such as pooled procurement as commitment to buy regionally(15,27),
- **regulatory strengthening and harmonization** for non-duplicative, better-aligned systems, and accelerated approvals and faster entry to market which also accelerates population access to health products(15), and
- **technology and supply diversification** such as production platforms that can produce multiple vaccines on the same platform to avoid building excess capacity while at the same offering acceleration, flexibility, and pandemic readiness.(15,28)

Ultimately, sustained political commitment and aligned strategic investments and coordination will help achieve these three priorities and will be integral to achieving resilient and sustainable regional vaccine manufacturing.

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VACCINES BEAT

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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.

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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.

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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.

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