VACCINES BEAT

NEGLECTED TROPICAL DISEASES... FORGOTTEN?

A broader impact of NTDs through the eyes of Prof. Steve Black

February
2025

AHF AMERICAS HEALTH FOUNDATION

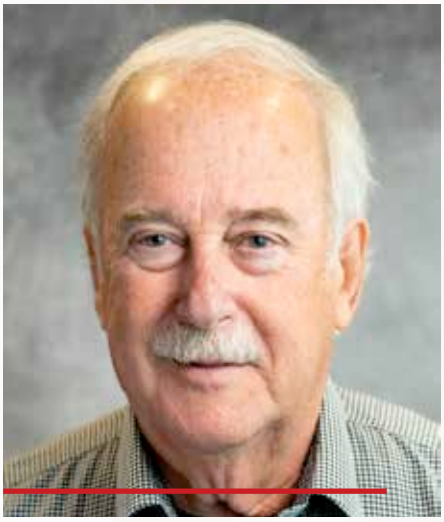
ISSN 2997-2833

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

WORLD HEALTH ORGANIZATION

Neglected Tropical Diseases and beyond...

A broader impact through the eyes of Prof. Steve Black



Prof. Steven Black is a pediatric infectious disease specialist with degrees in Biology and Chemistry from the University of California, Santa Barbara, and an MD from the University of California, San Diego. He completed a fellowship in pediatric infectious diseases at the University of California, San Francisco.

With over 30 years of experience, Prof. Black has conducted numerous clinical trials and vaccine safety studies. He has served as the principal investigator for five pivotal Phase III clinical trials, six Phase IV post-licensure vaccine safety assessments, and the CDC-funded multinational SOMNIA project, which evaluated the risk of narcolepsy following adjuvanted 2009 pandemic influenza vaccines. Additionally, he founded the Kaiser Permanente Vaccine Study Center and was Co-Director from 1985 to 2007.

Prof. Black was actively involved in the WHO-funded Global Vaccine Safety Initiative (GVSI) pilot project, which linked data from various countries to assess vaccine safety. He led international efforts to emphasize the importance of background rates in evaluating the safety of pandemic vaccines. He has been an elected member of the International Brighton Collaboration Science Board and served as the work package lead for Data and Safety Monitoring Board (DSMB) activities in the Safety Platform for Emergency Vaccine (SPEAC) project, funded by the Coalition for Epidemic Preparedness Innovations (CEPI).

INDEX

LETTER FROM EDITORS

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

In our "Coffee with an Expert" section, we are delighted to feature an interview with Prof. Steven Black. With over 30 years of experience, Prof. Black has been the principal investigator for numerous studies, including the CDC-funded multinational SOMNIA project, which evaluated the risk of narcolepsy following adjuvanted 2009 pandemic influenza vaccines. He also founded the Kaiser Permanente Vaccine Study Center and served as Co-Director from 1985 to 2007. Currently, he leads the CEPI-funded BRAVE project, which aims to establish background rates for potential vaccine adverse events in Africa, and serves as the Meta DSMB lead for the CEPI-funded SPEAC project.

Our dialogue began with a focus on vaccination against neglected tropical diseases (NTDs). However, in a rich environment of science, academia, and human insight, our discussions expanded to cover a range of other fascinating topics, each promising to be insightful and engaging.

In the "Editor's Corner," we explore the ongoing and concerning Yellow Fever outbreak in Brazil, examining whether the recommended fractionated vaccine dose remains effective in light of reported cases in vaccinated individuals.

In the "Best Practice" section, we provide a comprehensive analysis of polio outbreaks and the WHO's strategic rollout of the novel oral polio vaccine type 2 (nOPV2) in March 2021 under Emergency Use Listing (EUL).

In the "Guest Contributor" section, the Americas Health Foundation offers an insightful overview on the importance of dengue surveillance, reporting and regulation.

As always, this issue features carefully curated and up-to-date information on the latest scientific publications, along with the most important news and alerts.

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

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

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

Javier Casellas

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

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

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

Enrique Chacon Cruz

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

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

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

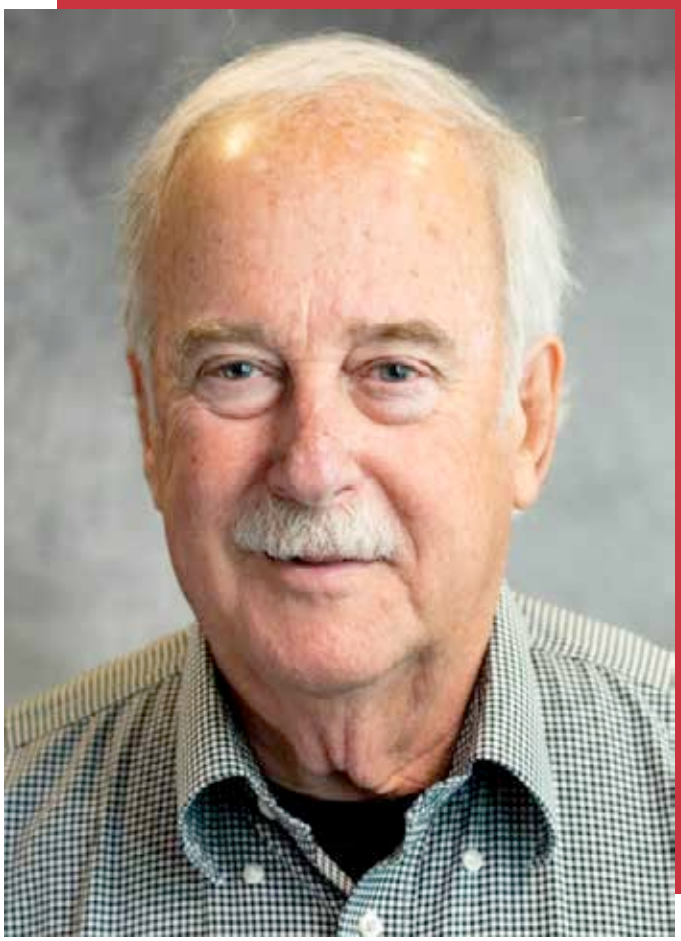
Additionally, he is a member of the Mexican Committee for the Elimination of Measles, Rubella, and Congenital Rubella, and the Scientific Committee on Health Issues of the Mexican Government in Baja-California. He is also the former Director of the Mexican Active Surveillance Network for Bacterial Meningitis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

Coffee with the Expert

NEGLECTED TROPICAL DISEASES… FORGOTTEN?

A broader impact of NTDs through the eyes of Prof. Steve Black

Authors:
Javier Casellas, M.D., Ph.D.
Enrique Chacon-Cruz, M.D., MSc
Felicitas Colombo, MPA



Prof. Steven Black is a pediatric infectious disease specialist with degrees in Biology and Chemistry from the University of California, Santa Barbara, and an MD from the University of California, San Diego. He completed a fellowship in pediatric infectious diseases at the University of California, San Francisco.

With over 30 years of experience, Prof. Black has conducted numerous clinical trials and vaccine safety studies. He has served as the principal investigator for five pivotal Phase III clinical trials, six Phase IV post-licensure vaccine safety assessments, and the CDC-funded multinational SOMNIA project, which evaluated the risk of narcolepsy following adjuvanted 2009 pandemic influenza vaccines. Additionally, he founded the Kaiser Permanente Vaccine Study Center and was Co-Director from 1985 to 2007.

Prof. Black was actively involved in the WHO-funded Global Vaccine Safety Initiative (GVSI) pilot project, which linked data from various countries to assess vaccine safety. He led international efforts to emphasize the importance of background rates in evaluating the safety of pandemic vaccines. He has been an elected member of the International Brighton Collaboration Science Board and served as the work package lead for Data and Safety Monitoring Board (DSMB) activities in the Safety Platform for Emergency Vaccine (SPEAC) project, funded by the Coalition for Epidemic Preparedness Innovations (CEPI).

Currently, he is co-director of the Global Vaccine Data Network through which he is the principal investigator for the CEPI-funded BRAVE project, which aims to develop background rates for potential vaccine adverse events in Africa, and serves as the Meta DSMB lead for the CEPI-funded SPEAC project. Prof. Black is also an Emeritus Professor of Pediatrics at the University of Cincinnati Children's Hospital in Ohio, USA, and an Honorary Professor of Pediatrics at the University of Auckland in New Zealand. Among his many contributions, he serves as the editor-in-chief of the Pediatric Infectious Disease Journal.

The basics of Neglected Tropical Diseases

Neglected Tropical Diseases (NTDs) are a diverse group of conditions, many of which are vector-borne and have animal reservoirs. They are associated with complex life cycles caused by various pathogens, including viruses, bacteria, parasites, fungi, and toxins. The epidemiology of NTDs is intricate and often linked to environmental conditions.

As global interconnections increase, NTDs are becoming a topic of heightened interest due to their significant contribution to global morbidity, social and economic hardship. These diseases cause chronic illness, disability, and stigmatization. According to the World Health Organization (WHO), NTDs affect over 1 billion people, with an estimated 1.6 billion individuals requiring preventive and curative interventions. Additionally, NTDs contribute to approximately 200,000 deaths and result in 19 million disability-adjusted life years (DALYs) lost annually.

The recent global experience with COVID-19 has underscored that diseases do not remain confined to their communities of origin. Other recent outbreaks, such as those of Ebola, Mpox, and Marburg virus, have further highlighted this reality. Consequently, there is growing global interest in NTDs.

"I think that's good because that means that public health dollars and public health interventions such as vaccines are more likely to be targeted to them if rich people are threatened by them than if, unfortunately, if [only] poor people are threatened by them," notes Prof. Black. He emphasizes that while the focus often leans toward respiratory viruses due to their contagious nature, the scope of infectious diseases is much broader.

NTDs and vaccines

Neglected Tropical Diseases (NTDs) live up to their name as they are not prioritized on the public health agenda, resulting in limited attention and funding. Prof. Black highlights two major concerns: a general lack of confidence in public health and the significant under-resourcing of public health systems, especially during non-crisis periods.

"We keep learning the same lesson over and over again that when you neglect threats, whether it's diseases such as Zika or Marburg or Mpox or whether it's HIV or influenza, it comes back to get you and you have to spend much more money and lose many more lives than you would have if you invested in it appropriately in the first place," he states.

Despite inadequate funding, some research and development (R&D) efforts are underway for NTDs. However, predicting which of the many ongoing vaccine trials for these diseases will succeed and reach the market remains challenging. Prof. Black believes that the CEPI approach, where multiple developers tackle the same problem in parallel, will increase the chances of identifying an optimal vaccine candidate.

"If you put me in charge and gave me unlimited resources, I think what I would do is try and target sentinel diseases, if you will, within each category. Two or three parasitic diseases, for example, and some respiratory viruses, some other entities, bacterial infections and divide up a research development program that way with the hope that something that might work for Shigella might work for Salmonella or vice versa," explains Prof. Black.

However, researchers face numerous hurdles in developing vaccines for NTDs. One significant challenge arises from the pathogens themselves, particularly parasitic diseases, which have complex life cycles that complicate vaccine development. A prime example of this is the malaria vaccine.

The inequity of NTDs

The inequity surrounding the development of vaccines for NTDs can be difficult to comprehend. For Prof. Black, the answer is straightforward: money. The estimated cost of bringing a new vaccine to market can exceed $1 billion from inception to commercialization.

"A commercial pharmaceutical company needs to justify that kind of investment for two reasons. One of them is the money, but the other is they have limited resources in terms of development. They can't develop 20 vaccines at once," he asserts.

In fact, much of the initial R&D for NTD vaccines has originated from academics and smaller companies willing to take risks, often with funding from sources like CEPI, rather than from major pharmaceutical companies. Unfortunately, many of these companies have invested in developing NTD vaccines without seeing a return on their investment.

"From a purely economic [standpoint], if you're a capitalist director of a vaccine company, you won't do that again," Prof. Black explains. "Their [big pharma] enthusiasm for neglected diseases has waned significantly."

Given the economic burden of NTDs, the scope of diseases involved, and the amount of R&D funding directed toward vaccine development is minuscule. Less than $100 million is typically spent on R&D for most NTDs, despite millions of people being affected by these diseases.

"That doesn't make sense from a public health perspective, but from a health economic perspective, it does. TB [tuberculosis] is not a big issue in high-income countries. Then the investment dollars go elsewhere," Prof. Black points out.

Similarly, the world largely overlooked the onset of the MPOX outbreak in 2022. To date, according to the Center for Disease Control, the ongoing global outbreak of clade II MPOX has resulted in over 100,000 cases across 122 countries, including 115 where MPOX had not been previously reported.

Prof. Black notes that MPOX received little attention until the virus mutated and became a sexually transmitted disease (STD). It appears that it is no longer classified as an NTD, as it is now affecting populations worldwide.

Organizations such as CEPI, the Gates Foundation, the International Vaccine Institute, the Sabin Vaccine Institute, and the Clinton Foundation play vital roles in addressing these challenges. However, many of these organizations compete for the same donor resources.

"So, what motivates people with money is that they're threatened by it or think their well-being or economic health is going to be improved. So, if you can show that, then you will get more funding," expresses Prof. Black with concern about the lack of a centralized authority to set priorities and coordinate efforts effectively.

Priorities

Developing a framework for prioritizing NTDs and allocating resources depends significantly on the target audience. Prof. Black emphasizes that diseases such as dengue, chikungunya, Zika, Chagas, schistosomiasis, leishmaniasis, and tuberculosis have a global presence and are particularly problematic in developing countries.

"I think the World Health Organization will come up with a list using broader criteria, whereas if you're looking at someone like CEPI, for example, in terms of funding. They're much more interested in epidemic diseases, especially viral diseases. The truth is that millions of people are impacted by these diseases, and we really have the resources globally to address not just the top five, but the top 20 or top 30," asserts Prof. Black.

From a strictly health economics perspective, the global impact of these diseases is substantial. Prof. Black is convinced that even small technological or lifestyle interventions can yield significant health and economic benefits.

"I'm a vaccinologist, I tend to look at things from the vaccine lens, but that isn't really the only interventions that you would want to use," he notes, adding that "We don't need more lists. I think everyone has created these lists for the last two decades. What we need is to divide up the work and do it."

AMR vaccines

Antimicrobial Resistance (AMR) occurs when bacteria, viruses, fungi and parasites no longer respond to antimicrobial medicines. According to WHO, bacterial AMR was directly responsible for approximately 1.27 million deaths globally in 2019 and contributed to a total of 4.95 million deaths. In addition to the toll on health, AMR incurs significant economic costs. The World Bank estimates that AMR could result in an additional $1 trillion in healthcare costs by 2050 and losses of $1 trillion to $3.4 trillion in gross domestic product (GDP) annually by 2030.

AMR has posed a global public health threat for many years, with more deaths from these infections than from tuberculosis and malaria combined. While many have proposed developing vaccines to combat AMR, significant challenges remain. Prof. Black highlights that testing these vaccines and determining who should be vaccinated are the primary obstacles.

With some bacteria now completely resistant to antibiotics, developing vaccines to combat AMR is complex. However, Prof. Black believes the necessary technology is available. He notes that at least one trial is underway for urinary tract infections, but he emphasizes that prioritizing the prevention of antibiotic-resistant sepsis is crucial.

"Try and think about how you would do a clinical trial for that. I mean, you could vaccinate everybody coming into the ICU, but that isn't a great time to vaccinate people. Their immune system is probably not optimally there," he reflects, questioning how to control those cohorts and measure outcomes effectively.

Additionally, identifying at-risk individuals may be challenging, and vaccinating the entire population could prove prohibitively expensive.

"You have to ask yourself: Who would you vaccinate? Would you vaccinate you and me now? With the potential threat of one of us developing an antibiotic-resistant bacteria 20 years from now, 10 years from now," Prof. Black poses.

Vaccine sckepticim

Vaccination resistance has been a long-standing concern, and it has intensified following the pandemic. Prof. Black explains that, given the current erratic political environment worldwide, compulsory vaccination may not be the best solution. He believes that communities often need to experience the impact of disease firsthand to combat skepticism and improve vaccination rates. From his experience, people are generally poor at rationally evaluating risks and benefits.

"I don't think the coverage is high in Argentina or Brazil or Chile because of it being compulsory. I think it's because there's trust in the immunization program and the risk of the diseases has been well communicated," he sustains, adding that case studies in South America could help us understand why these National Immunization Programs (NIPs) are so successful.

Prof. Black is among many experts alarmed by the potential disaster posed by an avian flu pandemic, which he believes has not received the attention it warrants. His concern centers on the likely emergence of a more highly communicable H5N1 virus, coupled with the absence of preventive measures such as raising public awareness and stockpiling vaccines.

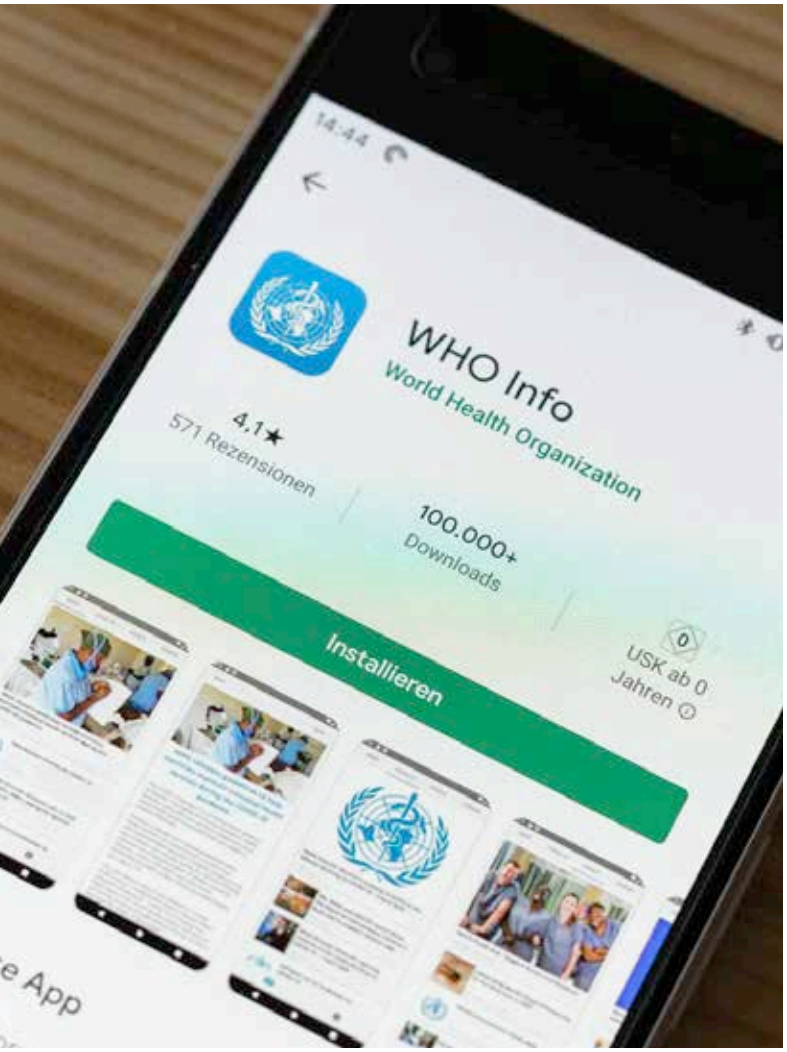
Despite many efforts, vaccine hesitancy remains widespread and skepticism persists globally. Prof. Black acknowledges that credibility is undermined when the scientific community denies risks and insists that vaccines are "totally safe."

"I think it's better to acknowledge that there's a risk to anything and try and frame it in terms of the benefit again," he concludes, adding that the causative agents for most vaccine preventable diseases are still out there waiting to return if we don't vaccinate.

News & Alerts

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

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



"PAHO warns of increased risk of dengue outbreaks due to circulation of DENV-3 in the Americas".
Published: February 10, 2025.
https://www.paho.org/en/news/10-2-2025-paho-warns-increased-risk-dengue-outbreaks-due-circulation-denv-3-americas

"Avian Influenza AH5N1 variant D1.1, its spread in U.S. cattle, and the high concern of being more virulent to humans".
Published: February 6, 2025.
Brief comment: The variant, known as D1.1 genotype, belongs to a different genetic lineage than what's fueled the infections in dairy cattle over the past year. Scientists believe a single spillover event, from birds to cattle, in the Texas Panhandle in late 2023 seeded the current nationwide outbreak. But this new finding points to at least one additional instance of the virus hopping into dairy cattle. Scientists have speculated this variant could be intrinsically more deadly for humans, although it's possible other factors like the route of exposure could be a factor, too. Two lethal human cases have occurred: in a Louisiana resident who caught the virus from backyard flocks and died, and a teenager in British Columbia who ended up in critical condition, in both of those cases, the patients developed concerning mutations while they were sick, which could indicate the virus was evolving to be better at infecting human cells.

https://amp.cnn.com/cnn/2025/02/05/health/bird-flu-cattle-nevada

"Promising Cancer Vaccine Boosts Hope for Stage III and IV Kidney Cancer".
Published: February 5, 2025.
Brief comment: As vaccines continue to make strides in cancer treatment, this communication highlights the global effort driving this progress. Cancer therapy is already benefiting from vaccine advancements, and its future holds even greater promise as a success story for immunization.

https://www.ajmc.com/view/promising-cancer-vaccine-boosts-hope-for-stage-iii-and-iv-kidney-cancer

"World Cancer Day 2025: Hyderabad Launches Free HPV Vaccination Drive For Cervical Cancer Prevention".
Published: February 4, 2025.
https://www.thehealthsite.com/news/world-cancer-day-2025-hyderabad-launches-free-hpv-vaccination-drive-for-cervical-cancer-prevention-1182655/

"Epidemiological Alert Yellow fever in the Americas Region (Brazil)".
Published: February 4, 2025.
https://www.paho.org/en/documents/epidemiological-alert-yellow-fever-americas-region-3-february-2025.

"First participants vaccinated with IAVI's Ebola Sudan vaccine candidate in Uganda amid Ebola outbreak. The vaccine candidate is being evaluated in a ring vaccination trial as part of a comprehensive public health response."
Published: February 3, 2025.
https://www.iavi.org/press-release/first-participants-vaccinated-with-iavis-ebola-sudan-vaccine-candidate-in-uganda/

"Groundbreaking Ebola vaccination launchess today in Uganda"
Published: February 3rd , 2025
Brief comment: In a global first in Uganda on February 3rd, @MinofHealthUG, WHO, and other partners launched a first-ever vaccine trial for Ebola from the Sudan species of the virus, and at an unprecedented speed for a randomized vaccine trial in an emergency.

Groundbreaking Ebola vaccination trial launches today in Uganda

"EAC supports Tanzania in containing Marburg virus outbreak in Kagera Region".
Published: February 1, 2025.
https://www.ippmedia.com/the-guardian/news/local-news/read/eac-supports-tanzania-in-containing-marburg-virus-outbreak-in-kagera-region-2025-02-01-122709#google_vignette

"WHO launches US$ 1.5 billion Health Emergency Appeal to tackle unprecedented global health crises"
Published: January 16, 2025.
"Conflicts, outbreaks, climate-related disasters and other health emergencies are no longer isolated or occasional – they are relentless, overlapping and intensifying," said Dr Tedros Adhanom Ghebreyesus, WHO Director-General. "From controlling cholera outbreaks to providing mental health support in conflict zones, WHO's work extends beyond the immediate care we provide. We empower communities to protect themselves, prioritize equity, and build a legacy of preparedness. This appeal is about enabling WHO to save lives, protect the right to health, and provide hope where there is none."

https://www.who.int/news/item/16-01-2025-who-launches-us-1.5-billion-health-emergency-appeal-to-tackle-unprecedented-global-health-crises

"What is bird flu and how are we protecting people against it in the UK?"
Published: December 3, 2024
Brief comment: As part of long-standing preparedness plans, the government has recently purchased over 5 million human A(H5) influenza vaccines in case these are ever needed in a pandemic scenario.

What is bird flu and how are we protecting people against it in the UK? – UK Health Security Agency

Latest Relevant Publications

LATEST PUBLISHED PAPERS AND COMMENTARIES FROM THE CHIEF EDITORS

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

01

"Efficacy, Immunogenicity, and Safety of the Bivalent RSV Prefusion F (RSVpreF) Vaccine in Older Adults Over 2 RSV Seasons"

Published: Clinical Infectious Diseases, ciaf061, https://doi.org/10.1093/cid/ciaf061

Editorial Comment: In this analysis of the global phase 3 RENOIR efficacy study, a single dose of the bivalent RSVpreF vaccine administered to ≥60-year-olds maintains high efficacy against RSV-LRTI with a consistent favorable safety profile through 2 complete RSV seasons in the Northern and Southern Hemispheres. RSVpreF also elicited robust neutralizing responses postvaccination that remained well above baseline prevaccination neutralizing titers before the start of the second RSV season through 8-20 months post vaccination. RSVpreF-elicited immune responses were generally consistent when stratified by RSV subgroup, age group, and presence of prespecified high-risk conditions.

02

"Effectiveness of MenB-4C Vaccine Against Gonorrhea: A Systematic Review and Meta-analysis"

Published: J Infect Dis . 2025 Feb 4;231(1):61-70. doi: https://doi.org/10.1093/infdis/jiae383

Editorial Comment: Bexsero vaccine is moderately effective against gonorrhea in various populations. Prospective clinical trials that assess the efficacy of this vaccinee against gonorrhea, gonorrhea/chlamydia coinfection, and duration of protection are warranted to strengthen this evidence.

03

"Advancing local manufacturing capacities for vaccines within Africa - Opportunities, priorities and challenges"

Published: Vaccine . 2025 Feb 5:50:126829. doi: https://doi.org/10.1016/j.vaccine.2025.126829

Editorial Comment: African vaccine manufacturers and all stakeholders should focus taking forward the portfolio of activities required for continental vaccine manufacturing, including regulatory strengthening capacities, training and workforce development, rather than only focus on efforts that benefit a particular manufacturer or country.

04

"Characterization of Clinical and Biologic Manifestations of Chikungunya Among Children in an Urban Area, Thailand: A Retrospective Cohort Study"

Published: Pediatr Infect Dis J. 2025 Feb 1;44(2):e60-e62. https://doi.org/10.1097/INF.0000000000004542

Editorial comment: This retrospective review of pediatric CHIKV cases in Thailand found that children frequently presented with high-grade fever, rash, arthralgia, and lymphopenia. Notably, neurological manifestations or shock occurred in 20% of hospitalized cases. These findings highlight the importance of heightened clinical awareness for CHIKV, alongside dengue, in travelers from Southeast Asia with suspected mosquito-borne viral infections.

05

"First clinical experiences with the tetravalent live vaccine against dengue (Qdenga ®) in travellers: a multicentric TravelMedVac study in Germany"

Published: J Travel Med. 2025 Feb 2:taaf004. https://doi.org/10.1093/jtm/taaf004

Editorial comment: In this retrospective, questionnaire-based study, 1,176 adults who received the Dengue vaccine (Qdenga®) were evaluated. The results indicated that the first dose was associated with increased reactogenicity, primarily fever, especially among Dengue-naïve individuals. Additionally, coadministration with other vaccines was a common practice and did not significantly increase the incidence of side effects. This study offers valuable insights into the reactogenicity profile of Qdenga® and could inform strategies to enhance vaccination approaches in Dengue-naïve populations.

06

"Rising mpox trends in DR Congo: the neglected spread of an epidemic"

Published: Lancet. 2025 Feb 1; 405: 358-60. https://doi.org/10.1016/S0140-6736(25)00137-0

Editorial comment: This editorial comment highlights significant shortcomings in managing the mpox epidemic in the Democratic Republic of Congo (DRC), including:

Inconsistent Case Definitions: There is a lack of standardized criteria for identifying mpox cases, which complicates diagnosis and tracking.

Variable Application of Protocols: There is considerable variability in how standard operating procedures for investigating suspected cases are implemented across different regions.

Inefficient Sample Transport: The system for transporting samples to diagnostic labs is not effective, leading to delays in testing and response.

Centralized Testing Facilities: The reliance on only two main laboratories, the INRB in Kinshasa and Goma, for all testing creates bottlenecks in the diagnostic process, hindering timely and widespread management of the outbreak.

07

"Attitudes and beliefs about vaccination among adults in the United States: A real-world, cross-sectional, web-based survey study"

Published: Vaccine 2025 March; 50: 126807. https://doi.org/10.1016/j.vaccine.2025.126807

Editorial comment: In this retrospective, cross sectional survey in 1,875 adults in the US, even though respondents generally disagreed that vaccines are dangerous and were neutral to claiming religious exemptions from vaccination, when comparing parents with other adults, parents followed advice from friends, family, and colleagues more than other adults ($p < 0.001$) and parents felt they understood vaccine information better than other adults ($p < 0.001$). Parents were also more comfortable researching vaccine information than were other adults ($p = 0.005$).

08

"Progress and Challenges in HIV-1 Vaccine Research: A Comprehensive Overview"
Published: Vaccines 2025 January 31; 13(2): 48. https://doi.org/10.3390/vaccines13020148

Editorial comment: This comprehensive review begins with a historical overview of all vaccine attempts for HIV, examines the current landscape of vaccine platforms, and explores potential future directions in HIV vaccine research.

09

"Vaccines and AMR: An analysis of the funding landscape for human bacterial vaccines in low-and middle-income countries"
Published: Vaccine; Volume 49, 7 March 2025, 126771 https://doi.org/10.1016/j.vaccine.2025.126771

Editorial Comment: First comprehensive analysis of human bacterial vaccine funding to date. Funding is disproportionally allocated with global south receiving <20 % of total. Most of the funding towards TBC and S. pneumoniae.

10

"Dengue in patients with kidney transplant: a systematic review"
Published: Infez Med 2025; 1: 1-14. Doi not yet available.

Editorial comment: In this systematic review of kidney transplant recipient patients (KTR) with dengue, of 309 articles found, seven full-text studies were identified for analysis. 4337 KTRs with 214 dengue cases were evaluated. The incidence of dengue was 4.93%, varying between geographic regions. The average age was 41.50 years, and 61.21% were men. A mortality of 7.01% was reported. Dysfunction is a prevalent event in KTRs with dengue infection, so correct screening should be done for donors and transplant candidates.

11

"Immunogenicity, Safety, and Efficacy of a Tetravalent Dengue Vaccine in Children and Adolescents: An Analysis by Age Group"
Published: Clin Infect Dis 2025; 80: 199–206. https://doi.org/10.1093/cid/ciae369

Editorial comment: This exploratory analysis demonstrates that TAK-003 is effective in preventing dengue across various age groups among children and adolescents aged 4–16 years in dengue-endemic regions. However, the vaccine efficacy (VE) appears lower in children aged 4–5 years. This discrepancy might be influenced by factors such as the distribution of causative dengue serotypes, a smaller sample size in this subgroup, and variations in VE by serotype. These elements should be carefully considered when evaluating the benefit-risk profile for this particular age group.

12

"Assessing the Impact of Pneumococcal Conjugate Vaccine Immunization Schedule Change From 3+0 to 2+1 in Australian Children: A Retrospective Observational Study"
Published: Clin Infect Dis 2025; 80:207–214. https://doi.org/10.1093/cid/ciae377

Editorial comment: In mid-2018, the Australian childhood 13-valent pneumococcal conjugate vaccine schedule changed from 3+0 to 2+1, moving the third dose to 12 months of age, to address increasing breakthrough cases of invasive pneumococcal disease (IPD), predominantly in children aged >12 months. This study assessed the impact of this change using national IPD surveillance data. In cohorts eligible for 2+1 versus 3+0 schedules, rate of breakthrough cases was lower for all vaccine serotypes, except type 3 (incidence rate ratio, 0.50 [95% confidence interval, .28–.84] and 1.12 [0.71–1.76], respectively). Observed compared to expected IPD was 51.7% lower (95% confidence interval, -60.9 to -40.7%) for vaccine serotypes, but the change for nonvaccine types was not significant 12% (-9.6 to 39.7). The 2+1 schedule is likely superior to 3+0 for overall IPD.

Editors Corner

YELLOW FEVER HITS BRAZIL ONCE AGAIN (2025)

Recommendations & Comments Regarding Boosting Fractional Dose Recipients.

Background

Yellow Fever (YF) is a mosquito-borne viral disease endemic to tropical and subtropical regions in Africa and the Americas. Infection with yellow fever virus can result in subclinical to severe illness, characterized by fever, jaundice, and hemorrhage.

All currently used YF vaccines are live attenuated viral vaccines derived from the 17D strain. Nearly all studies have shown that one dose induces seroconversion in more than 98% of recipients, and protection is believed to be lifelong.

A fractional dose of the 17DD YF vaccine was effective at inducing seroconversion in participants who were seronegative at baseline. Titers remained above the threshold for seropositivity at 1 year after vaccination in nearly all participants who were seropositive at 1 month after vaccination.

After reviewing evidence, WHO's Strategic Advisory Group of Experts (SAGE) on Immunization, determined that a fifth of a standard YF vaccine dose can provide full protection against the disease for at least 12

months and can be used to control outbreaks.

In a mass vaccination campaign in Democratic Republic of the Congo in 2016 the fractional dosing method was shown to be feasible and a promising approach to protect at-risk populations that would otherwise be left unprotected.

YF vaccine fractional dosing ***is not proposed for routine immunization***, as there is not enough data available to show that lower doses confer life-long protection. Studies are ongoing to determine the long-term protection provided by fractionated doses.

Braziian 2025 Outbreak

Ministry of Health issues alert for increase in YF cases in São Paulo and three other states in Brazil.

On February 2nd, 2025 – the Brazilian Ministry of Health issued a warning about the increase in the transmission of yellow fever during the seasonal period of the disease, which runs from December to May, especially in São Paulo, as well as Minas Gerais, Roraima and Tocantins. The technical note, sent to the Health Departments, recommends the intensification of surveillance and immunization actions in risk areas.

The state of São Paulo will account for the majority of yellow fever cases in 2025. Therefore, the Ministry of Health has decided to increase the number of doses of the vaccine sent to the state government. The state will receive two million doses by the beginning of February, with an additional 800,000 doses. Of these, one million were already delivered in January.

The amount was defined at a meeting of the Public Health Emergency Operations Center for Dengue and other Arboviruses (COE Dengue), coordinated by the department, last

Guidelines for travelers

People planning to travel to areas where yellow fever is transmitted or to rural and forested regions should check their vaccination records. Those who have not yet been vaccinated or received a fractional dose in 2018 should seek out a health unit at least ten days before traveling to get immunized and avoid exposure to the virus without protection.

The same recommendation applies to: populations living in locations with evidence of viral circulation or in rural areas; riverside populations and those living around parks and conservation units; rural, agricultural, extractive and environmental workers, among others; individuals with sporadic exposure in risk areas (rural, wild); and travelers to affected areas, including workers and tourists/ecotourists.

Vaccination is the main tool for preventing yellow fever.

The vaccine is part of the basic NIP vaccination schedule for children aged 9 months to under 5 years, with a booster dose at 4 years of age, in addition to a single dose for the population aged 5 to 59 who have not yet been vaccinated.

Other recommendations

Booster dose: individuals who received the fractional dose of the yellow fever vaccine in 2018 *and who will travel to areas with proven circulation of the virus* ***should receive an additional dose in the standard presentation***.

Zero dose: administered between 6 and 8 months of age, this dose should only be administered to children who reside in or will travel to areas with confirmed circulation of the virus.

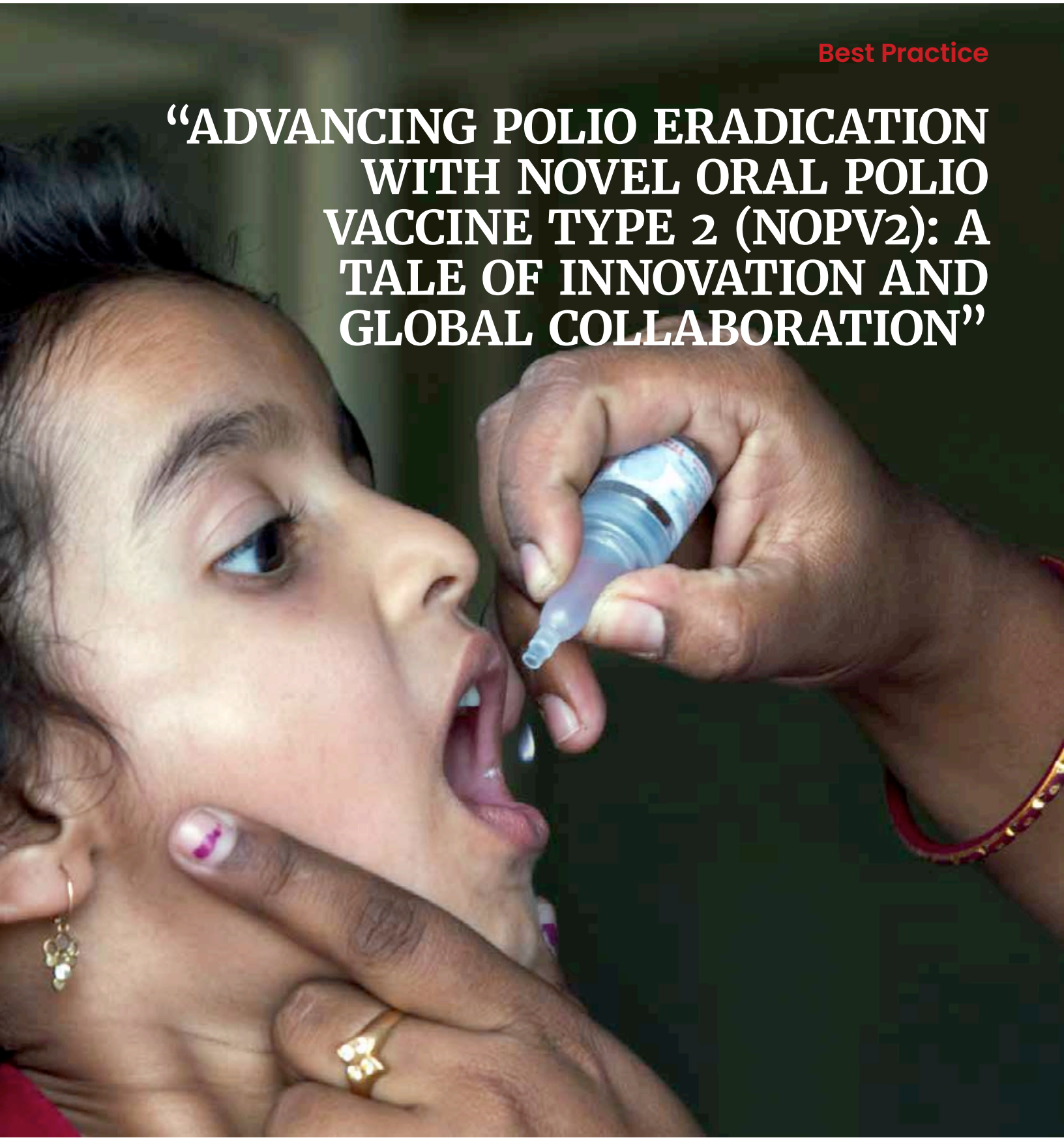
Vaccination of the elderly: people aged 60 or over must undergo an individualized medical evaluation before vaccination, considering the risk of exposure to the virus and their health conditions.

In addition to vaccination, it is essential to adopt personal protective measures, such as wearing long-sleeved pants and shirts, closed shoes, and applying insect repellent to exposed areas of the body. Since yellow fever virus vectors are diurnal, these precautions must be maintained throughout the day.

REFERENCES.
1. Brazilian MOH News: https://www.gov.br/saude/pt-br/assuntos/noticias/2025/fevereiro/ministerio-da-saude-emite-alerta-para-o-aumento-de-casos-de-febre-amarela-em-sao-paulo-e-outros-tres-estados
2. https://pmc.ncbi.nlm.nih.gov/articles/PMC7064153/ Casey RM,and cols. Immunogenicity of Fractional-Dose Vaccine during a Yellow Fever Outbreak - Final Report. N Engl J Med. 2019 Aug 1;381(5):444-454. doi: 10.1056/NEJMoa1710430. Epub 2018 Feb 14. PMID: 29443626; PMCID: PMC7064153.
3. WHO: https://www.who.int/news-room/questions-and-answers/item/fractional-doses-of-the-yellow-fever-vaccine
4. https://asm.org/articles/2021/august/yellow-fever-and-fractional-vaccine-doses Yellow Fever and Fractional Vaccine Doses - Andrea Prinzi, Ph.D., MPH, SM(ASCP) – ASM Articles, Aug. 31, 2021.

Best Practice

"ADVANCING POLIO ERADICATION WITH NOVEL ORAL POLIO VACCINE TYPE 2 (NOPV2): A TALE OF INNOVATION AND GLOBAL COLLABORATION"



Introduction:

The development of the novel oral polio vaccine type 2 (nOPV2) began in 2011, and after a decade of rigorous research and testing, it was rolled out for field use in March 2021 under an Emergency Use Listing (EUL). This innovative tool was designed to more sustainably curb the spread of type 2 circulating vaccine-derived poliovirus (cVDPV2) outbreaks. By February 2024, over 1 billion doses of nOPV2 had been administered across 35 countries. In December 2023, nOPV2 received WHO prequalification, becoming the first vaccine to successfully navigate the EUL pathway and setting a precedent for future drug innovations.

As the global rollout of nOPV2 continues, it is vital to recognize the decade of committed effort that went into its development and reflect on the valuable lessons learned throughout the process. These lessons can be categorized into three key areas: technology and development, global health, and organizational governance.

Key lessons learned, and current/future actions:

-Technology Development

Several key aspects of the technological development of nOPV2 offer valuable lessons for approaching other global health initiatives. These include:

- **Foresight:** Recognizing early on that circulating vaccine-derived poliovirus (cVDPV), which had been relatively minor during the early stages of polio eradication when wild poliovirus (WPV) cases dominated, would become a significant challenge in the final stages of eradication.
- **Leveraging Innovations in Science:** Building on scientific advances that revealed the genetic instability of the Sabin OPV strains—leading to reversion to polio-producing viruses—and exploring the potential for creating more stable OPV variants with enhanced genetic stability.
- **Innovative Product Development:** Drawing on global expertise in product development to create candidate nOPVs that were as attenuated as OPV type-2 strains, while demonstrating improved genetic stability, as well as comparable antigenicity and immunogenicity.
- **Innovative Approaches to Clinical Trials:** The use of containment strategies in Phase I trials and a complex, multidimensional study design that included new approaches to data collection and evaluation in later phases. Control-arm studies were conducted prior to the switch to ensure conformity with global containment requirements.
- **Accelerated Product Approval for Public Health Value:** The process of speeding up product approval through alignment with the newly created WHO Emergency Use Listing (EUL) process, which resulted in the first-ever EUL granted for a vaccine.
- **Balancing Ethical and Financial Risks with Clinical Urgency:** Taking calculated risks in response to the worsening cVDPV2 situation in 2019, which led to the decision to proceed with at-risk, large-scale production of nOPV2. This included an early investment model, with Indonesia's PT Bio Farma contracted to produce up to 200 million doses by the end of 2020 and a minimum of 500 million doses per year thereafter, ensuring availability as soon as the EUL was granted.

-Global Health

The rollout of nOPV2 presents several key lessons that are relevant to the broader global health agenda, including:

- **Adapting to the Disruptive Global Context:** Effectively managing the impact of the COVID-19 crisis by securing alternative vaccine supplies and enhancing communication efforts was crucial in limiting the rise of cVDPV. Additionally, leveraging the lessons learned from the COVID-19 response played a pivotal role in the successful rollout of nOPV2.
- **Building on an Established Platform and New Partnerships:** The rollout provided an ideal opportunity to unite all relevant stakeholders around a common goal and high-priority issue, building on the strong foundation of polio eradication efforts while bringing in new partners.
- **Extensive Consultative Processes with Country Stakeholders:** Recognizing the diverse contexts and levels of risk across different countries, the approach was

adapted to meet local needs. This included transparent sharing of evidence, targeted communications, and strong advocacy to ensure that global recommendations were tailored to local campaigns.

- **Proactive and Effective Communication:** Planning for product acceptance and uptake, addressing misinformation, and utilizing digital platforms for social mobilization to raise awareness and build confidence in the vaccine were key at multiple stages of development and rollout.
- **Forecasting Supply Needs:** Effective coordination through multi-channel communication with countries, flexible procurement models, and adaptive manufacturing processes was essential in addressing the challenges presented by the COVID-19 context and ensuring that supply needs were met.
- **Prioritizing Informed Decision-Making at the Country Level:** Ensuring the availability of materials in multiple languages to support decision-making, foster stakeholder buy-in, and enable better verification processes was critical for successful implementation at the national level.

-Organization & Governance

The organizational and governance lessons learned from nOPV2 can be applied to other global health initiatives, including:

- **High-Level Political Commitment:** The commitment of Health Ministers was essential at every stage, and the ongoing support from WHO Member States through decisions and resolutions at the Executive Board and World Health Assembly provided critical backing for the initiative.
- **Centralized and Collective Decision-Making:** Centralizing decision-making within governance bodies, while ensuring decisions were made collectively, enabled coherent messaging, fast-paced decision-making, and strong ownership. Aligning the process with the advice of WHO scientific advisory bodies, such as SAGE and GACVS, helped ensure legitimacy and acceptance of decisions.
- **Funding and Investment Model:** Securing guaranteed funding from the outset through a sole funder created favorable conditions for collective decision-making. This approach facilitated a focus on quality and speed, ensuring efficiency and effectiveness in advancing the initiative.
- **Adaptive and Innovative Models of Collaboration:** Governance structures evolved throughout the process—from a consortium of researchers to the integration of the broader GPEI partnership and the establishment of the nOPV2 Working Group. Sub-groups and memberships were adjusted as needed, even if it meant making difficult decisions to ensure the initiative's success.
- **The Multifaceted Role of the Bill & Melinda Gates Foundation (BMGF):** BMGF played a critical role as both a funder and a provider of an institutional framework. Its contributions were pivotal in managing complex processes, particularly in working with regulators and engaging with countries to ensure successful rollout and coordination.

Conclusions:

In the past, 365,000 children were paralyzed by polio every year—an alarming statistic that highlights the immense scale of the challenge. The progress we've made is nothing short of a remarkable success story. However, there is a risk that, due to the difficulty of the task, the delays, and the cost overruns, we may be tempted to give up. But if we stay committed and do it right, not only will the world succeed in eradicating polio, but we will also strengthen systems for routine vaccination, improve access to clean water and sanitation, and build public confidence in the ability of health systems to deliver. Eradication represents the pinnacle of both equity and sustainability—an achievement that benefits everyone, everywhere, for generations to come.

Bibliography
1. Polio Global Eradication Initiative. https://polioeradication.org/.
2. Polio Global Eradication Initiative: Polio Endgame Strategy. https://polioeradication.org/who-we-are/polio-endgame-strategy-2019-2023/
3. Polio eradication strategy 2022–2026: delivering on a promise. https://www.who.int/publications/i/item/9789240031937
4. WHO Prequalification of Medical Products: Polio Vaccine, Novel Oral (nOPV2) (Monovalent type 2. https://extranet.who.int/prequal/vaccines/polio-vaccine-novel-oral-nopv-monovalent-type-2
5. WHO Safety profile of nOPV2 vaccine. https://www.who.int/groups/global-advisory-committee-on-vaccine-safety/topics/poliovirus-vaccines
6. Polio Global Eradication Initiative: GPEI press release on nOPV2 prequalification under its Emergency Use Listing.

Guest Contributors

SAFEGUARDING PUBLIC HEALTH: THE IMPORTANCE OF DENGUE SURVEILLANCE, REPORTING AND REGULATION

Author:
Felicitas Colombo, MPA
Director of Public and Government Affairs,
Americas Health Foundation

Dengue fever, a mosquito-borne viral infection, poses a significant threat to public health, particularly in tropical and subtropical regions. It is transmitted primarily by the Aedes aegypti mosquito, which breeds in stagnant water. Symptoms can range from mild flu-like signs to severe illness, including dengue hemorrhagic fever and dengue shock syndrome.

With increasing global temperatures and urbanization, the incidence of dengue has surged, making effective regulation and management crucial. This article explores the importance of dengue regulation and its impact on public health, economic stability, and community resilience.

According to the World Health Organization (WHO), as of April of 2024, "over 7.6 million dengue cases have been reported to WHO in 2024, including 3.4 million confirmed cases, over 16 000 severe cases, and over 3000 deaths. While a substantial increase in dengue cases has been reported globally in the last five years, this increase has been particularly pronounced in the region of the Americas, where the number of cases has already exceeded seven million by the end of April 2024, surpassing the annual high of 4.6 million cases in 2023."

Yet, dengue is not only present in the Americas but has become a global concern. In 2024, 90 countries reported active dengue transmission. However, many endemic countries do not have strong detection and reporting mechanisms, so the true burden of dengue globally is underestimated.

To strengthen global surveillance, and monitor trends and disease incidence, WHO has established a global dengue surveillance system with monthly reporting across all regions. (available as a dashboard)

"Given the current scale of the dengue outbreaks, the potential risk of further international spread and the complexity of factors impacting transmission, the overall risk at the global level is still assessed as High and, thus, dengue remains a global threat to public health," says the WHO report.

Understanding Dengue Surveillance

Global dengue surveillance is essential in preventing outbreaks, guiding public health interventions, and protecting vulnerable populations. Dengue surveillance encompasses the systematic collection, analysis, and interpretation of data related to dengue infections. This includes monitoring mosquito populations, tracking incidence rates, and assessing environmental factors that contribute to the spread of the virus. Effective surveillance can help identify trends, predict outbreaks, and inform health responses.

Major vector control strategies focus on reducing the population of Aedes mosquitoes, the primary carriers of the virus. Key methods include:

1. **Source Reduction:** This involves eliminating standing water where mosquitoes breed. Actions include cleaning and disposing of containers that

collect water, regularly emptying flower pots, and maintaining proper drainage in urban areas.

2. **Larvicides:** Applying chemical agents to water bodies to kill mosquito larvae. This can be effective in areas where standing water cannot be eliminated.

3. **Insecticides:** Spraying insecticides, such as fogging, can help reduce adult mosquito populations during outbreaks. This method is often used in conjunction with other control strategies.

4. **Biological Control:** Introducing natural predators of mosquito larvae, such as fish or certain bacteria (like Bacillus thuringiensis israelensis), can help manage mosquito populations without harmful chemicals.

5. **Community Engagement:** Educating communities about dengue prevention and involving them in vector control efforts.

6. **Personal Protection:** Encouraging the use of insect repellent, wearing long-sleeved clothing, and installing window screens can help reduce human exposure to mosquito bites.

Key Reasons for Global Dengue Surveillance

1. **Early Detection and Response:** Timely and accurate surveillance allows for the early detection of dengue cases, enabling public health authorities to respond swiftly. Rapid response measures, such as vector control and community awareness campaigns, can help contain outbreaks before they escalate.

2. **Data-Driven Decision Making:** Surveillance data provides critical insights that inform public health policies and resource allocation. By understanding transmission patterns and risk factors, health agencies can prioritize interventions in high-risk areas, ensuring that resources are utilized effectively.

3. **Monitoring Climate and Environmental Factors:** Global surveillance helps track the impact of climate change and urbanization on dengue transmission. Understanding these environmental influences is essential for developing predictive models and targeted interventions, especially in regions at risk of emerging outbreaks.

4. **Supporting Vaccine Development:** Surveillance data can guide research and development efforts for dengue vaccines and treatments by identifying serotypes in circulation and monitoring vaccine efficacy.

5. **Enhancing International Collaboration:** Dengue knows no borders; therefore, global surveillance fosters collaboration among countries and organizations. Sharing data and best practices enhances collective knowledge and strengthens regional and global efforts to control dengue transmission.

Challenges in Dengue Surveillance

While the benefits of global dengue surveillance are clear, several challenges persist. These include limited funding, inadequate infrastructure in many regions, and varying levels of technical expertise. Furthermore, surveillance systems specifically targeting endemic transmission are weak or non-existent in many countries. Addressing these challenges is crucial for establishing effective surveillance systems worldwide.

Vaccination

The WHO estimates that around 390 million dengue infections occur annually, leading to significant morbidity and mortality. It asserts that "vaccination against dengue should be viewed as part of an integrated strategy to control the disease, including vector control, proper case management, community education, and community engagement." It further recommends vaccination "in children aged 6 to16 years in settings with high dengue transmission intensity."

Economic Implications

Dengue not only affects people's health but also has substantial economic repercussions. The costs associated with healthcare, lost productivity, and outbreak responses can strain public resources. A range of regulatory measures, that could include surveillance and vaccination, could mitigate these costs by preventing outbreaks and fostering a healthier community. As the global landscape continues to change, proactive policies will be essential in the fight against dengue fever.

Americas Health Foundation

AHF has been involved in the prevention of dengue since 2015, with projects that range from awareness campaigns, consensus conferences, expert task forces and media workshops. Through a network of diverse stakeholders and sponsors, the foundation strives to improve public health across the Americas and globally.

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.

ISSN: 2997-2833

For any information required, please write to:
info@vaccinesbeat.org

Visit: https://vaccinesbeat.org

SPONSORS

PARTNERS