

Rotavirus Vaccines at 20 years: Success, Challenges and the Road Ahead

Duncan Steele, Deputy Director & Strategic Lead: Enteric Vaccines
EDGE, Gates Foundation

15th International Rotavirus Symposium / 15th African Rotavirus Symposium
Cape Town
30 September 2025 – 2 October 2025

Gates Foundation



Rotavirus Vaccine being administered in Kenya

Photo credit: PATH

Miren Iturriza Gomara



Disclaimer:

Hundreds of people are engaged in studies and the progress described in this overview.



Mothers and their babies, Delhi, India.



ASHAs, Vadodra, India



Clinical study team, Pune



Our focus population – healthy young children.



Biofarma and Gajah Madha clinical team, Yogyakarta Indonesia

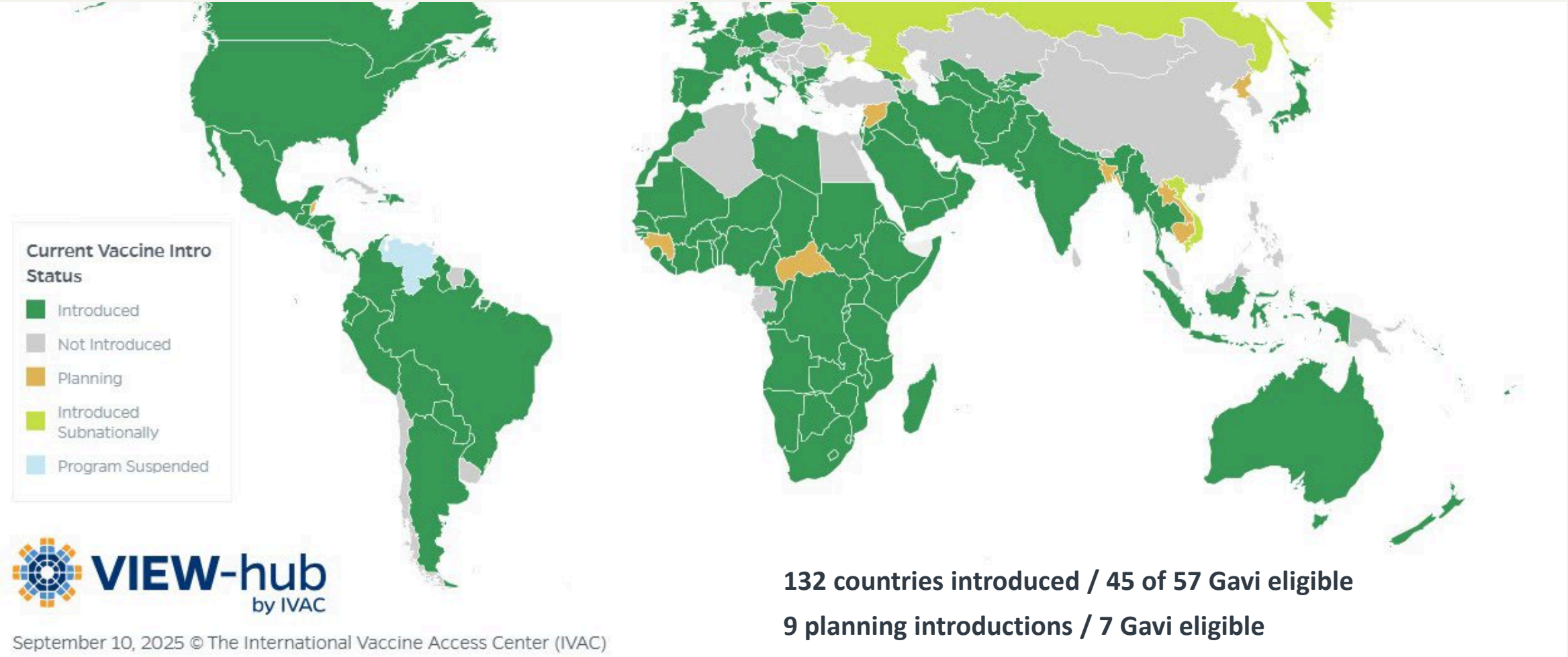


Visit by SII and PATH to Sevagram Health Facility, India

Success of Rotavirus Vaccines:
Built on global partnerships and
consortiums

Current Rotavirus Vaccines Introductions

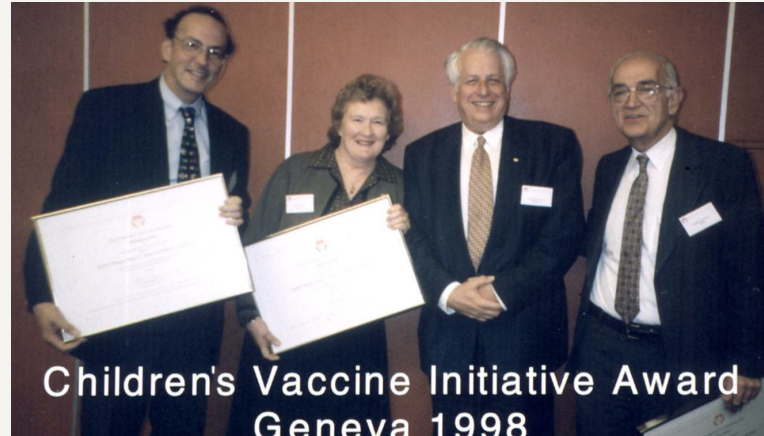
Rotavirus vaccine introduction by rotavirus vaccine product and Gavi-status (September 2025).



WHO Leadership was essential



Ruth Bishop, Thomas Flewett, Al Kapikian
WHO Diarrheal Diseases Steering Committee



Roger Glass, Ruth Bishop, Gus Nossal, Al Kapikian
Children's Vaccine Initiative Award, 1998



The WHO Diarrheal and Enteric Vaccines
Advisory Committee (DEVAC)

Country engagement was critical and happened early

Countries knew they had a diarrhea problem. They did not know they had a **rotavirus** problem.

Surveillance was essential for countries to understand their diarrheal burden

Standardized protocols were developed and used.

Early engagement with MOH

US CDC was a key global partner in supporting the networks, the protocols and methodologies used and the standardization of practices across the sites



1st Asian Rotavirus Surveillance Meeting, Bangkok, Thailand 1999



6th Asian Rotavirus Surveillance Meeting, Pattaya, Thailand 2006



1st African Rotavirus Surveillance Meeting, Ga-Rankuwa, South Africa 1999



4th African Rotavirus Surveillance Meeting, Accra, Ghana 2004

GAVI Task Force recommended creation of the ADIPs

A public/private global health partnership launched in 2000 to improve access to immunization for children in impoverished countries

The ADIP Partnership Model for Rotavirus Vaccines

PATH Rotavirus Vaccine Program

- Accelerated Development and Introduction Plan (ADIP) established in 2003 with grant from GAVI Alliance.
- Partnership with WHO and US CDC.
- Mission:
To reduce child mortality and morbidity from diarrheal disease by accelerating the availability of rotavirus vaccines appropriate for use in developing countries.
- Active partnership with countries



The objectives to accelerate the

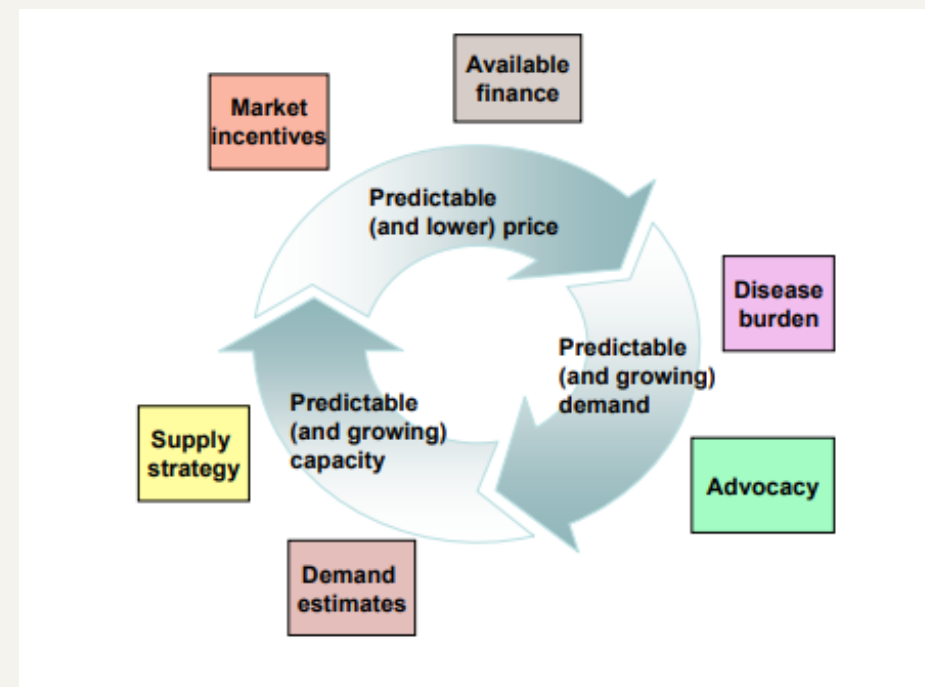


Figure 1. The virtuous cycle, with potential ADIP activities, that together form the structural framework for this analysis.

Rotavirus Vaccine Project (RVP) – collaboration between PATH, WHO, CDC

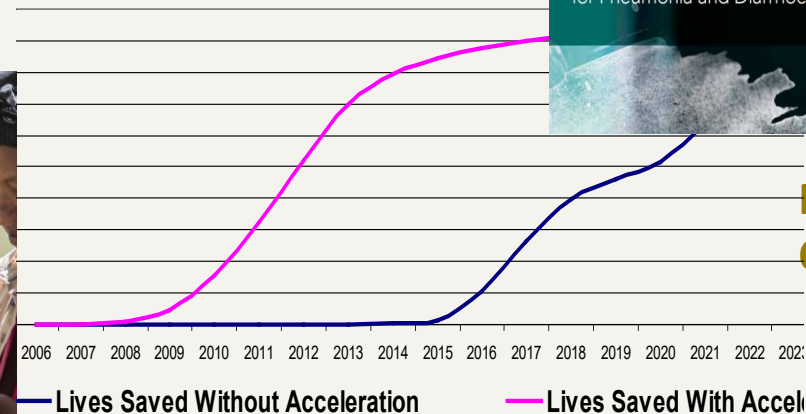
The objectives were to generate the evidence of rotavirus disease in LMICs and to identify differences in the natural history and epidemiology, and strain diversity in different regions, and to conduct efficacy studies of the available rotavirus vaccines



Rotavirus Surveillance



Rotavirus Vaccine Clinical Studies in Africa and Asia

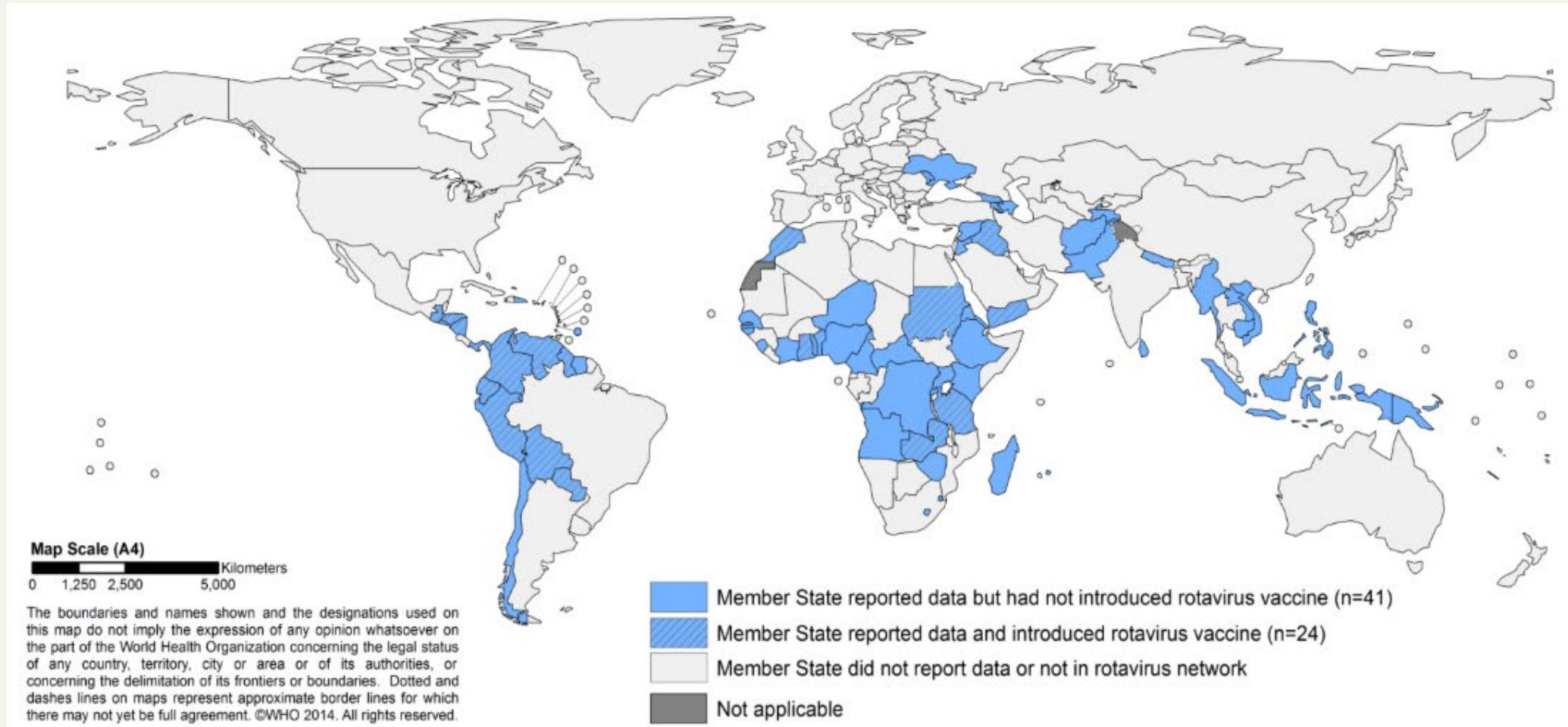


Policy, Advocacy & Communications

The Investment Case for Rotavirus Vaccines

Defining Rotavirus Disease Burden facilitated country decision-making

Rotavirus surveillance and the regional surveillance networks



Regional Rotavirus Reference Laboratory Network to support Surveillance

The objectives were to generate the evidence of rotavirus disease in LMICs and to identify differences in the natural history and epidemiology, and strain diversity in different regions:



Regional Rotavirus Reference Laboratory, CMC, Vellore, India



Regional Rotavirus Laboratory, Noguchi Institute of Medical Research, Ghana



Diarrhoeal Pathogens Research Unit, Sefako Makgatho Health Sciences University, Ga-Rankuwa, South Africa



Rotavirus Laboratory, MCRI, Melbourne, Australia

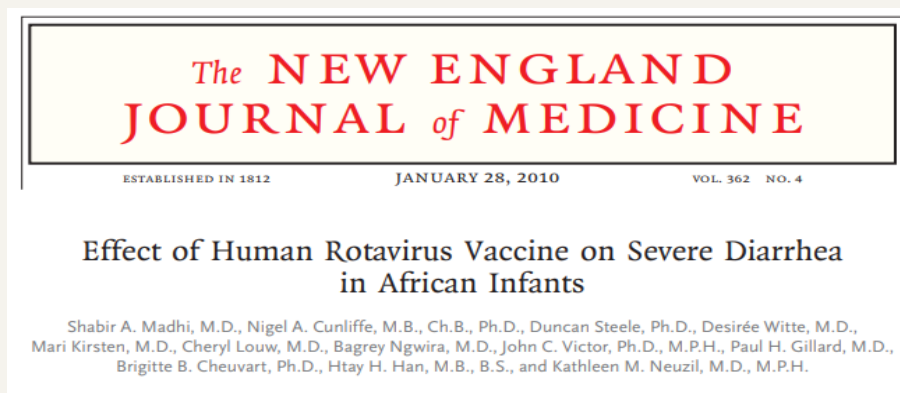


Dr Kathy Neuzil

RVP - Rotavirus Vaccine Clinical Studies in Africa and Asia

Coordinated the clinical evaluation of the big pharma rotavirus vaccines in Africa and Asia

Clinical evaluation of Rotarix, GSK Bio, in Africa and Asia



Clinical trials in Africa and Asia with RotaTeq, Merck Vaccines

Efficacy of pentavalent rotavirus vaccine against severe rotavirus gastroenteritis in infants in developing countries in Asia: a randomised, double-blind, placebo-controlled trial

K Zaman, Dang Duc Anh, John C Victor, Sunheang Shin, Md Yunus, Michael J Dallas, Goutam Podder, Vu Dinh Thiem, Le Thi Phuong Mai, Stephen P Luby, Le Huu Tho, Michele L Coia, Kristen Lewis, Stephen B Rivers, David A Sack, Florian Schödel, A Duncan Steele, Kathleen M Neuzil, Max Ciarlet

Efficacy of pentavalent rotavirus vaccine against severe rotavirus gastroenteritis in infants in developing countries in sub-Saharan Africa: a randomised, double-blind, placebo-controlled trial

George E Armah, Samba O Sow, Robert F Breiman, Michael J Dallas, Milagritos D Tapia, Daniel R Feikin, Fred N Binka, A Duncan Steele, Kayla F Laserson, Nana A Ansah, Myron M Levine, Kristen Lewis, Michele L Coia, Margaret Attah-Poku, Joel Ojwanda, Stephen B Rivers, John C Victor, Geoffrey Nyambane, Abraham Hodgson, Florian Schödel, Max Ciarlet, Kathleen M Neuzil



RESEARCH ARTICLE

Effectiveness of a live oral human rotavirus vaccine after programmatic introduction in Bangladesh: A cluster-randomized trial

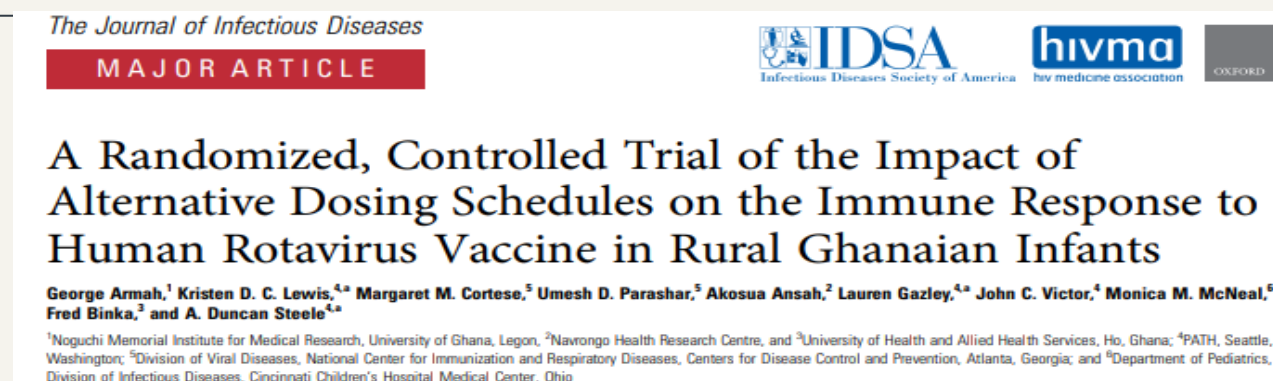
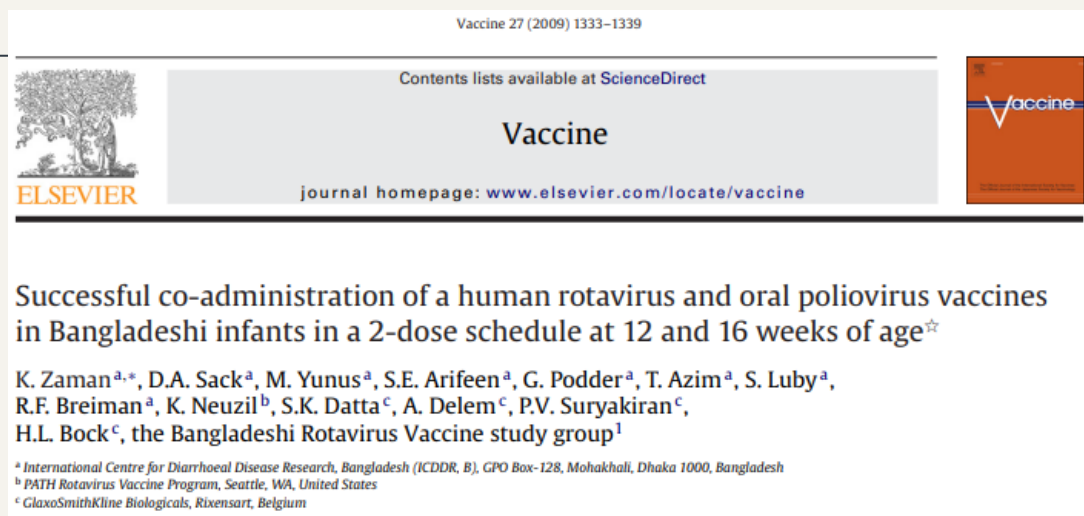
K. Zaman¹, David A. Sack², Kathleen M. Neuzil³, Mohammad Yunus¹, Lawrence H. Moulton², Jonathan D. Sugimoto⁴, Jessica A. Fleming³, Ilias Hossain¹, Shams El Arifeen¹, Tasnim Azim¹, Mustafizur Rahman¹, Kristen D. C. Lewis³, Andrea J. Feller², Firdausi Qadri¹, M. Elizabeth Halloran^{4,5}, Alejandro Cravioto¹, John C. Victor^{3*}

¹ International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka, Bangladesh, ² Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland, United States of America, ³ PATH, Seattle, Washington, United States of America, ⁴ Vaccine and Infectious Disease Division, Fred Hutchinson Cancer Research Center, Seattle, Washington, United States of America, ⁵ Biostatistics Department, University of Washington, Seattle, Washington, United States of America

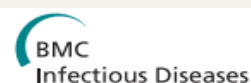
* cvictor@path.org



Evaluating dose schedules and specific questions for LMIC populations



Steele et al. BMC Infectious Diseases 2012, 12:213
<http://www.biomedcentral.com/1471-2334/12/213>



RESEARCH ARTICLE

Open Access

Human rotavirus vaccine *Rotarix*TM provides protection against diverse circulating rotavirus strains in African infants: a randomized controlled trial

Andrew Duncan Steele^{1,2*}, Kathleen M Neuzil¹, Nigel A Cunliffe³, Shabir A Madhi^{4,5}, Pieter Bos⁶, Bagrey Ngwira⁷, Desiree Witte^{3,7}, Stacy Todd⁸, Cheryl Louw⁸, Mari Kirsten⁹, Sanet Aspinall¹⁰, Leen Jan Van Doorn¹¹, Alain Bouckennooghe^{12,13}, Pemmaraju V Suryakiran¹³ and Htay Htay Han¹³

ORIGINAL STUDIES

Safety, Reactogenicity, and Immunogenicity of Human Rotavirus Vaccine RIX4414 in Human Immunodeficiency Virus-positive Infants in South Africa

Steele, Andrew Duncan PhD[†]; Madhi, Shabir Ahmed MD, PhD[‡]; Louw, Cheryl Emily MB ChB[§]; Bos, Pieter NHD[†]; Tumbo, John M. MB ChB, MFamMed[¶]; Werner, Corne M. MB ChB[§]; Bicer, Ceyhun MS^{||}; De Vos, Beatrice MD^{**}; Delem, Andree MSc^{**}; Han, Htay Htay MB BS^{**}

Author Information

The Pediatric Infectious Disease Journal 30(2):p 125-130, February 2011. | DOI: 10.1097/INF.0b013e3181f42db9

Gavi Investment Case for Rotavirus Vaccines

Vaccine 305 (2012) A7–A14

Contents lists available at SciVerse ScienceDirect

Vaccine

journal homepage: www.elsevier.com/locate/vaccine



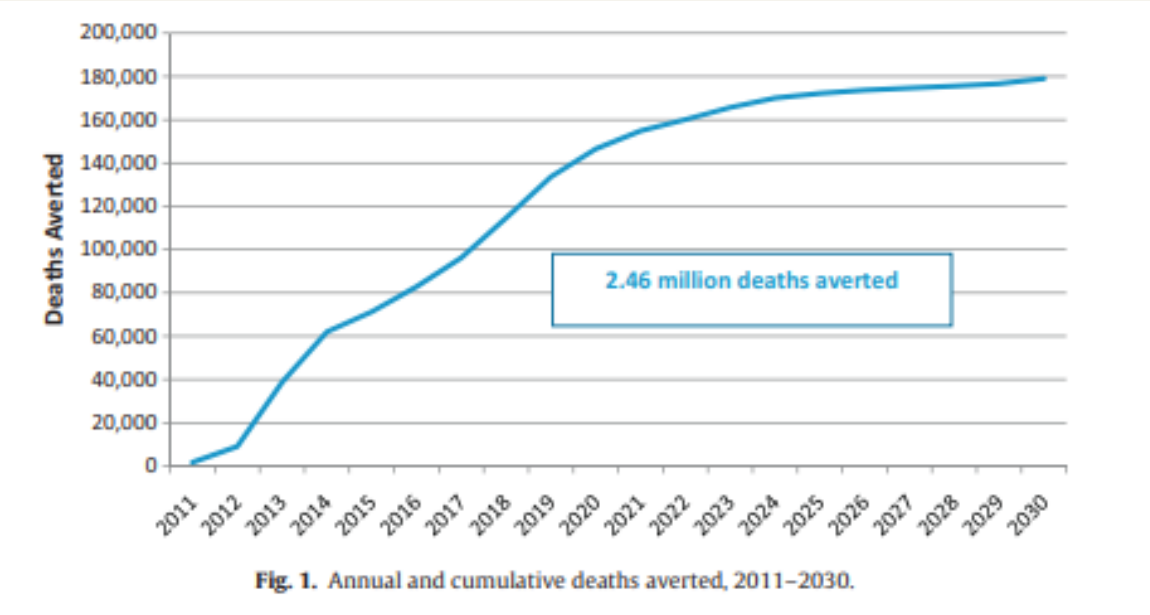


Projected health and economic impact of rotavirus vaccination in GAVI-eligible countries: 2011–2030

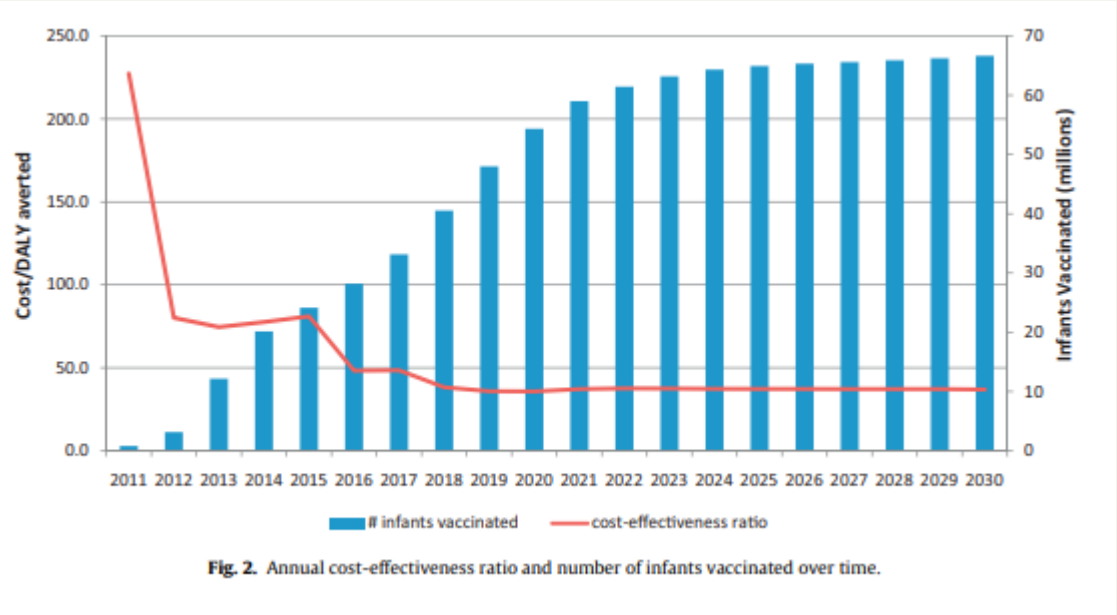
Deborah E. Atherly^{a,*}, Kristen D.C. Lewis^a, Jacqueline Tate^b, Umesh D. Parashar^b, Richard D. Rheingans^c

^a Rotavirus Vaccine Program, PATH, Seattle, WA, United States
^b Viral Enteric Epidemiology Team, Division of Viral Diseases, National Centers for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention, Atlanta, GA, United States
^c University of Florida, Gainesville, FL, United States

Rotavirus Death averted

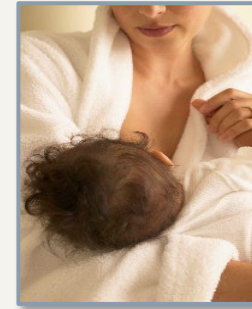


Costs per DALY averted



WHO SAGE recommends rotavirus vaccines for all children, 2009

- WHO recommends Rotavirus Vaccine be included in all national immunization programs
- WHO recommends that the first dose of either vaccine be administered as soon as possible after 6 weeks of age, along with DTP vaccination
- WHO also recommends removing the age restriction for the administration of rotavirus vaccine



Rotavirus vaccines should be part of a comprehensive strategy to control diarrheal diseases with the scaling up of both prevention (promotion of early and exclusive breastfeeding, hand washing with soap, improved water and sanitation) and treatment packages (including low-osmolarity Oral Rehydration Salts and zinc).

Advancing Rotavirus Vaccines: Vaccine Action Program (VAP)

Bi-lateral agreement between Department of Biotechnology, India and NIH, USA

Funded by Gates Foundation, DBT and NIH



Dr John Boslego



Building the vaccine facility at a nascent Bharat Biotech, in Hyderabad.



Celebrating the successful licensure of RotaVac in New Delhi, 2016.

Advancing Rotavirus Vaccines: Vaccine Action Program (ARVAC)

Supporting the development and licensure of safe, efficacious and cost-effective rotavirus vaccines



Dr Roger Glass, CDC and Dr John Boslego, PATH



Rotavac Phase 3 safety and efficacy study team



Celebrating the success of Rotavac Phase 3 study with MK Bhan



Drs Roger Glass, CDC; TS Rao, DBT, MK Bhan, DBT



Dr Mathu Santosham, Chair DSMB, Dr John Boslego, PATH and ARVAC Director

Advancing Rotavirus Vaccines: ARVAC BRV

Funded by Gates Foundation in 2006, collaboration between PATH and Serum Institute, Pune:

- Support the process and clinical development of the bovine-human reassortant vaccine (BRV) through Phase 2 at two selected manufacturers (India and China)
- Provide a platform of technologies, training and common technical support that will be made available to the 7 DCVMs that have access to the NIH developed BRV.
- Project management and clinical studies
- Shantha Biotechnic, Serum Institute, Bio E
- Chengdu Institute of Biological Products, Wuhan Institute of Biological Products
- Butantan, Brazil



Annual ARVAC meeting, Bangkok 2008

Advancing Rotavirus Vaccines – Enabling Platforms for BRV

A cross-cutting platform to share technologies and reagents, methods and skill sets:



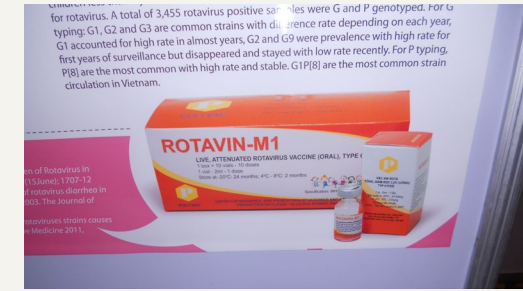
Dr Georges Thiry & Dr Jorge Flores



SERUM INSTITUTE OF INDIA LTD.



Vietnam Rotavirus Surveillance and Vaccine Development



Prof Man and Roger Glass



Carl Kirkwood, Lu and Prof Man

Development of RV3-BB – a neonatal vaccine

MCRI and PT Biofarma



Dr Julie Bines, MCRI



Adriansjah and Novi, Biofarma



Prof Yati Soenarto, and Itob, Gadjah Madha University



Rotavirus vaccines are cost-effective in Gavi countries and non-Gavi MICs

Re-evaluating the potential impact and cost-effectiveness of rotavirus vaccination in 73 Gavi countries: a modelling study

Frédéric Debellut, Andrew Clark, Clint Pecenka, Jacqueline Tate, Ranju Baral, Colin Sanderson, Umesh Parashar, Laura Kallen, Deborah Atherly

Evaluating the potential economic and health impact of rotavirus vaccination in 63 middle-income countries not eligible for Gavi funding: a modelling study

Frédéric Debellut, Andrew Clark, Clint Pecenka, Jacqueline Tate, Ranju Baral, Colin Sanderson, Umesh Parashar, Deborah Atherly

- Between 2018 to 2027, rotavirus vaccines can **avert 600,000 deaths and nearly US\$900 million** in costs in the 73 Gavi-supported countries.
 - Cost/DALY averted: **US\$264** (government perspective).
- Between 2020 and 2029, Rotavirus vaccines can **avert 38,000 deaths and nearly US\$1.2 billion** in costs in 63 non-Gavi MICs.
 - At least one product is projected to be cost-effective (cost/DALY averted is <0.5 times the GDP/capita) in 48 non-Gavi countries.
- Benefits of vaccination include mortality reduction and averted costs; health benefit typically larger in Gavi 73 while costs averted are typically larger in non-Gavi countries.
- Rotavirus vaccines are more cost-effective in higher burden regions receiving more financial support.
- Studies suggests more recently prequalified rotavirus vaccines greatly enhance value for money

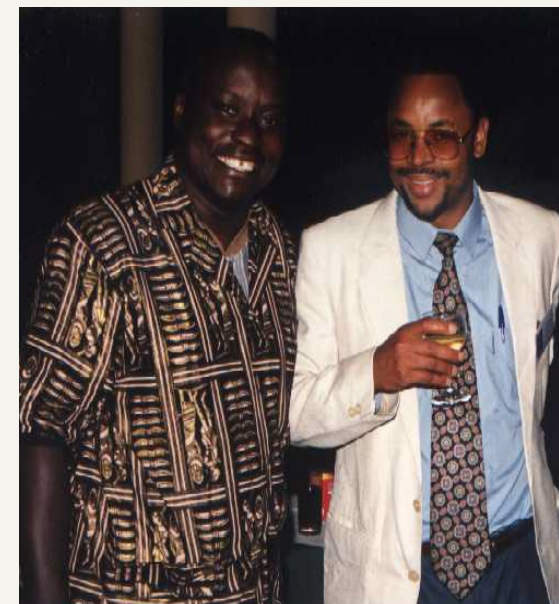
The ROTA Council

Rotavirus Technical and Advocacy Group

Advocacy remains an important part of the success of rotavirus vaccines



Mathu Santosham and Ciro de Quadros



George Armah and Jason Mwenda

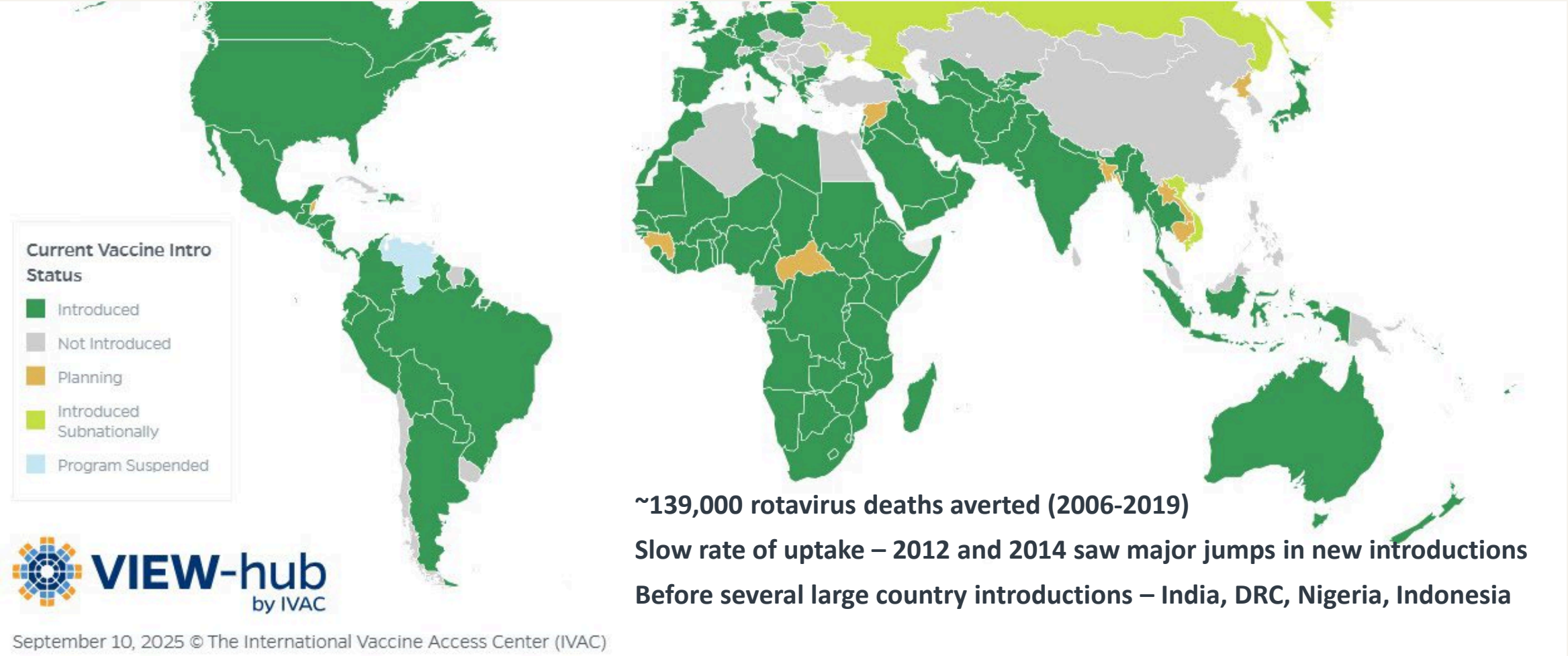
Oral rotavirus vaccines have been successfully implemented

- Multiple rotavirus vaccines have been pre-qualified by WHO for procurement by Gavi. Others have been licensed nationally (Vietnam, China, Indonesia [pending])
- The impact on diarrheal deaths and rotavirus associated hospitalizations have been documented in all settings where the vaccines are being used.
- Rotavirus vaccines are cost-effective in both LMIC and MIC countries
- Strong leadership from WHO was instrumental in guiding studies and policies for deployment of these vaccines in countries with the most need.
- Global collaboration and leadership from CDC was crucial in generating disease burden, vaccine safety and vaccine effectiveness data
- Global agencies such as Gavi and UNICEF facilitated the implementation of vaccines
- Engagement was essential from the vaccine manufacturers.

Challenges for Rotavirus Vaccines and the Road Ahead

Existing rotavirus vaccines have demonstrated impact on diarrrheal deaths

Rotavirus vaccine introduction by rotavirus vaccine product and Gavi-status.

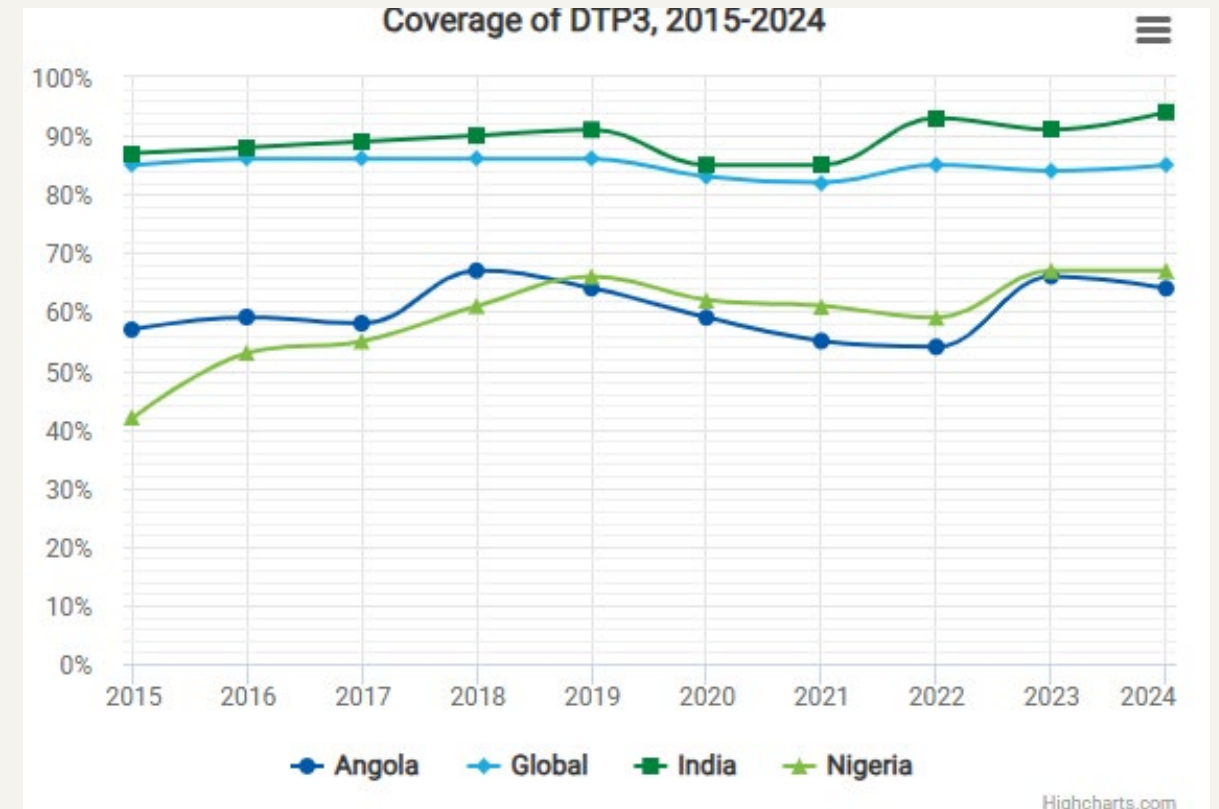
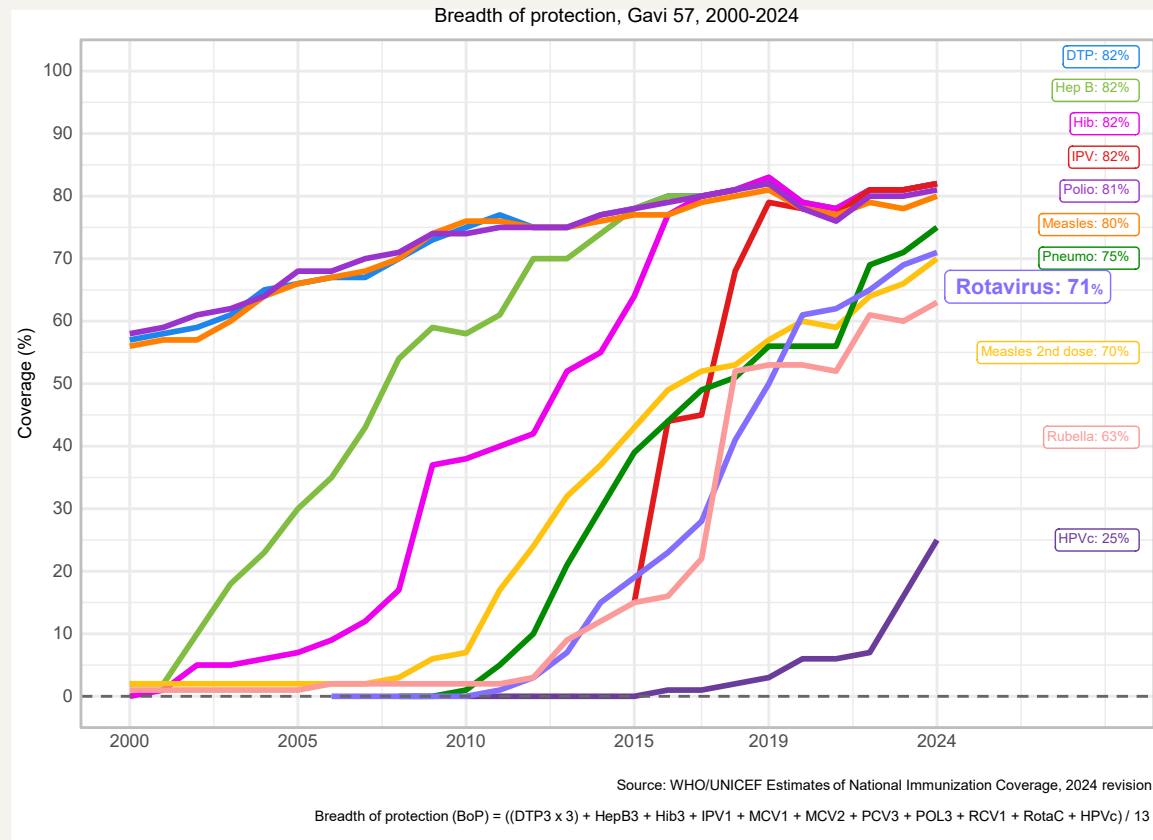


Immunization with existing vaccines is imperative



Credit: PATH

Programmatic Opportunities: We need to increase coverage

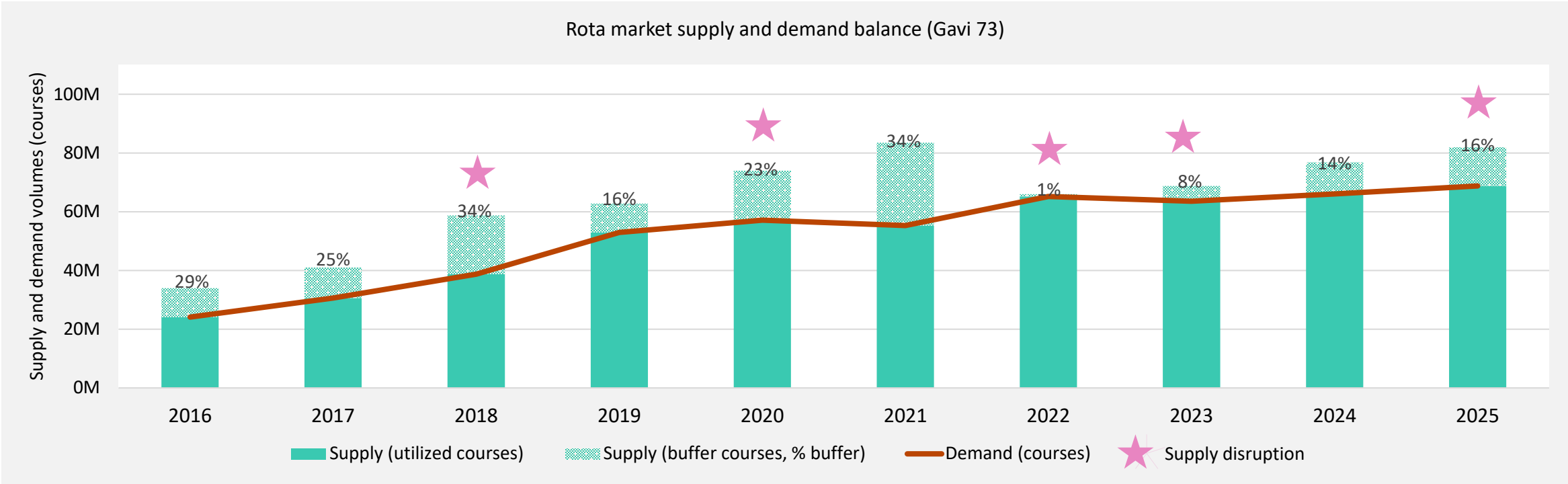


Work is underway – understanding then causes of low vx coverage, targeting strategies to address this.

-> Microplanning, strengthening immunization systems, physical access barriers, financing

Rotavirus uptake has been increasing, but suppliers have struggled to keep up with chronic supply disruptions over the last decade

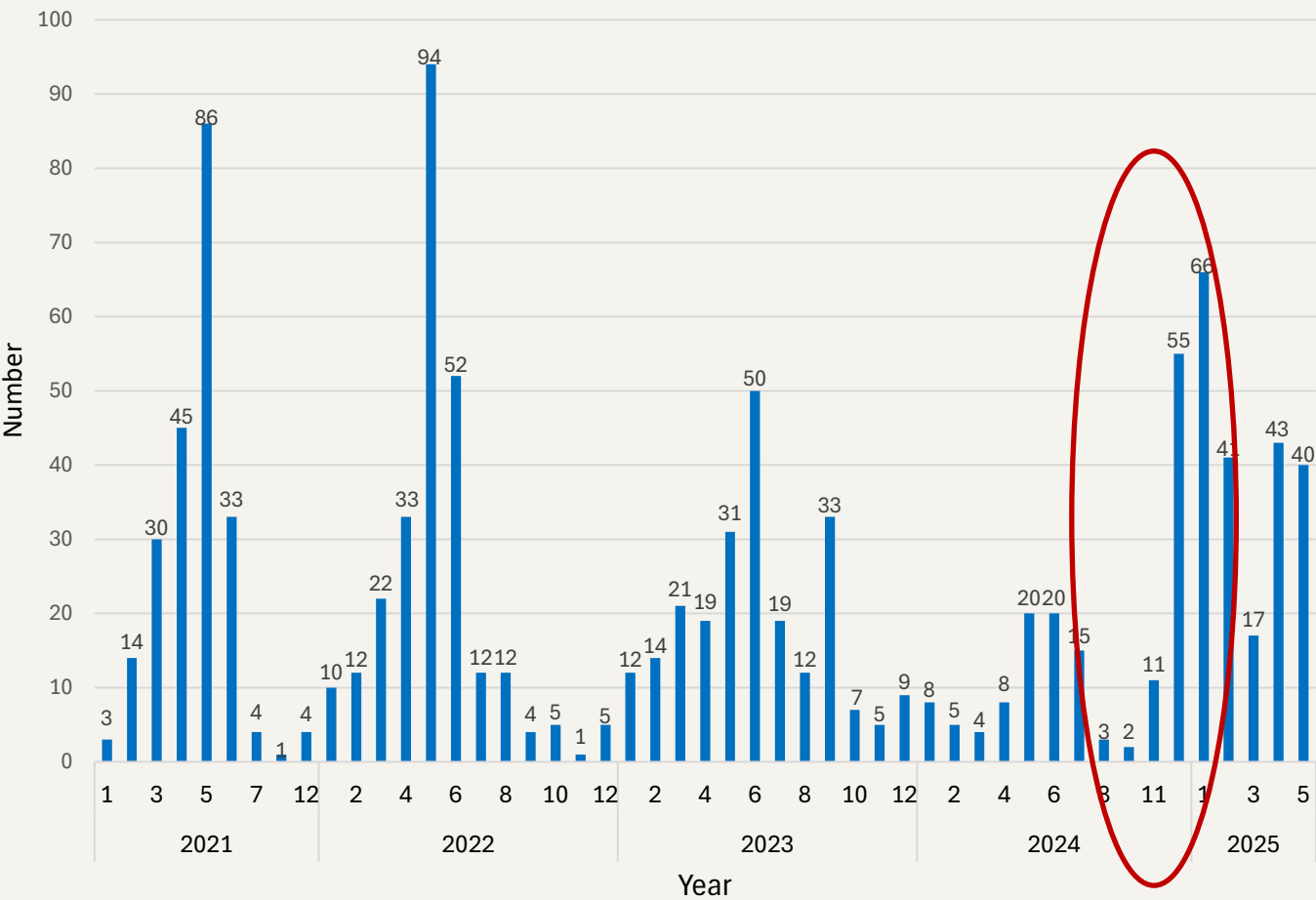
The rotavirus market is unable to cope with supply disruptions due to a low buffer capacity compared to other routine markets (>30%).



Buffer capacity is defined as remaining Gavi capacity after doses are allocated for Gavi country demand. Unallocated doses are calculated as a % of total capacity.

Sources: GVMM, Linksbridge analysis July 2025; Gavi supply disruptions report February 2025

Rotavirus vaccine supply is critical to maintain ongoing impact



Vaccine stockouts
Aug 2024 to Jan 2025



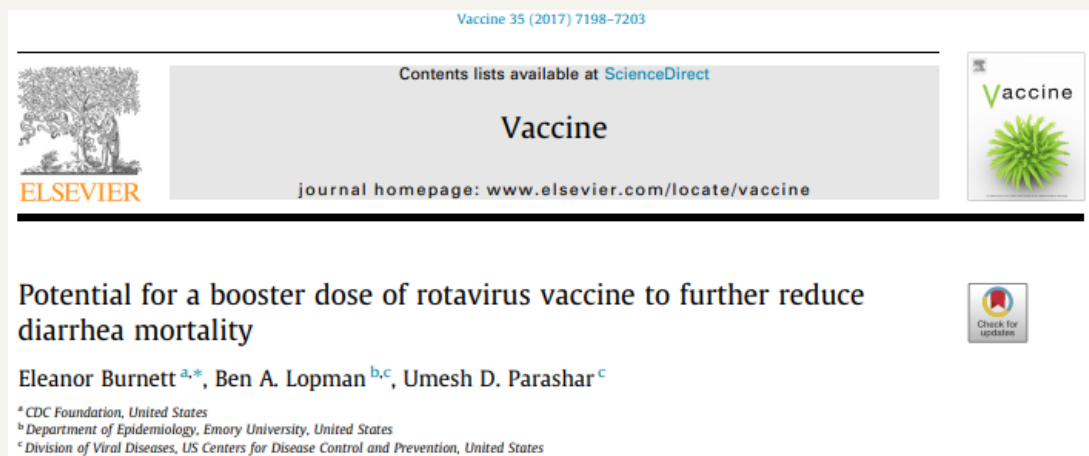
Greater disruptions and increased number of cases after the stockout in 2024 than after the switch from Rotarix to Rotavac in 2018.

Source: Wolfgang Rennart, Rostropovich Foundation

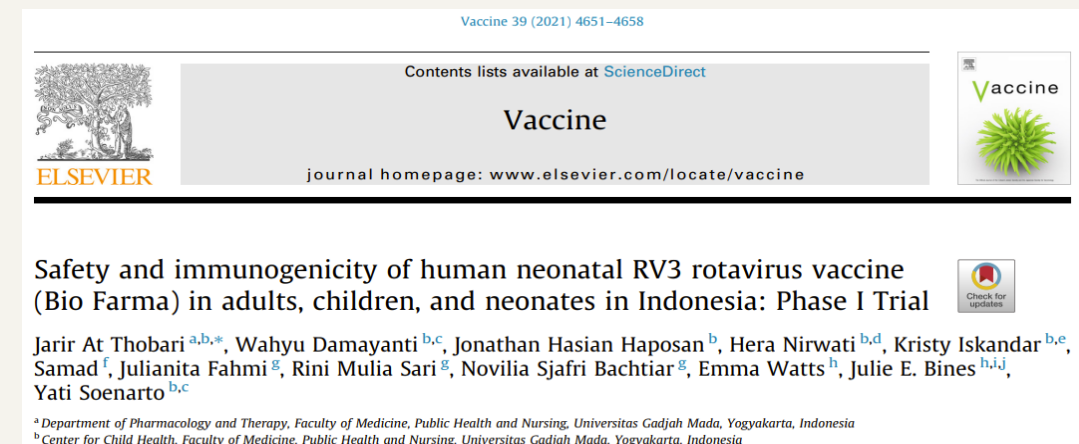
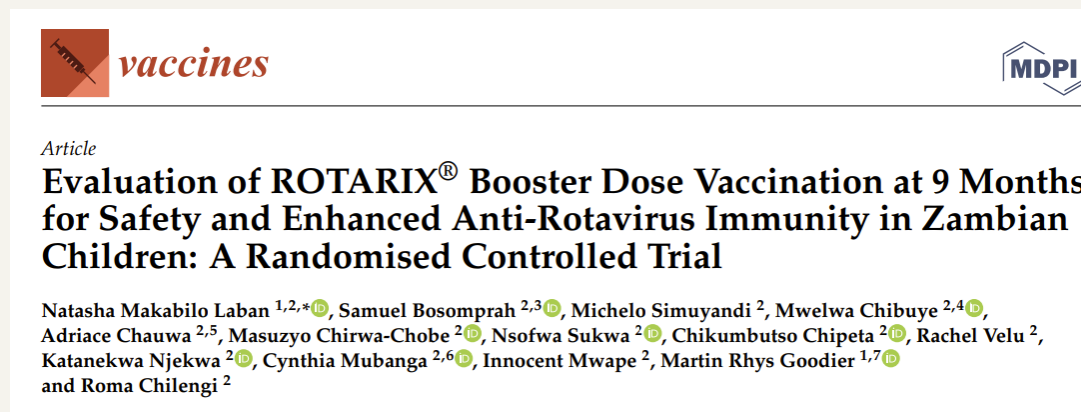
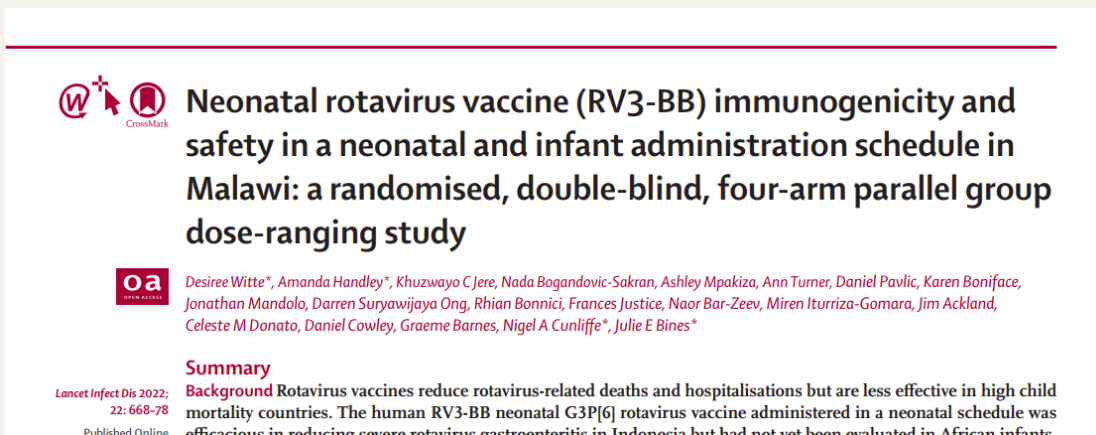
Photo: Niranjana Bhat, PATH. Bayt Jala, Bethlehem.

Can we improve impact with immunization schedule changes?

Booster dose to improve effectiveness in the 2nd year of life



Neonatal dose schedule to increase early vaccine priming



Will a rotavirus vaccine booster dose at 9 months support protection in the 2nd year of life?

Additional doses do have an impact

Vaccine 305 (2012) A44–A51

Contents lists available at SciVerse ScienceDirect

Vaccine

journal homepage: www.elsevier.com/locate/vaccine

ELSEVIER

Efficacy and immunogenicity of two or three dose rotavirus-vaccine regimen in South African children over two consecutive rotavirus-seasons: A randomized, double-blind, placebo-controlled trial

S.A. Madhi^{a,b,*}, M. Kirsten^c, C. Louw^d, P. Bos^e, S. Aspinall^f, A. Bouckennooghe^g, K.M. Neuzil^h, A.D. Steele^h

^a National Institute for Communicable Diseases: A Division of National Health Laboratory Services, Sandringham, South Africa
^b Department of Science and Technology/National Research Foundation: Vaccine Preventable Diseases, University of Witwatersrand, Johannesburg, South Africa
^c Department of Paediatric Surgery, University of Pretoria, Pretoria, South Africa
^d Madibeng Center for Research, Brits, South Africa
^e MRC Diarrhoeal Pathogens Research Unit, University of Limpopo, South Africa
^f Synexus Clinical Research South Africa/Rota Consortium, Pretoria, South Africa
^g Sanofi Pasteur, Singapore
^h Rotavirus Vaccine Program, PATH, Seattle, USA

The Journal of Infectious Diseases

MAJOR ARTICLE

A Randomized, Controlled Trial of the Impact of Alternative Dosing Schedules on the Immune Response to Human Rotavirus Vaccine in Rural Ghanaian Infants

George Armah,¹ Kristen D. C. Lewis,^{4,a} Margaret M. Cortese,⁵ Umesh D. Parashar,⁵ Akosua Ansah,² Lauren Gazley,^{4,a} John C. Victor,⁴ Monica M. McNeal,⁵ Fred Binka,³ and A. Duncan Steele^{4,a}

¹Noguchi Memorial Institute for Medical Research, University of Ghana, Legon; ²Navrongo Health Research Centre, and ³University of Health and Allied Health Services, Ho, Ghana; ⁴PATH, Seattle, Washington; ⁵Division of Viral Diseases, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention, Atlanta, Georgia; and ^aDepartment of Pediatrics, Division of Infectious Diseases, Cincinnati Children's Hospital Medical Center, Ohio

Evaluating the benefit of a booster dose at 9 months of age

The Journal of Infectious Diseases

MAJOR ARTICLE

Evaluation of a Booster Dose of Pentavalent Rotavirus Vaccine Coadministered With Measles, Yellow Fever, and Meningitis A Vaccines in 9-Month-Old Malian Infants

Fadima C. Haidara,¹ Milagritos D. Tapia,² Samba O. Sow,^{1,2} Moussa Doumbia,¹ Flanon Coulibaly,¹ Fatoumata Diallo,¹ Awa Traoré,¹ Mamoudou Kodio,¹ Corey L. Kelly,³ Meagan Fitzpatrick,² Karen Kotloff,² John C. Victor,² and Kathleen Neuzil²

¹Centre pour le Développement des Vaccins-Mali, Bamako; ²Center for Vaccine Development, University of Maryland School of Medicine, Baltimore; and ³PATH, Seattle, Washington

The Journal of Infectious Diseases

MAJOR ARTICLE

Noninterference of Rotavirus Vaccine With Measles-Rubella Vaccine at 9 Months of Age and Improvements in Antirotavirus Immunity: A Randomized Trial

K. Zaman,¹ Jessica A. Fleming,² John C. Victor,² Mohammad Yunus,¹ Tajul Islam A. Bari,³ Tasnim Azim,¹ Mustafizur Rahman,¹ Syed Mohammad Niaz Mowla,¹ William J. Bellini,⁴ Monica McNeal,⁵ Joseph P. Icenogle,⁴ Ben Lopman,⁴ Umesh Parashar,⁴ Margaret M. Cortese,⁴ A. Duncan Steele,^{2,a} and Kathleen M. Neuzil^{2,a}

¹International Centre for Diarrhoeal Disease Research, Dhaka, Bangladesh; ²PATH, Seattle, Washington; ³Office of the Directorate General of Health Services, Dhaka, Bangladesh; ⁴Centers for Disease Control and Prevention, Atlanta, Georgia; and ⁵Cincinnati Children's Hospital Medical Center, Ohio

Next generation rotavirus vaccines

Development of rotavirus vaccines with higher efficacy in LMIC populations

Can we improve titres of oral vaccines

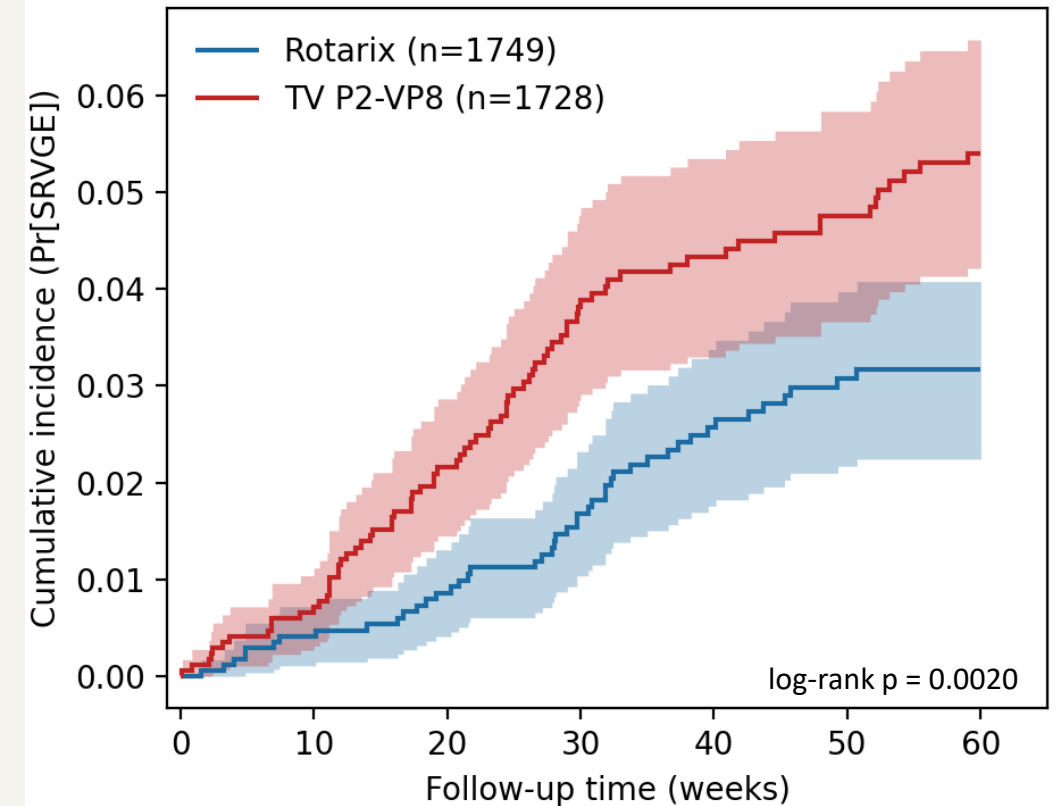
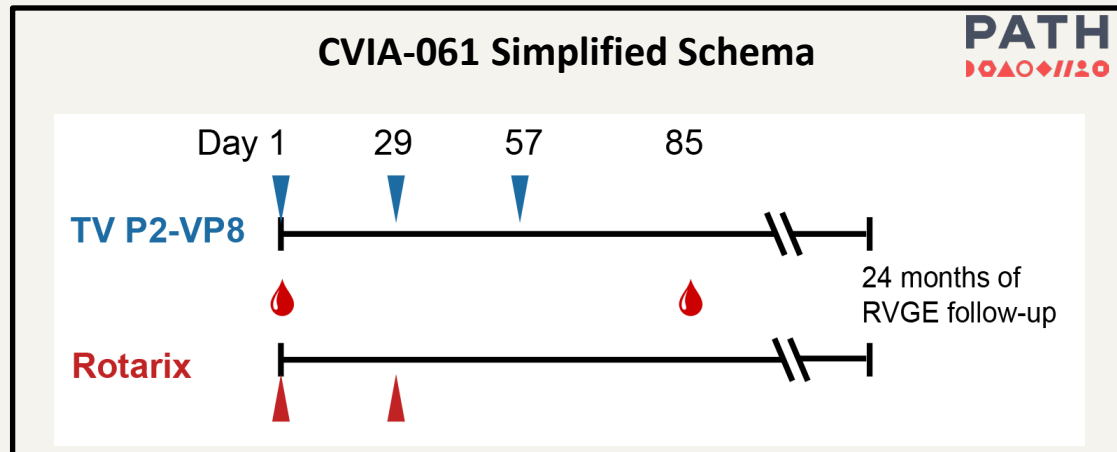


Injectable vaccine



Non-replicating Rotavirus Vaccines (NRRV)

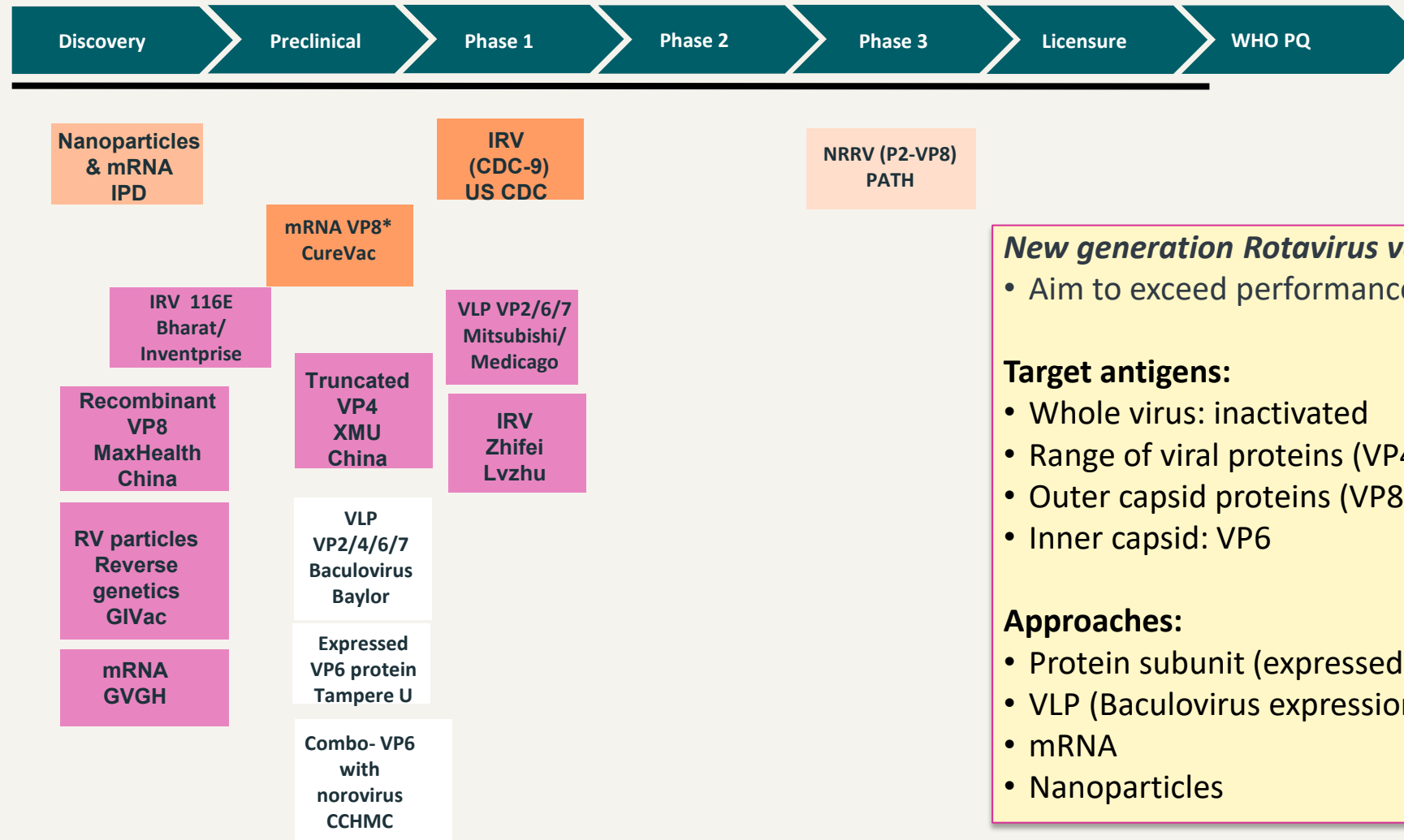
- CVIA-061 was a phase 3 double-blind, randomized comparison of TV P2-VP2 vs. Rotarix
- Enrolled 3,730 infants (6-8 wks old) in Malawi, Zambia and Ghana
- TV P2-VP8 was safe and well-tolerated
- Study halted for efficacy futility at interim analysis Aug 2022
- Rotarix had relative efficacy of 44% (18 – 62%, 95% CI) vs. TV P2-VP8 for prevention of severe rotavirus gastroenteritis (SRVGE)



Tushar Tewari: "Safety, efficacy and immunogenicity of a parenteral trivalent rotavirus subunit vaccine candidate in Ghanaian, Zambian and Malawian infants" (10:55, Oct 1st)

What is next in terms of next generation rotavirus vaccines?

Next-generation non-replicating rotavirus vaccine pipeline



New generation Rotavirus vaccines

- Aim to exceed performance of oral vaccines

Target antigens:

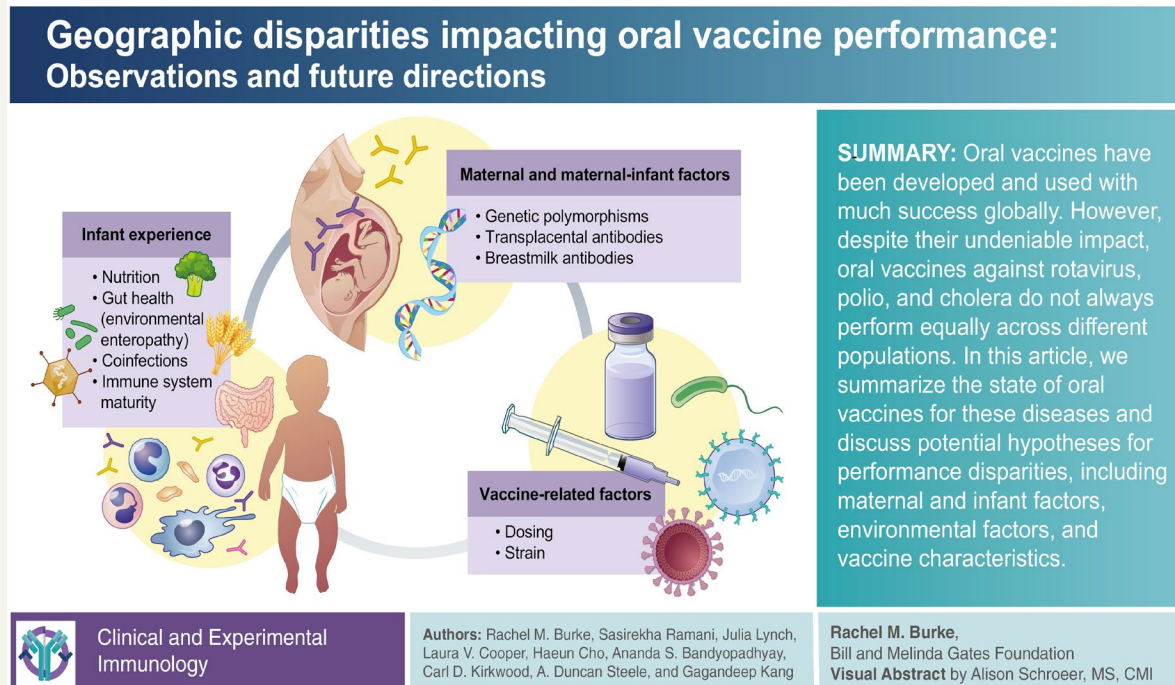
- Whole virus: inactivated
- Range of viral proteins (VP4, VP7, VP6, NSP4)
- Outer capsid proteins (VP8*, VP4, VP7)
- Inner capsid: VP6

Approaches:

- Protein subunit (expressed in E.coli)
- VLP (Baculovirus expression)
- mRNA
- Nanoparticles

Expert consultation on Gut Health to inform future directions

Understanding the differential efficacy of rotavirus vaccines



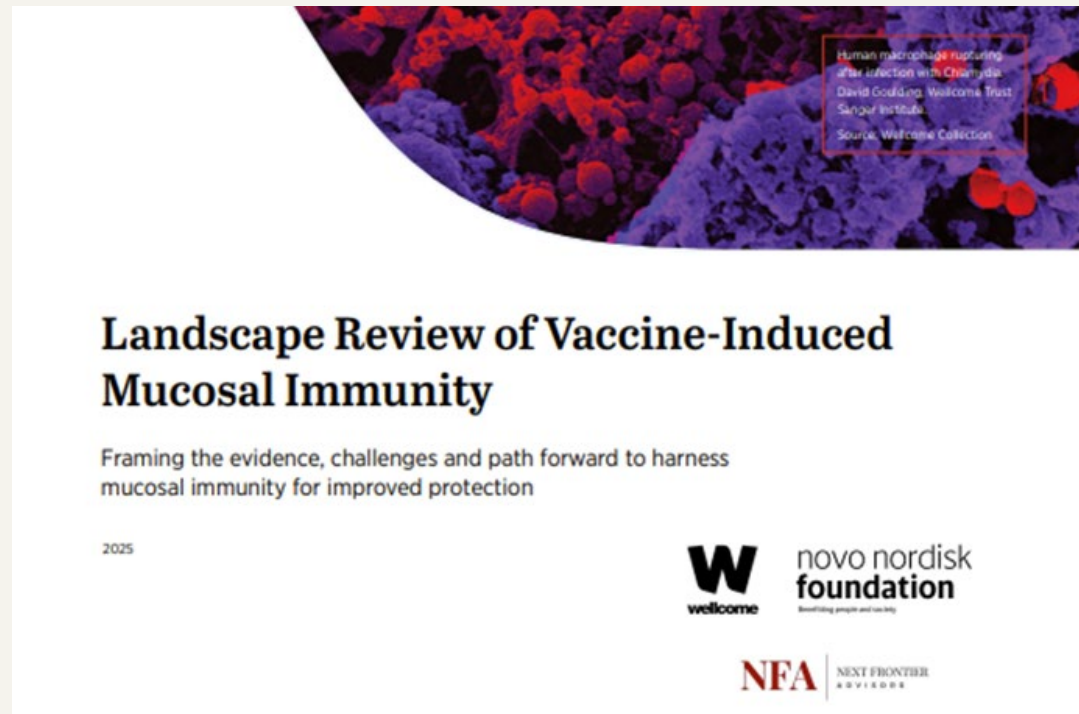
The role of Environmental Enteric Dysfunction (EED)

- Can improvements in our understanding of environmental enteric dysfunction help targeted interventions to improve gut health of young children in endemic countries.
- Will improving EED have a positive effect on oral rotavirus vaccine replication in young children at risk of EED.
- Can micronutrient supplementation improve oral vaccine performance
- Can we improve maternal gut health and anticipate that this might enhance the gut health of their infants.

Expert consultation on Mucosal Immunology to Rotavirus Vaccines

Mucosal Immunology to rotavirus and other oral vaccines, Liverpool. March 2025

Landscape Review of vaccine induced mucosal immunity,



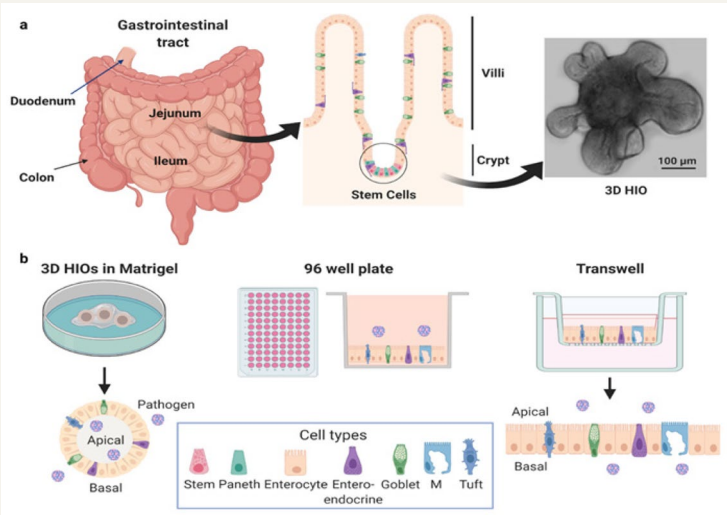
Mucosal immunology to rotavirus and other oral vaccines

- Identify a clear need to elucidate our understanding of mucosal immunity in the gut to oral enteropathogens
- Need for development of better tools and assay systems to interrogate these questions
- Can an adult rotavirus CHIM support exploration of mucosal immunological analyses and generate exploratory assays
- Search for correlates of protection needed
- Immunological mechanisms of a parenteral administration likely to be distinct from oral vaccine replication

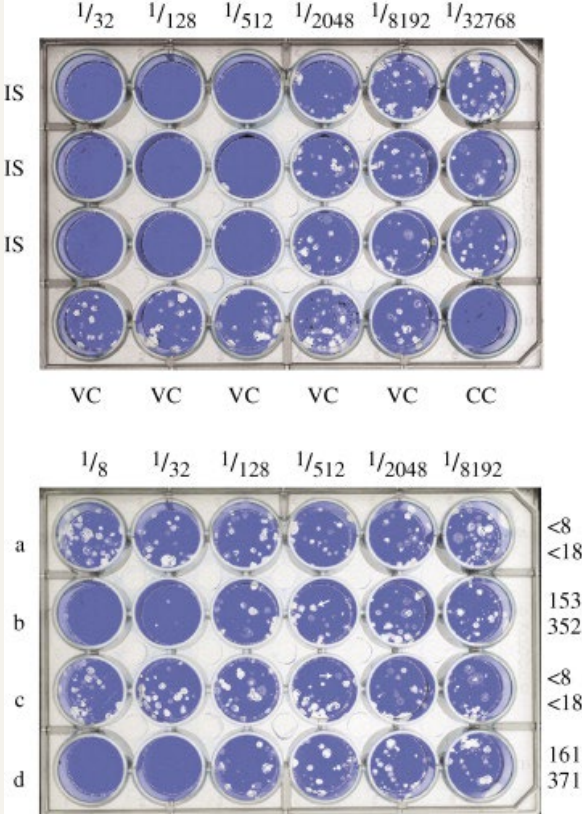
Expert consultation on Rotavirus Clinical Assays

Exploring the landscape of assays required for novel rotavirus vaccine candidates, September 2025, Cape Town

Human intestinal enteroids



Antibody assays including neutralization assays



Stool samples for laboratory analyses



Crawford S, Ramani S, Blutt S, Estes MK.

Oral rotavirus vaccines have been successfully implemented

- Rotavirus vaccine coverage rates need to be improved as they lag between routine EPI.
- Rotavirus vaccine supply needs to be consolidated to avoid 'vaccine stockouts' and product switches
- Exploring oral vaccine immunization schedules and dosing regimens.
- Next generation rotavirus vaccines – oral and injectable in development.
- New rotavirus assays required to better understand mucosal immunology
- Improving gut health to address oral vaccine performance

WHO-led Global Paediatric Diarrhoea Surveillance Network

Original research

BMJ Global Health

Aetiology and incidence of diarrhoea requiring hospitalisation in children under 5 years of age in 28 low-income and middle-income countries: findings from the Global Pediatric Diarrhea Surveillance network

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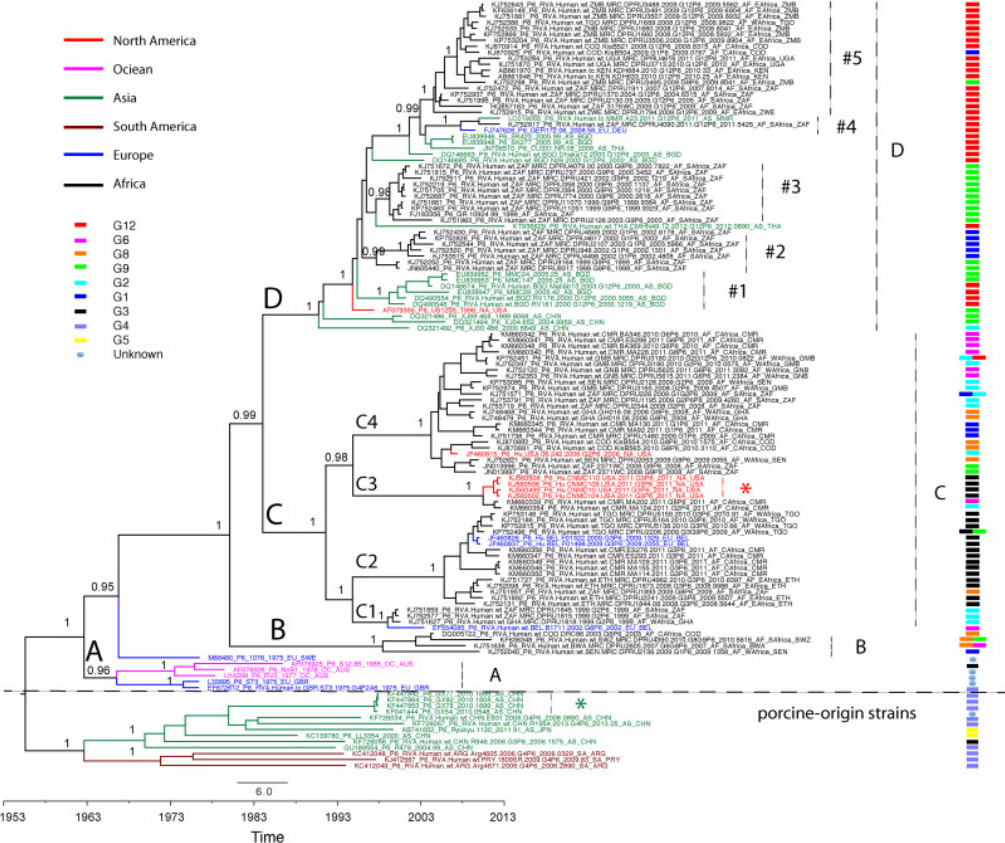


**World Health
Organization**

Global Rotavirus and Pediatric Diarrhea Surveillance,
Laboratory, Data and Disease Burden Meetings
28-30 November 2018
Southern Sun Cullinan Hotel, Cape Town, South Africa

Understanding the natural history and evolution of rotavirus strains

Whole genome sequencing and phylogenetic analysis



UFS NGS Research Unit



Nyaga MM, Tan Y, Seheri ML, Halpin RA, Akopov A, Stucker KM, Fedorova NB, Shrivastava S, Duncan Steele A, Mwenda JM, Pickett BE, Das SR, Jeffrey Mphahlele M. Whole-genome sequencing and analyses identify high genetic heterogeneity, diversity and endemicity of rotavirus genotype P[6] strains circulating in Africa. *Infect Genet Evol.* 2018 Sep;63:79-88. doi: 10.1016/j.meegid.2018.05.013. Epub 2018 May 18. PMID: 29782933; PMCID: PMC6364979

Demystifying the causes of child deaths

By 2000, 10 million children were still dying every year before their fifth birthday—mostly from preventable diseases.

Fundamental to the challenge was a lack of mortality data to understand how and why children were dying.

To drive down preventable deaths, the foundation:

- Invested in groundbreaking studies to more precisely **identifying the major drivers of child mortality**.
- Supported the creation of the **Institute for Health Metrics and Evaluation (IHME)** in Washington State.
- Supported the launch of the **Child Health and Mortality Prevention Surveillance Network (CHAMPS)**.



Q&A

Gates Foundation