Updated WHO recommendations for COVID-19 vaccines

Thursday, 26 March 2026

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PAHO Pan American Health Organization World Health Organization Americas Region

SARInet plus Severe Acute Respiratory Infections Network

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SARINET PLUS REVELAC-i REGIONAL MEETING PANAMA - MARCH 2026

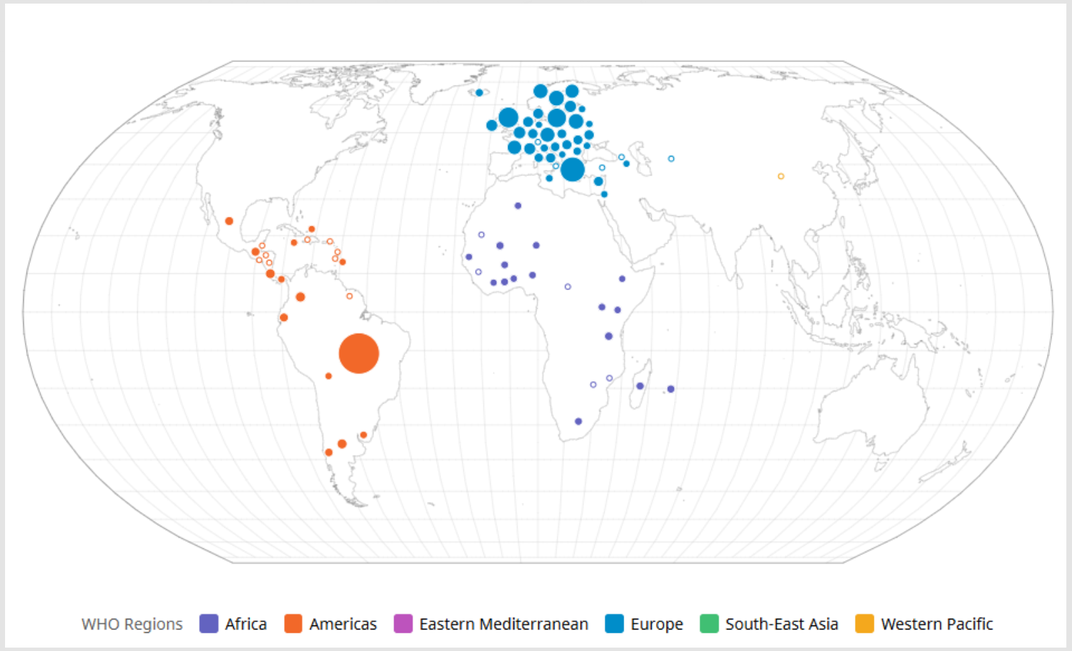
Outline

- Overview of COVID-19 epidemiology and SARS-CoV-2
- COVID-19 vaccine landscape
- Summary of:
  - COVID-19 vaccine safety
  - COVID-19 vaccine effectiveness
  - Cost-effectiveness of COVID-19 vaccination
- Updated WHO recommendations on COVID-19 vaccination

Since 2020, COVID-19 has resulted in at least:

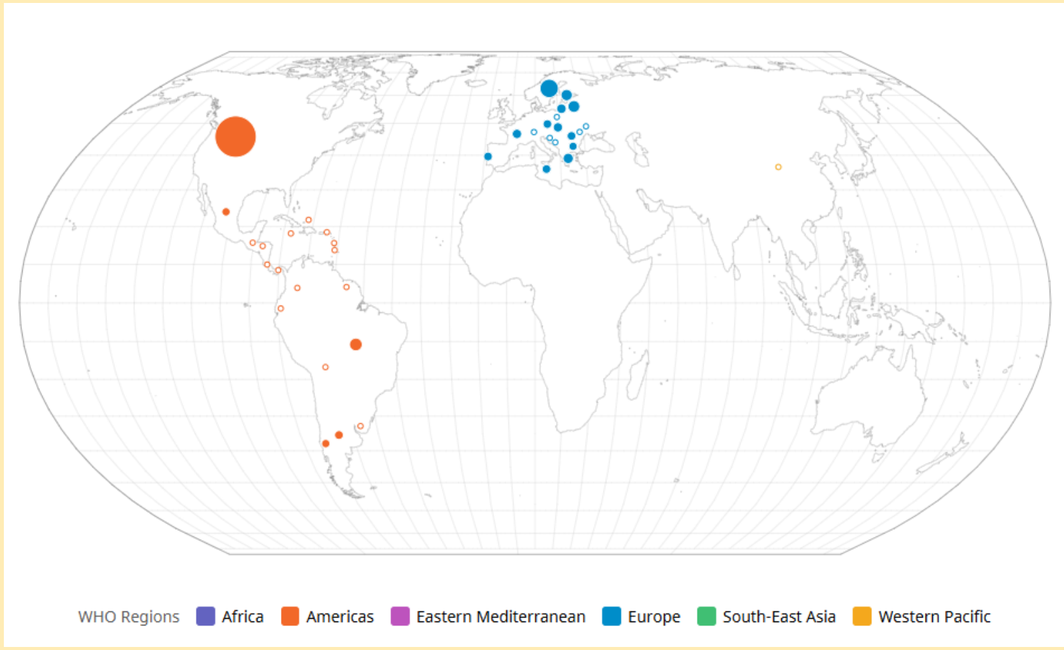
~800 million cases worldwide (~194 million in the Americas) and;
~7 million deaths worldwide (~3 million in the Americas).

Last 28 days: 42,856 cases worldwide (20,813 in the Americas)



Note: Most recent data submission date: 8th March 2026. Number of countries reported: 85 (worldwide).

Last 28 days: 1,158 deaths worldwide (990 in the Americas)

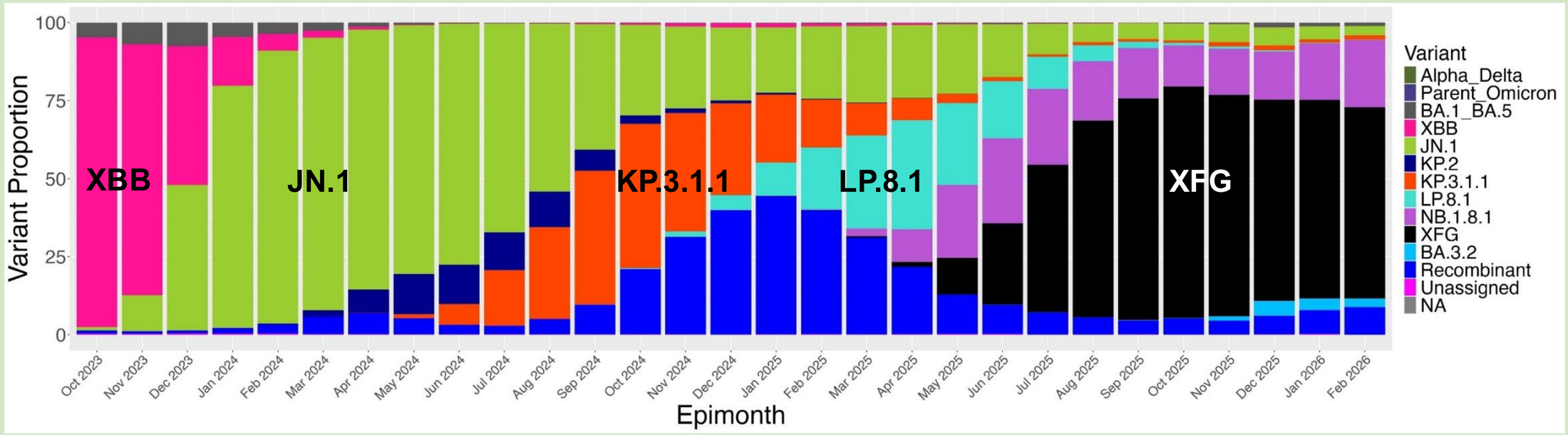


Note: Most recent data submission date: 8th March 2026. Number of countries reported: 38 (worldwide).

Source: WHO COVID-19 dashboard https://data.who.int/dashboards/covid19/

Since late 2021, Omicron has been the predominant circulating variant

Among Omicron subvariants, XFG is currently predominant



*PHEIC: Public Health Emergency of International Concern in May 2023.
Source: WHO World Health Emergencies programme.

Severe COVID-19 burden has declined largely due to widespread population immunity from vaccination and prior infection

But hospitalizations and deaths persist in high-risk groups

SARS-CoV-2 circulation: lower in 2025 compared to previous years and other respiratory viruses during the 2024 & 2025 seasons.

COVID-19 hospitalizations:

- **Increase with age** (highest in **older adults and with comorbidities**); some countries also see higher rates in younger adults. **Immunocompromised** remain disproportionally affected by COVID-19.
- **Infant** hospitalization rates remain among the highest (but **below older adults**); burden is lower than RSV, with unclear comparison to seasonal influenza in young children.
- In the Omicron era, absolute risk of severe disease and adverse **pregnancy** outcomes is lower than with earlier variants. However, COVID-19 during pregnancy still increases risks of maternal complications (e.g., ICU admission) and adverse outcomes (e.g., preterm birth) compared to uninfected pregnancies.

COVID-19 deaths:

- 2024-2025: proportion of deaths among COVID-19 hospitalizations **increases with age and comorbidities** and is **not lower than seasonal influenza.**

Disease burden across age and risk groups **varies by country context**; current surveillance and literature are insufficient for a comprehensive global assessment.

WHO COVID-19 dashboard. Available from: https://data.who.int/dashboards/covid19/ WHO Global Risk Assessment- Version 9 [Internet]. 2026 Feb 3. Available from: https://www.who.int/publications/m/item/covid-19-global-risk-assessment--version-9 Reedy JM, Smith ER, Department of Global Health, Milken Institute School of Public Health, The George Washington University. A review of COVID-19-related risk in pregnancy in the Omicron era (Unpublished). Washington, D.C.; 2026.

Currently available COVID-19 vaccines: protein subunit & mRNA

Inactivated and viral-vector platforms are no longer manufactured

Company	Product name	Strain (*In bold currently available*)	Recommendation
Biological E. Limited	**Corbevax** (protein subunit)	• **Ancestral*** • *Omicron XBB (update expected)* • *Omicron JN.1 (update expected)*	**WHO EUL (transitioning PQ)**
novavax	**Covovax** (protein subunit)	• NVX-CoV2373 • Omicron XBB1.5 • *Omicron JN.1 (expected update)*	**WHO PQ**
SERUM INSTITUTE OF INDIA PVT. LTD.	**Nuvaxovid** (protein subunit)	• NVX-CoV2373/Ancestral • Omicron XBB1.5 • **Omicron JN.1**	**WHO PQ**
HIPRA	**BIMERVAX** (protein subunit)	• Omicron XBB • **Omicron LP8.1**	**WHO PQ**
BIONTECH Pfizer	**Comirnaty** (mRNA)	• Omicron XBB • Omicron JN.1 • **Omicron LP8.1***	**WHO PQ**
CSL Daiichi-Sankyo	**Kostaive** (self-amplifying mRNA)	• **Omicron JN.1**	Japan, EMA
moderna	**Spikevax** (mRNA)	• Omicron XBB • Omicron JN.1 • Omicron KP.2 • **Omicron LP8.1***	Multiple (EMA, USFDA, MHRA, SwissMedic, ….)

Note: As of March 2026. Source: WHO. https://extranet.who.int/prequal/vaccines/coronavirus-disease-covid-19

* Available as part of the PAHO Revolving Fund.

World Health Organization | IVB

Summary of mRNA COVID-19 vaccines safety

- mRNA COVID-19 vaccines have a favorable safety record across all population groups studied.
- Current formulations (Omicron variant-adapted vaccines) show no safety signals.

Myocarditis / myopericarditis

- No signal ages 5–11
- Sex-specific signal in adolescent males after second dose
- Attenuates with boosters; ≥6-month intervals reduce risk
- XBB.1.5 and JN.1: No signal
- Milder course than post-COVID or conventional myocarditis

Stroke, Cerebral Venous Sinus Thrombosis (CVST) & Immune Thrombocytopenia (ITP)

- Most studies: No increased risk or inverse associations
- One Italian study: mRNA-1273 signal only; not replicated
- XBB.1.5: No signal

Guillain-Barré

- No increased risk in most studies
- One Korean study (historical controls): BNT162b2 signal; not replicated
- XBB.1.5: No signal

Source: Scott J, Abers MS, Marwah HK, McCann NC, Meyerowitz EA, Richterman A, et al. Updated Evidence for Covid-19, RSV, and Influenza Vaccines for 2025-2026. N Engl J Med. 2025 Oct 29. doi: https://www.nejm.org/doi/full/10.1056/NEJMsa2514268

Summary of protein subunit COVID-19 vaccines safety

- Evidence for protein subunit COVID-19 vaccines is more limited than for mRNA vaccines.
- Protein subunit COVID-19 vaccines are generally well tolerated. Continued close monitoring—especially of newer variant-adapted versions—is important.

- **The reactogenicity rates were comparable to mRNA vaccines.**
- **Severe adverse events (SAEs)** were rare.
- There were very limited data on **Adverse Events of Special Interest (AESIs).**
  - For Nuvaxovid (NVX-CoV) there were validated safety signals of a risk of myocarditis and pericarditis.
  - The number of exposures to Bimervax (PHH-1V) were not adequate to assess rare AESIs.

Source: MMGH Consulting. Systematic review on the safety of COVID-19 protein subunit vaccines (1 September 2022-31 October 2025) (Unpublished). 2026.

Safety of COVID-19 vaccines during pregnancy

- Evidence shows no increased risk of adverse maternal outcomes, pregnancy/perinatal outcomes, and infant outcomes of COVID-19 vaccination during pregnancy (most of the evidence is from mRNA vaccines)

Maternal outcomes

- Maternal ICU admission
- Pregnancy-related conditions

Pregnancy/perinatal outcomes

- Miscarriage
- Stillbirth
- Preterm birth
- Small-for-gestational age

Infant outcomes

- Congenital anomalies
- Neonatal ICU admission
- Infant death

Sources: DeSilva M, Haapala J, Vazquez-Benitez G, et al. Evaluation of acute adverse events after Covid-19 vaccination during pregnancy. N Engl J Med. 2022;387(2):187–189. doi:10.1056/NEJMc2205276 ; Berrueta M, Ciapponi A, Ballivian J, Castellana N, Rodriguez R, Instituto de Efectividad Clínica y Sanitaria (IECS). Living systematic review COVID-19 vaccines. Vaccine safety during pregnancy (Unpublished). Buenos Aires; 2026. World Health Organization (2026); Report of the Forty-ninth meeting (hybrid) of the WHO Global Advisory Committee on Vaccine Safety 27–28 November 2025. *Weekly Epidemiological Record*, *101*(9-10), 37 - 42. World Health Organization. https://iris.who.int/handle/10665/384981, Suseeladevi AK, et al. COVID-19 vaccination and birth outcomes of pregnancies conceived within 12 months after vaccination in England: a population-based cohort study. The Lancet Regional Health – Europe. 2024;43:100944. Available from: https://www.thelancet.com/journals/lanepe/article/PIIS2666-7762(24)00192-3/fulltext

COVID-19 Vaccine Effectiveness (VE) in the Omicron Era, with a focus on 2024–2025

COVID-19 vaccines continue to provide meaningful protection against severe outcomes. Routine periodic doses help sustain protection, given the relatively rapid waning of immunity after vaccination and infection.

Older adults (N=20)

- Death: Moderate to high VE
- Severe disease: Moderate VE
- Durability: VE for death & severe disease stable through 5m; severe disease declined to near 0 by 6-9m (no long-term follow up for deaths)
- Similar between XBB, JN.1 and KP.2 vaccines

Adults with comorbidities (N=6)

- Similar to older adults but few studies

Adults with immunocompromising conditions (N=3)

- Similar to immunocompetent

Healthy adults (N=5)

- Death: 84% VE (N=1 study in veterans 18-64 years from US)
- Severe disease: >75% VE out to 5 months with notable declines by 6-8 months (N=1 study)

Children (N=3)

- Severe disease: moderate overall VE (N=1 study)

Health workers (N=1)

- Infection: 23% VE (N=1 study). No VE studies evaluating transmission
- Two (excluded) studies evaluated absenteeism (in the UK and Greece)
  - C19 caused more morbidity & absenteeism than influenza or RSV
  - C19 vaccination reduced absenteeism & length of absenteeism (by 1 day) among C19 symptomatic HCWs (N=1 study)
  - Among all HCWs, days absent for any reason per episode was similar or only 0.6 days less among C19 vaccinated (N=2 studies)

Pregnant individuals (N=5)

- Moderate–high VE against severe and symptomatic disease

Infants <6 months (N=7)

- Booster dose (in pregnancy): High VE against severe disease and infection
- No clear association between VE and timing of vaccination during pregnancy
- Very few studies of severe disease, but VE against symptomatic disease and infection is reassuring

Limitations for pregnant & infant data*:

- Most studies were early Omicron (only 1 study with ~50% JN.1 circulation)
- Only 1 assessed XBB.1.5 vaccine, none of JN.1/KP.2 or LP.8.1 vaccines

Note: *Includes studies published between 2022 & 2025 (due to lack of published studies in 2024-25). Source: Hidgon M, Deloria Knoll M, Walter K, Baidya A, International Vaccine Access Center (IVAC) at Johns Hopkins Bloomberg School of Public Health. Systematic review on COVID-19 vaccine effectiveness (Unpublished). Baltimore; 2026.

Summary of economic evidence on COVID-19 vaccination in the endemic period (2023-2025)

Cost-effectiveness of COVID-19 vaccination is on a continuum shaped by age and underlying health risk.

Age gradient:

- Cost-effectiveness improves with increasing age

Risk stratification:

- Underlying medical conditions are an important factor in the economic value of vaccination.
- Age remains a key determinant even within high-risk groups

Temporal trends:

- The economic value of vaccination declines as disease burden falls in the endemic period
- Conversely, increases in disease burden would be expected to improve economic value

Limited geographic variability

- Evidence is concentrated in high-income countries, limiting generalizability

Bolivia, 2025. Foto: Víctor Ugarte/PAHO.

Source: Tuite AR, National Advisory Committee on Immunization Secretariat. Public Health Agency of Canada. Cost-Effectiveness of COVID-19 Vaccination in the Endemic Period: Scoping Review Summary (Unpublished). 2026.

WHO COVID-19 vaccine recommendations following SAGE deliberations (March 2026) (1/2)

Countries **should consider COVID-19 vaccination** based on local COVID-19 epidemiology, population characteristics, access to COVID-19 vaccines, cost-effectiveness, acceptability, and programmatic feasibility.

Countries **should determine** the **optimal timing for offering COVID-19 vaccination based on local COVID-19 epidemiology and the feasibility of vaccine delivery**.

While no consistent seasonal pattern has been established for COVID-19, **co-administration of the COVID-19 vaccine with seasonal influenza vaccine (where applicable) or with other vaccines targeting the same population groups may improve uptake**. This approach can enhance convenience and therefore access, reduce the number of vaccination visits required for an individual, and reduce programmatic costs.

WHO recommends that the **minimum interval between COVID-19 vaccine doses is 6 months**. For individuals who have had **test-confirmed SARS-CoV-2 infection, a minimum interval of 6 months from infection** can be considered if the person is due for a recommended COVID-19 vaccination.

Source: Highlights from the meeting of the Strategic Advisory Group of Experts (SAGE) on Immunization, March 2026: https://cdn.who.int/media/docs/default-source/_sage-2026/final-highlights_18-march-2026.pdf?sfvrsn=c5461229_1 (The full report will be published in the Weekly Epidemiological Record on 29 May 2026, and only the wording of the full report should be considered final)

WHO COVID-19 vaccine recommendations following SAGE deliberations (March 2026) (2/2)

WHO Position Paper on COVID-19 Vaccines: expected publication July 2026

WHO recommendation		Targeted groups for routine COVID-19 vaccination	Number of doses per year
Countries should consider routine COVID-19 vaccination of groups at highest risk of severe COVID-19	Whether previously unvaccinated or vaccinated (last dose >6 months ago)	• Oldest adults[1] • Older adults[2] with significant comorbidities[3] or severe obesity[4] • Residents in care homes for older adults and long-term care facilities • Moderately or severely immunocompromised individuals aged ≥6 months[5]	At least one, preferably two (about 6 months apart)[11]
Countries may consider routine COVID-19 vaccination of additional groups based on local context, cost-effectiveness, and programmatic feasibility	Whether previously unvaccinated or vaccinated (last dose >6 months ago)	• Older adults[2] without significant comorbidities • Adults (not included in the older adult category)[6], adolescents[7], and children[8] with significant comorbidities or severe obesity • Health workers and other care providers who have direct contact with individuals at high risk of severe COVID-19[9]	At least one
		• Pregnant adolescents and adults	One each pregnancy, at any stage, ideally during the second trimester[12]
	Previously unvaccinated	• Healthy children aged 6–23 months[10] only in countries with documented significant burden in this age group	Revaccination not routinely recommended

Notes: **1** Age threshold to be determined by countries; often at 75 or 80 years. **2** Age threshold to be determined by countries; often at 60 years of age. **3** Significant comorbidities include chronic cardiovascular disease, diabetes mellitus, chronic respiratory disease, chronic kidney disease, chronic liver disease, and neurological conditions. **4** Body mass index cut-off to be determined by countries. **5** Moderately or severely immunocompromised individuals, include those with active cancer, transplant recipients, and those being treated with immunosuppressives. Also included are people living with HIV with a current CD4 cell count of <350 cells µl, or with evidence of an opportunistic infection, or not on HIV treatment, or with a detectable viral load. **6** Age thresholds to be determined by countries; often those aged 18-59 years. **7** Age thresholds to be determined by countries; often those aged 13-17 years. **8** Age thresholds to be determined by countries; often those aged 6 months-12 years. **9** Can include staff of public and private health and social care centers and establishments, and co-habitants or caregivers of individuals who belong to groups at highest risk of severe COVID-19 disease. **10** Primary COVID-19 vaccination of children aged 6-23 months should consist of the number of doses recommended by national authorities. Revaccination is not routinely recommended for this age group. **11** The number of doses per year (one or two) should also consider cost-effectiveness and programmatic feasibility. **12** The aim is to optimize protection against severe COVID-19 for the pregnant person, prevent adverse pregnancy outcomes, and protect the infant during the first months of life.

Acknowledgements

SAGE COVID-19 vaccines Working Group

- SAGE Members
  - Sonali Kochhar, USA (Chair of the Working Group)
  - Saad Omer; USA
  - Cristiana Toscano, Brazil
- Experts
  - Celia Alpuche; Mexico
  - David Durrheim; Australia
  - Ruth Faden, USA
  - Eusebio Macete, Mozambique
  - Mary Ramsay, UK
  - Peter Smith, UK
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- Ex Officio Members
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  - Helen Rees, Chair African Regional Immunization Technical Advisory Group)
  - Ole Wichmann, Chair European Technical Advisory Group of Experts (ETAGE)
  - Rakesh Aggarwal, Chair of the WHO South-East Asia Regional Immunization Technical Advisory Group (SEAR-ITAG)
  - Ezzeddine Mohsni, Chair of the Eastern Mediterranean Regional Immunization Technical Advisory Group

Academic and public health institutions

- **George-Washington University,** US: Emily Smith, Erin Oakley, Jamie Minchin Reedy
- **Instituto de Efectividad Clínica y Sanitaria (IECS)**, Argentina: Agustín Ciapponi; Mabel Berrueta.
- **International Vaccine Access Center (IVAC), Johns Hopkins Bloomberg School of Public Health (JHSPH),** US: Maria Deloria Knoll; Melissa Higdon; Daniel Feikin; Karoline Walter; Anurima Baidya
- **MMGH,** Switzerland: Thomas Cherian
- **Public Health Agency of Canada (PHAC),** Canada: Ashleigh Tuite
- **Robert-Koch Institute (RKI),** Germany: Caroline Peine
- **Stanford University,** US: Jake Scott
- **UK Health Security Agency (UKHSA),** UK: Victoria Hall

WHO HQ

- Ayse Acma
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- Melanie Marti
- Eun Mi Kim
- Philipp Lambach
- Kirsty Le Doare
- Katherine O'Brien
- James Richard Otieno
- Elisabeth Pluut
- Jamie Rylance
- Georgios Stathopoulos
- Maria Van Kerkhove
- Victor Vega
- Sophie Von Dobschutz
- Annelies Wilder-Smith
- Madhava Ram Balakrishnan

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- Oleg Benes
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- Richard Duncan
- Akpaka Kalu
- Shafiqul Hossain
- Shahin Huseynow
- Osama Mere
- Emmanuel Njambe
- Francisco Nogareda
- Roberta Pastore
- Daniel Salas

Gavi, the Vaccine Alliance

- Marta Urrutxi

UNICEF

- Siri Bjornstad

PAHO Revolving Fund

- Jordi Balleste
- Murat Ozturk

For every generation, vaccines work.
Your decision makes a difference.
Get vaccinated.

[World Immunization Week 24- 30 April 2026]