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VIEW-hub Report: Global Vaccine Introduction and Implementation

www.VIEW-hub.org

Johns Hopkins Bloomberg School of Public Health
International Vaccine Access Center (IVAC)

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VACCINE INTRODUCTION DASHBOARD FOR ROUTINE IMMUNIZATIONS

This page provides contextual historic information about routine immunization vaccines tracked in VIEW-hub, globally and for Gavi-supported countries

Year of first vaccine introduction

Vaccine	High-income	Middle-income	Low-income	Gavi-Supported
Hib	1989 (Iceland)	1994 (2 countries)	1997 (Gambia)	2001 (2 countries)
PCV	2000 (US)	2008 (5 countries)	2009 (Rwanda)	2009 (2 countries)
Rotavirus	2006 (3 countries)	2006 (5 countries)	2012 (Rwanda)	2008 (Bolivia)
IPV	1955 (2 countries)	1959 (Hungary)	2014 (Nepal)	2014 (Nepal)
HPV	2006 (4 countries)	2009 (2 countries)	2011 (Rwanda)	2011 (Rwanda)
Typhoid			2021 (2 countries)	2019 (Pakistan)
Measles	1968 (Croatia)	1963 (Iran)	1993 (Syrian Arab Republic)	1981(Lesotho)

Total number of countries that have introduced each vaccine, by program type

Vaccine	Global Introductions (194 countries)			Total
	Universal	Special Risk Populations*	Subnational	
Hib	192	0	1	193
PCV	154	8	3	165
Rotavirus	113	3	6	122
IPV**	190	0	4	194
HPV	122	0	6	128
Typhoid	4	1	2	7
Measles	181	0	2	183

Vaccine	Gavi Introductions (54 countries)			Total
	Universal	Special Risk Populations*	Subnational	
Hib	54	0	0	54
PCV	46	0	0	46
Rotavirus	42	0	0	42
IPV**	54	0	0	54
HPV	22	0	1	23
Typhoid	3	0	1	4
Measles	45	0	1	46

*This program type targets special populations at high risk and will hereforth be referred to as "risk programs". Note: The definition of high-risk populations may vary by country.

**IPV introduction defined as the inclusion of at least one dose of IPV into the child immunization schedule.

EXECUTIVE SUMMARY

The VIEW-hub Global Vaccine Introduction and Implementation report displays data and figures on the global introduction status of nine vaccines: Haemophilus influenzae type b (Hib) containing vaccine, pneumococcal conjugate vaccine (PCV), rotavirus vaccine, inactivated polio vaccine (IPV), typhoid conjugate vaccine (TCV), second dose of a measles-containing vaccine (MCV2), measles and rubella containing vaccines (MR), human papillomavirus vaccine (HPV) and COVID-19 vaccine. This report contains enhanced content and figures generated from data available from VIEW-hub (www.VIEW-hub.org), which is an interactive platform developed and maintained by IVAC. Support for antigens other than SARS-CoV-2 is provided by Gavi, The Vaccine Alliance, the Bill & Melinda Gates Foundation, the World Health Organization and the ROTA Council; support for COVID-19 vaccine is provided by the World Health Organization, the Coalition for Epidemic Preparedness Innovations and the Asian Development Bank.

The VIEW-hub report contains summaries for each vaccines, both globally and subset for the 54 Gavi countries. The summaries include the number of countries that have introduced each vaccine or plan to in the future, historical trends in the rate of global vaccine introduction, vaccine coverage and access, current product and dosing schedule. This report includes a special section on HPV in honor of Cervical Cancer Awareness Month.

BACKGROUND

Through the VIEW-hub interactive data visualization tool (www.VIEW-hub.org), users can instantly visualize data on vaccine introductions, product usage, dosing schedules, access, coverage, impact studies, and more for nine vaccines. The data on www.VIEW-hub.org are continuously updated as information is received to permit real-time reporting.

Custom queries and maps, exportable data and graphics, country-specific dashboards and a map gallery are just some of the interactive features users can access. Tracking vaccine introduction progress and the collation of a wide spectrum of vaccine use data all in one location facilitates users in strategizing ways to accelerate and optimize vaccine implementation.

In 2016, VIEW-hub replaced IVAC's previous Vaccine Information Management System (VIMS) developed in 2008. VIEW-hub expanded the number of vaccines, scope and functionality to serve the evolving needs of global vaccine stakeholders and decision makers. Quarterly VIEW-hub Reports replaced the quarterly VIMS Global Vaccine Introduction Reports after the launch of VIEW-hub.

METHODS

This report has been prepared using data and maps generated in VIEW-hub, a data visualization tool developed and maintained by the International Vaccine Access Center at the Johns Hopkins Bloomberg School of Public Health for use by IVAC and its affiliated partners and projects. Information in VIEW-hub was gathered from internationally recognized sources, such as the World Health Organization (WHO), UNICEF, Gavi, vaccine manufacturers, ministries of health, and news media.

Current Introduction Statuses for Hib, Pneumococcal Conjugate, Rotavirus, Inactivated Polio, Typhoid Conjugate, Second dose Measles containing, Measles-Rubella, Human Papillomavirus Vaccines and COVID-19 vaccines

- Data on historical years of vaccine introduction is gathered from the WHO. Information on current introduction status is gathered from a variety of sources, including WHO, UNICEF, Gavi, vaccine manufacturers, ministries of health, and news media. Forecasted introduction dates are from WHO and Gavi's Strategic Demand Forecast v12. For more information on sources, see the full data dictionary within VIEW-hub (www.VIEW-hub.org) or email Marley Jurgensmeyer at mjurgen4@jhu.edu or Anurima Baidya at abaidya1@jh.edu.
- Data on COVID-19 vaccine introduction, vaccine product(current/planned), vaccinated group, and vaccine characteristics are updated on View-Hub fortnightly. In addition, country-specific policy changes in vaccination programs regarding expansion of vaccinated groups and authorization of new vaccine products, are tracked and updated weekly. The information is obtained from web sources like [WHO COVID-19 dashboard](#), [Our World in Data](#) and UNICEF [COVID-19 market dashboard](#). Additionally, official Ministry of Health communications on implementing COVID-19 immunization programs are reviewed.

Coverage Estimates

- Vaccine coverage is calculated as the number of surviving infants globally living in countries and subnational regions within countries that have introduced the vaccine who were vaccinated (i.e., number of surviving infants multiplied by percent vaccinated). In the absence of coverage data for the vaccine, DTP3 coverage is used as a proxy.

Access Estimates

- Vaccine access is calculated as the number of surviving infants globally living in countries or subnational regions within countries that have introduced the vaccine.

Vaccine Introduction by Income Level

- Countries were classified using 2022 World Bank income classifications (2020 GNI data).
- Forecasted introduction was determined through WHO reports, news media, and Gavi's Strategic Demand Forecast v12.

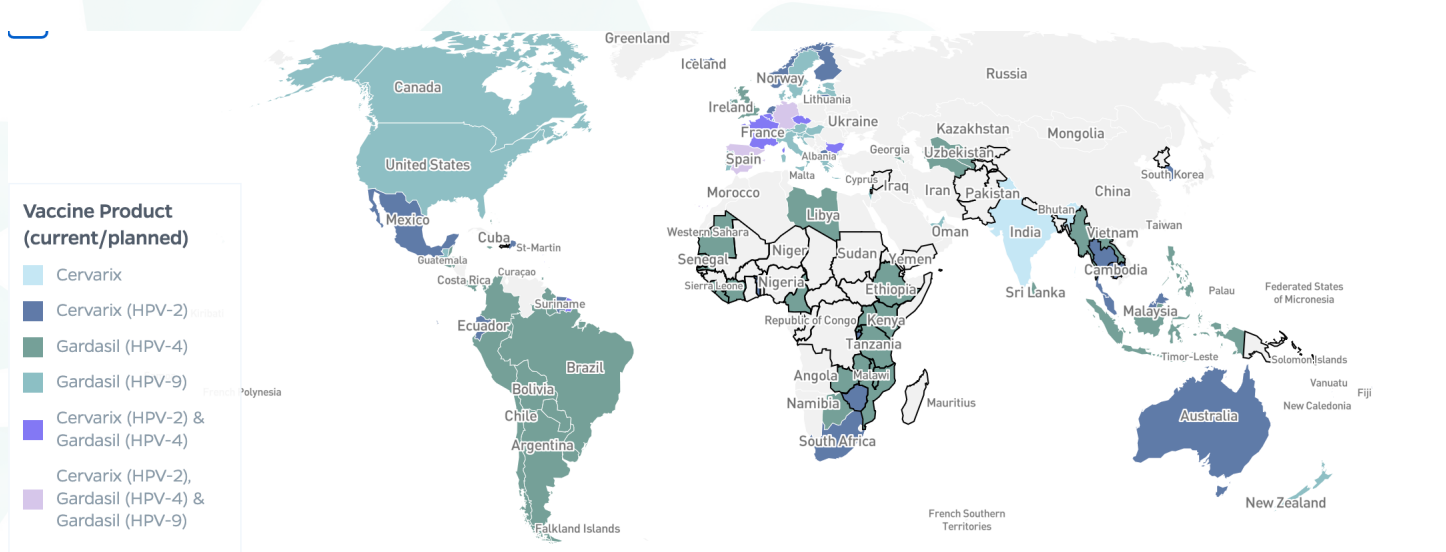
Projected introduction dates for Gavi countries are taken from the most recently available Gavi Strategic Demand Forecast and WHO sources. For non-Gavi countries, WHO and a variety of other sources are used. Information on a particular country's Gavi application status or projected introduction date may be sensitive and should not be used for public circulation without prior consent from VIEW-hub personnel.

CERVICAL CANCER AWARENESS MONTH

In 2020, approximately 342,000 women died from cervical cancer.

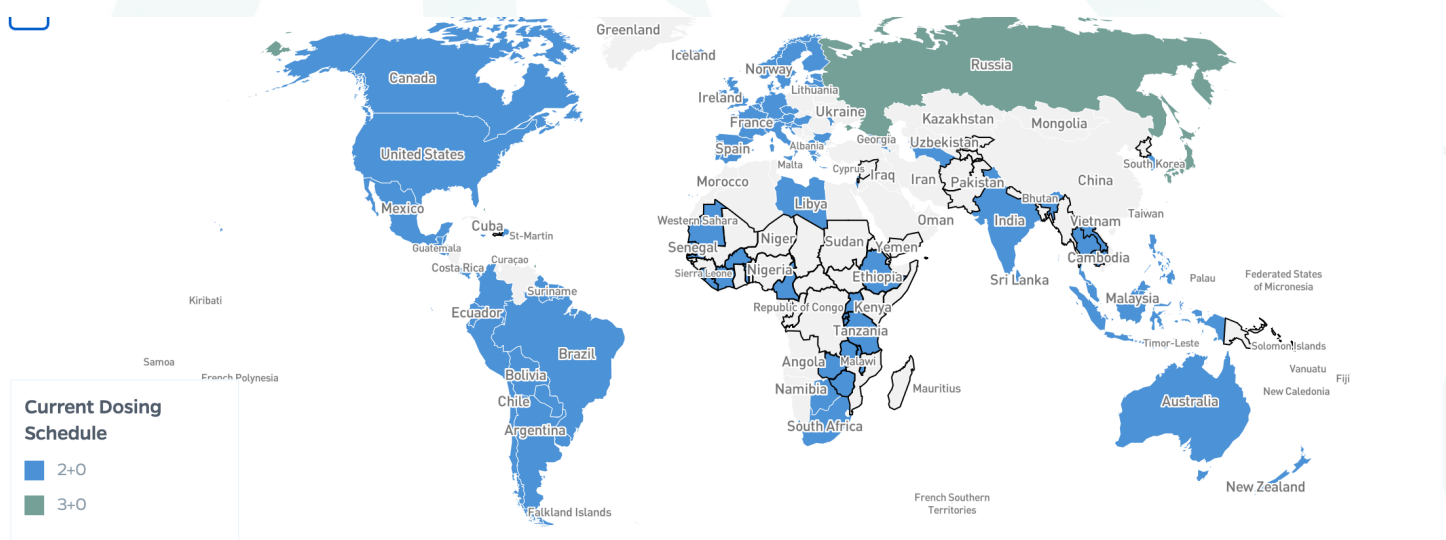
The primary cause of cervical cancer is persistent infection with human papillomavirus (HPV), which is transmitted through sexual contact. Universal access to vaccination is the key to avoiding most cases of HPV attributable cancer.

Currently, there are 4 different HPV vaccines that have received marketing authorisation in at least one country and have received WHO pre-qualification. These vaccines are proven to be highly efficacious against high-risk HPV types and may limit the transmission of the disease.



NEW AT VIEW-hub: More information is available on HPV vaccine products and their characteristics.

Currently, all countries use a 2- or 3-dose schedule without a booster

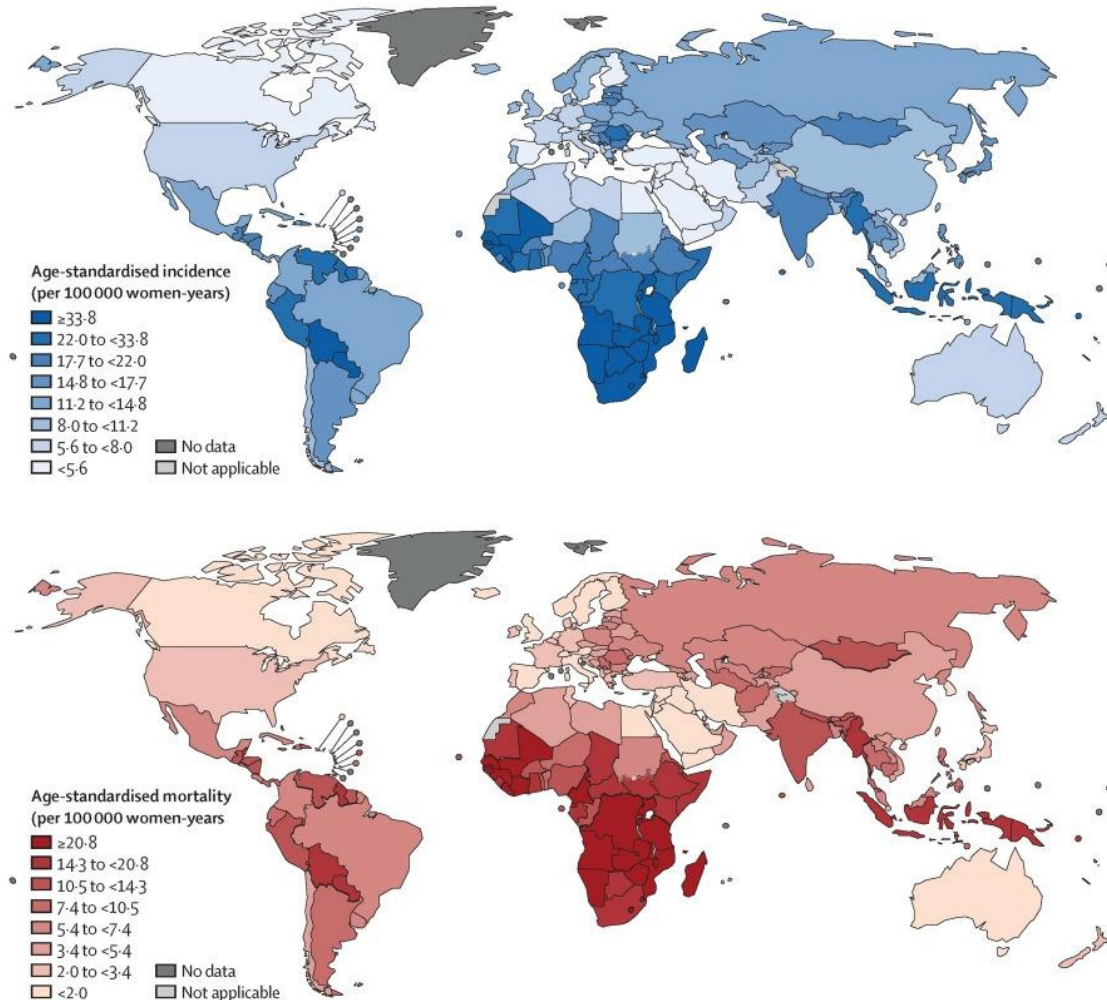


Emerging evidence shows that a single dose of HPV vaccine is highly effective in preventing persistent HPV infections and WHO now (as of Dec 2022) recommends a 1- or 2-dose schedule. VIEW-hub will track countries that implement a single dose vaccination schedule in the coming years.

CERVICAL CANCER AWARENESS MONTH

The unmet need for single dose of HPV vaccines

The burden of cervical cancer and mortality rates are disproportionately higher in low and middle income countries, and vaccine delivery is often impacted by disparities in access to high-quality health services, and other logistical challenges.



SINGH D, VIGNAT J, LORENZONI V, ET AL.. GLOBAL ESTIMATES OF INCIDENCE AND MORTALITY OF CERVICAL CANCER IN 2020: A BASELINE ANALYSIS OF THE WHO GLOBAL CERVICAL CANCER ELIMINATION INITIATIVE. THE LANCET GLOBAL HEALTH. 2023;11(2):E197-E206. DOI:10.1016/S2214-109X(22)00501-0.

A single dose of HPV vaccine may help current national programs by simplifying delivery and lowering program costs.

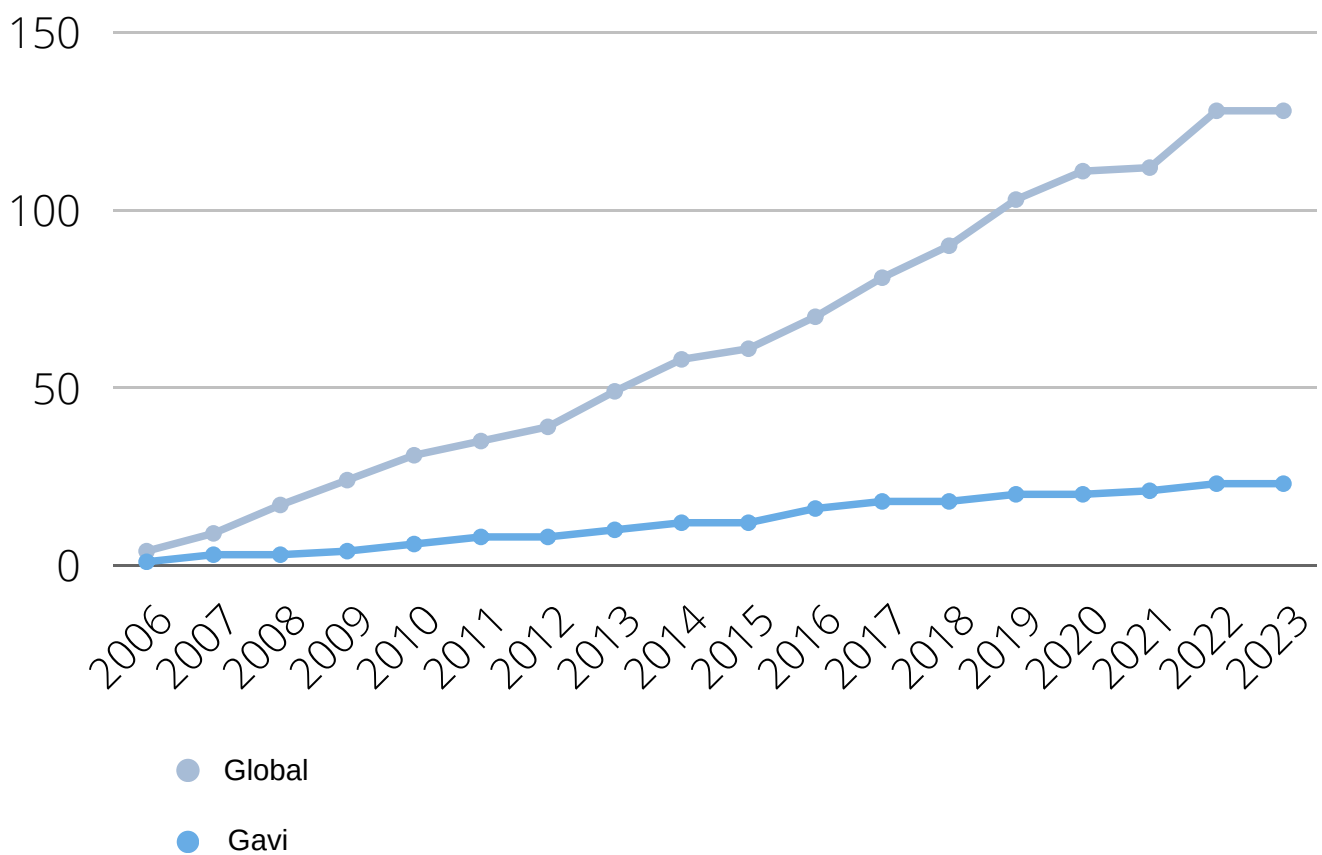
Single-dose HPV vaccination may also alleviate supply shortages and challenges faced during vaccine delivery such as those encountered during the COVID-19 pandemic.

Based on current evidence that reported that a single dose of HPV vaccine provides similar protection as a multi dose regimen, in Dec 2022, WHO officially changed its recommendations to recommend 1 or 2 doses:

- One- or two-dose HPV vaccine for the primary target of girls aged 9–14 years old.
- One- or two-dose schedule for young women aged 15–20 years old.
- Two doses with a 6-month interval for women older than 21 years.

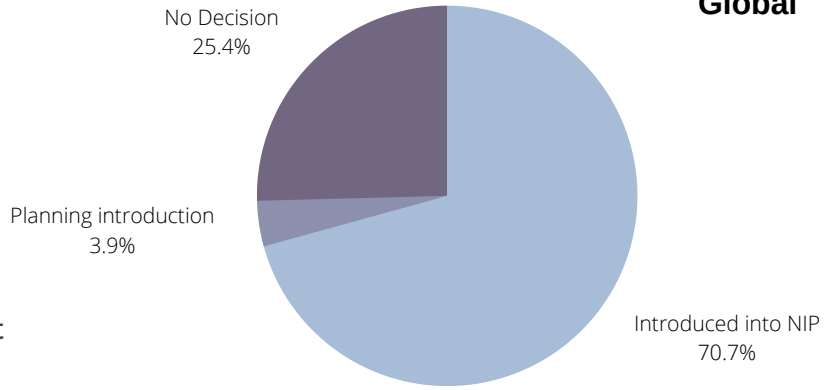
HUMAN PAPILLOMAVIRUS VACCINE

HPV Introduction by Year

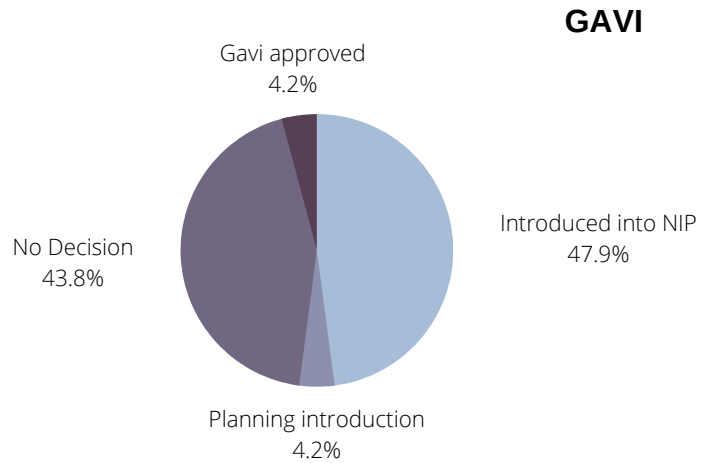


HPV Vaccine Introduction Status

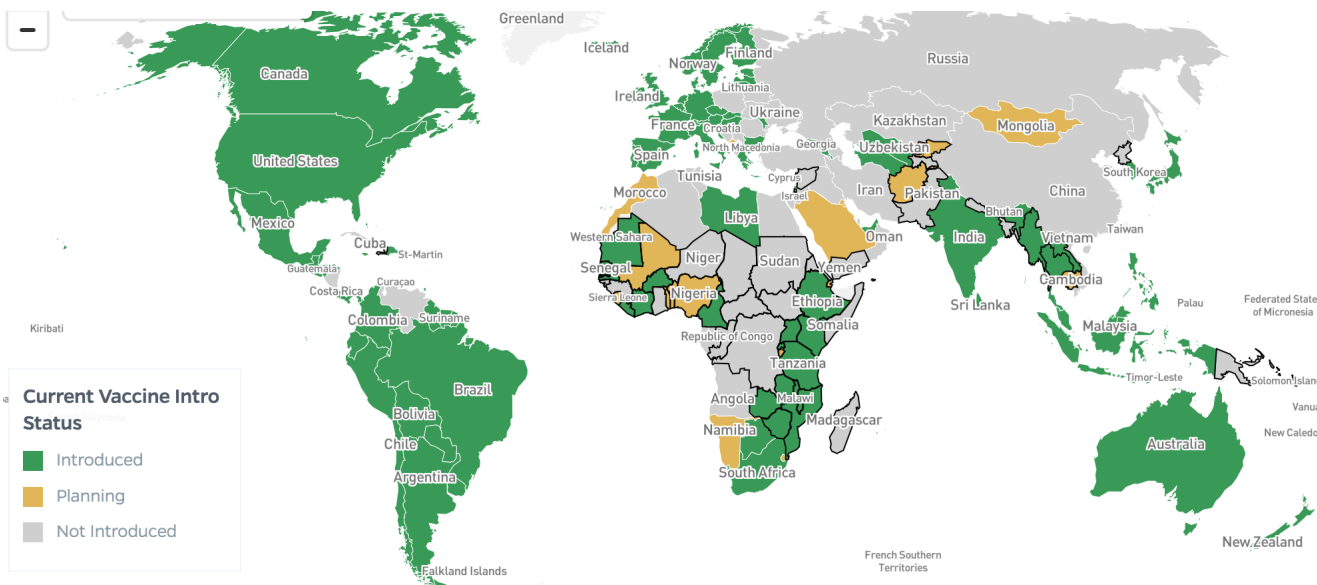
As of January 2023, globally, 128 countries have introduced HPV into their national immunization program; additionally, 27 countries have introduced demonstration projects. Seven countries have announced plans to add HPV to their national immunization program. 46 countries are yet to make a decision regarding introduction.



23 Gavi countries have introduced HPV into their national immunization program, one of which have introduced sub-nationally. Two countries have been approved, with or without clarification, for Gavi support to introduce. Two countries have announced plans to add HPV to their national immunization program. 21 countries are yet to make a decision regarding introduction.



A map of the countries that have introduced HPV is below.



The countries outlined in black indicate countries approved for Gavi support.

[See the HPV page on VIEW-hub for more information](#)

COVID-19 VACCINE

COVID-19 Vaccine Introduction status

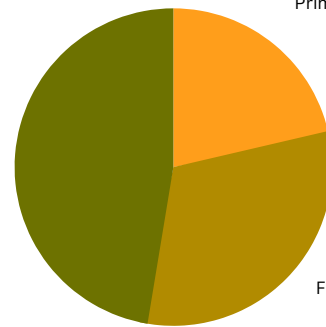
As of January 2023, globally, 193 countries have introduced COVID-19 vaccines. One country is yet to make a decision regarding introduction. Globally, 151 countries are administering booster shots, and 91 of these have introduced a second booster dose to protect against waning immunity and emerging variants.

88 COVAX countries have introduced COVID-19 vaccines. First and second booster doses have been approved for use in 31 and 22 COVAX countries respectively.

A map of the countries that have introduced COVID-19 vaccines is below.

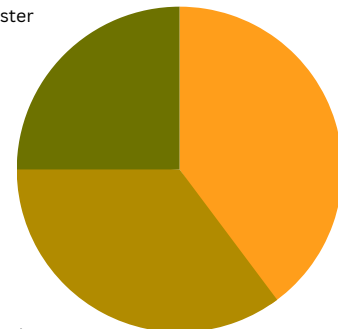
Global
Primary series only
21.4%

Second booster dose
47.4%



First booster dose
31.3%

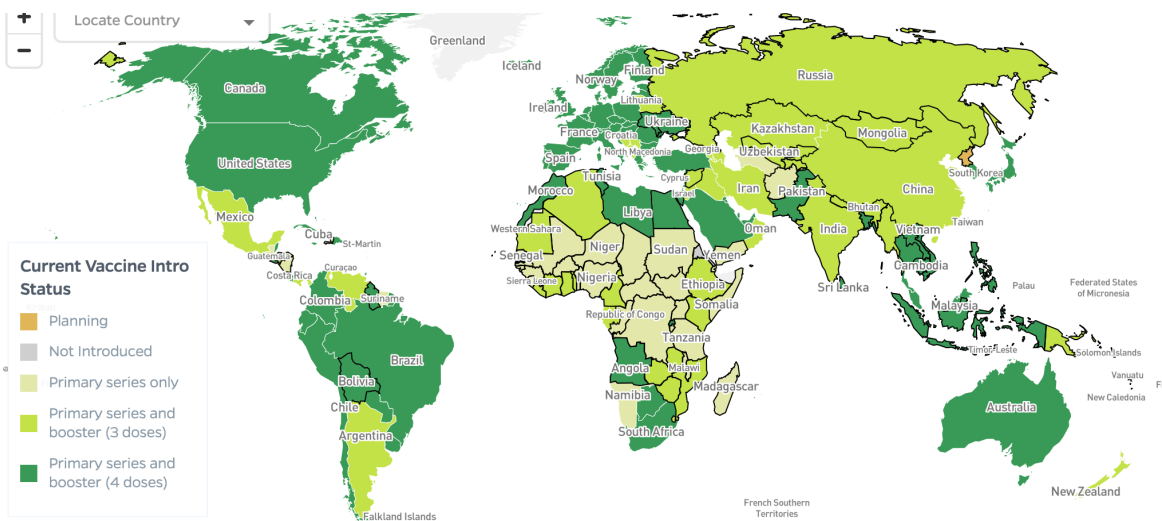
Second booster
25%



COVAX

Primary series
39.8%

First booster
35.2%

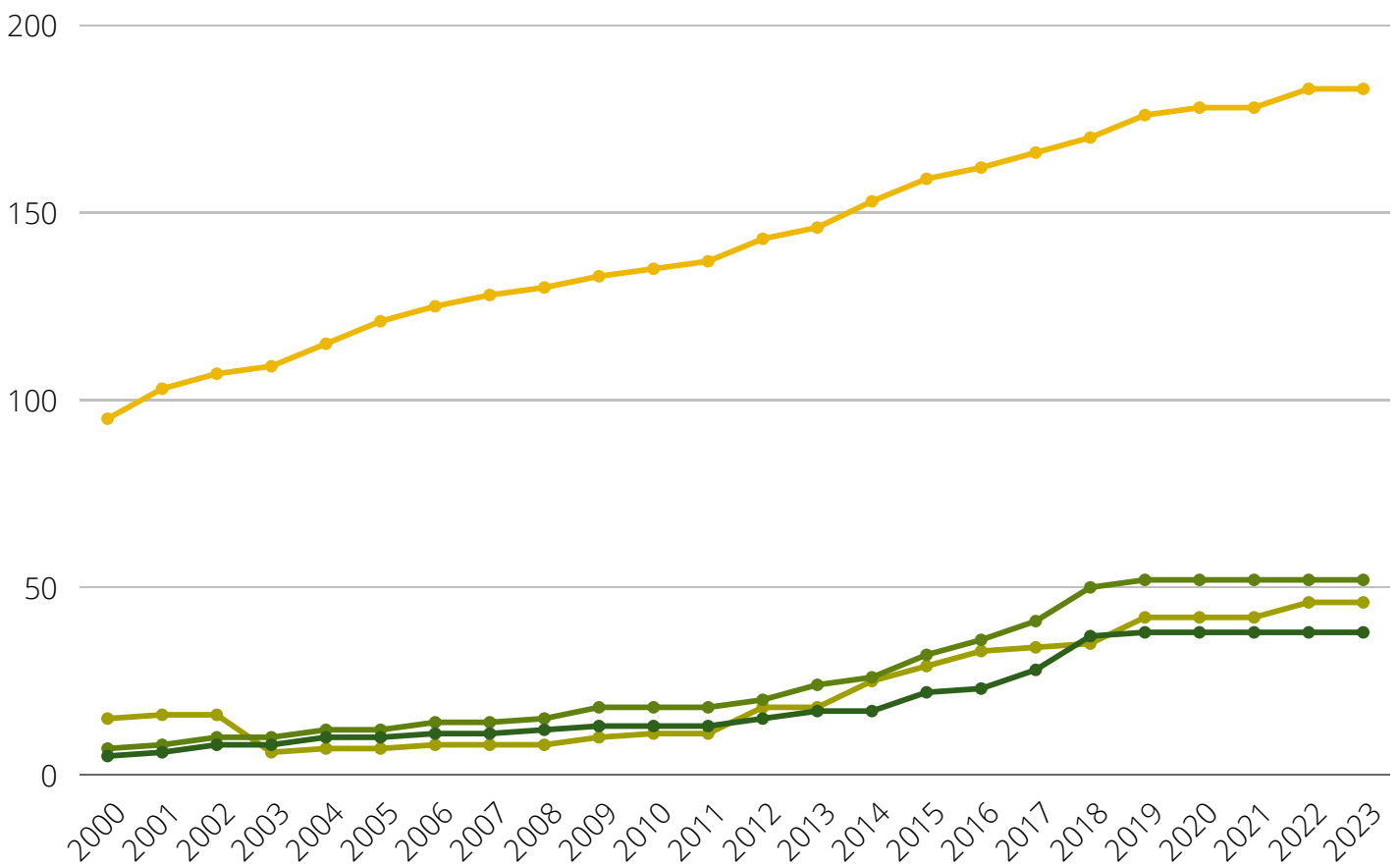


[See the COVID-19 page on VIEW-hub for more information](#)

The countries outlined in black indicate countries approved for COVAX support

MEASLES VACCINE

Measles Containing Vaccine Dose-2 (MCV-2) and Measles Rubella Vaccine (MR) Introduction by Year



- Global- Measles containing vaccine (MCV)-2
- Gavi- Measles containing vaccine (MCV)-2
- Global- Measles-Rubella vaccine (MR)
- Gavi- Measles-Rubella vaccine (MR)

MEASLES-CONTAINING VACCINE

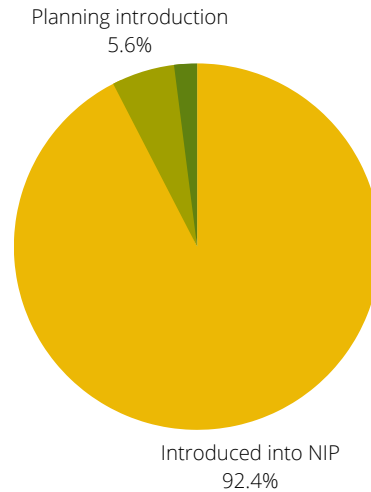
Measles Containing Vaccine-2 (MCV-2) Introduction Status

As of January 2023, globally, 183 countries have introduced MCV-2 into their national immunization program. Two countries have announced plans to add MCV-2 to their national immunization program. Four countries are yet to make a decision regarding introduction.

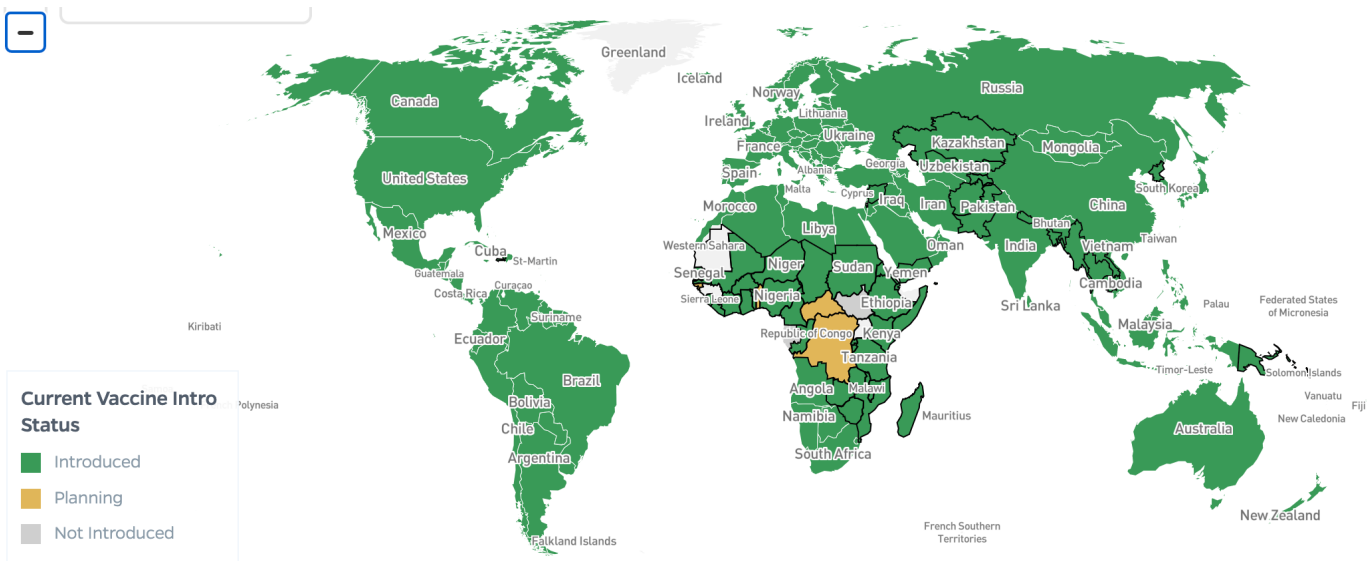
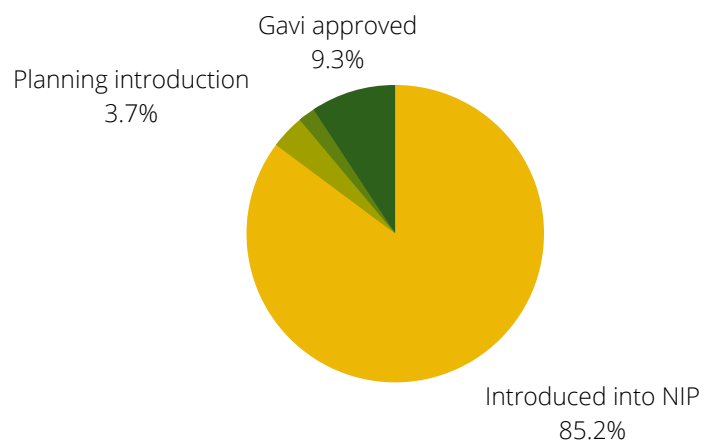
46 Gavi countries have introduced MCV-2 into their national immunization program, one of which has introduced subnationally. Five countries have been approved, with or without clarification, for Gavi support to introduce. Two have announced plans to add MCV-2 to their national immunization program. One has yet to make a decision regarding introduction.

A map of the countries that have introduced MCV-2 is below.

Global



GAVI



[See the MCV-2 page on VIEW-hub for more information](#)

The countries outlined in black indicate countries approved for Gavi support.

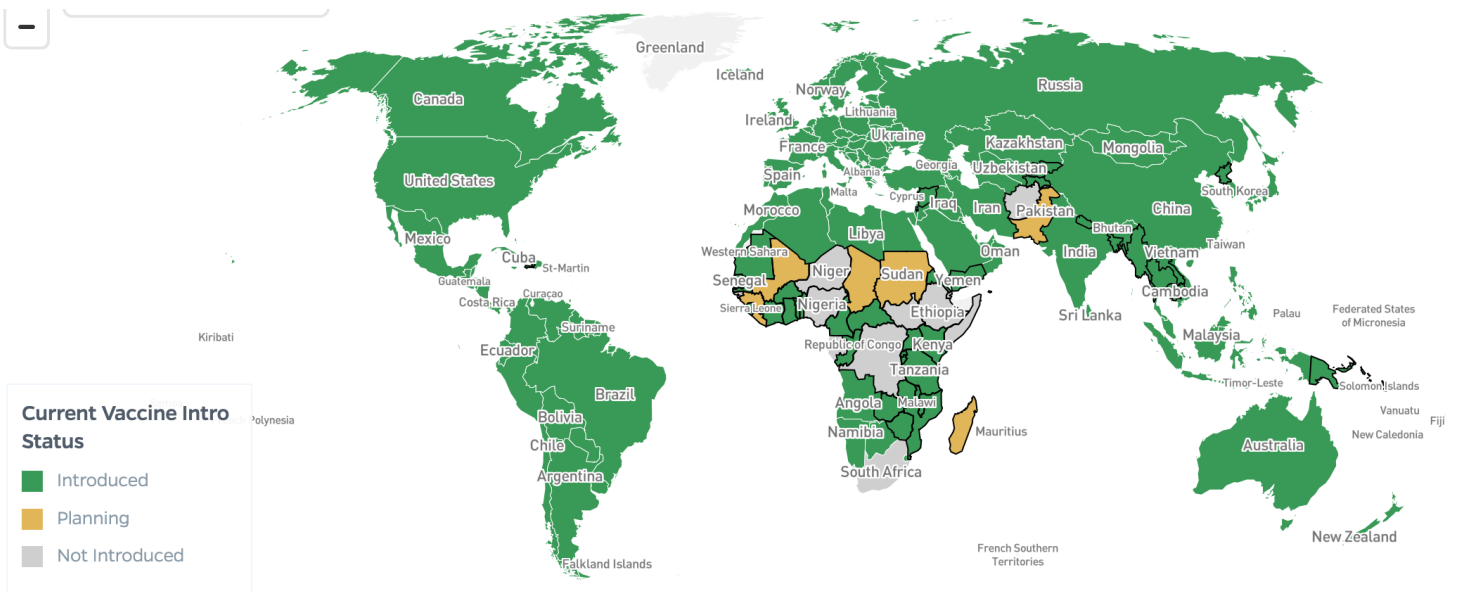
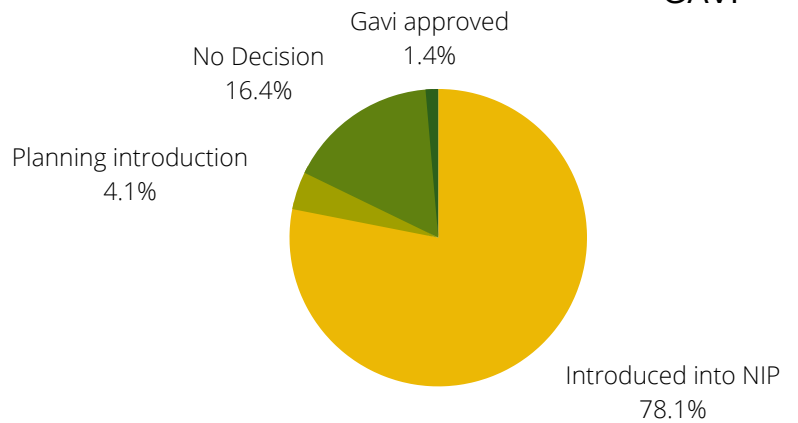
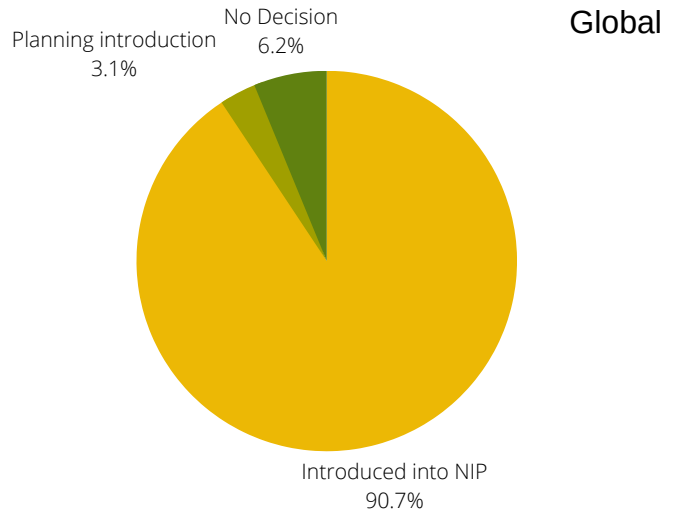
MEASLES RUBELLA VACCINE

Measles Rubella Vaccine Introduction Status

As of January 2023, globally, 175 countries have introduced MR into their national immunization program. Six countries have announced plans to add MR to their national immunization program. Twelve countries are yet to make a decision regarding introduction.

38 Gavi countries have introduced MR into their national immunization program. One country has been approved, with or without clarification, for Gavi support to introduce. Six countries have announced plans to add MR to their national immunization program. Nine have yet to make a decision regarding introduction.

A map of the countries that have introduced MR is below.

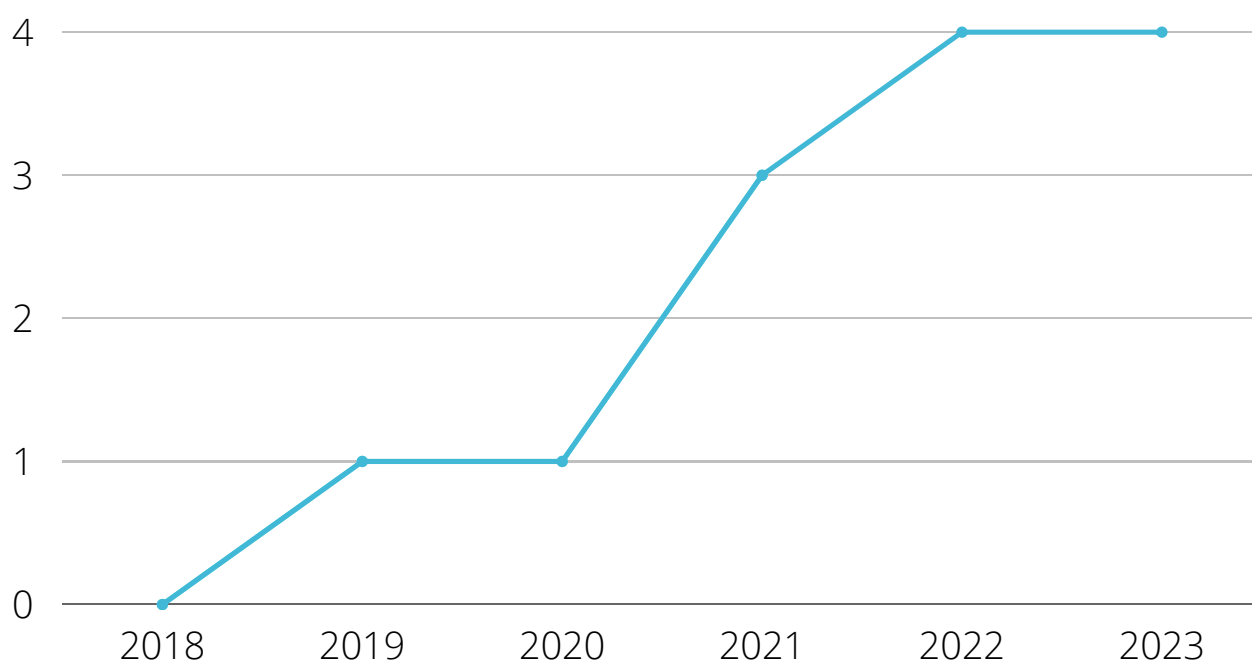


[See the MR page on VIEW-hub for more information](#)

The countries outlined in black indicate countries approved for Gavi support.

TYPHOID CONJUGATE VACCINE

Typhoid Conjugate Vaccine Introduction by Year



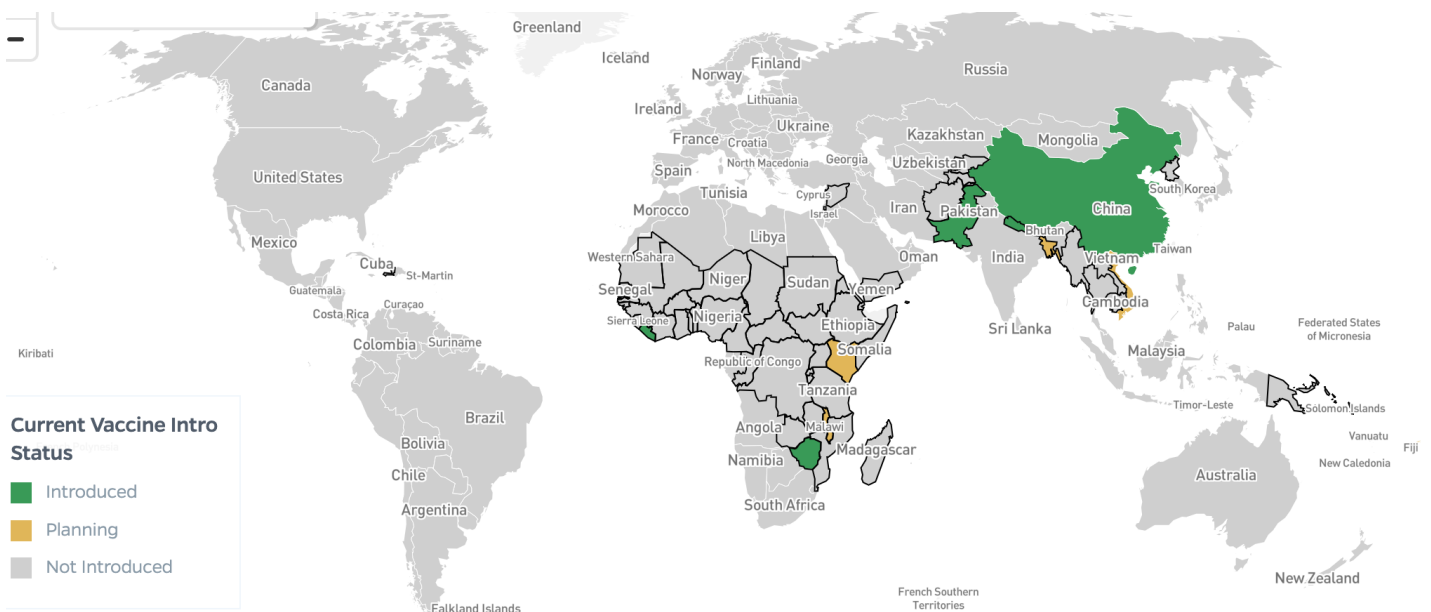
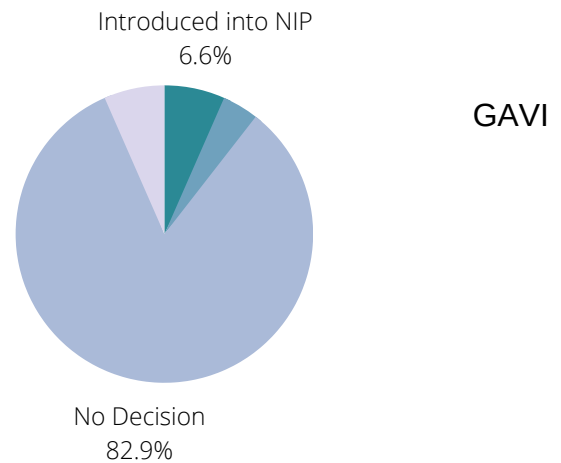
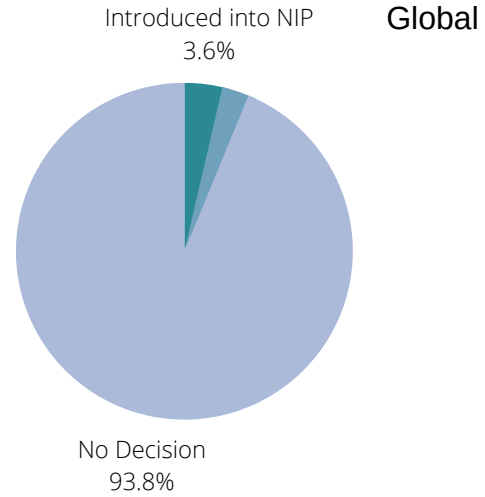
TYPHOID VACCINE

Typhoid Conjugate Vaccine Introduction Status

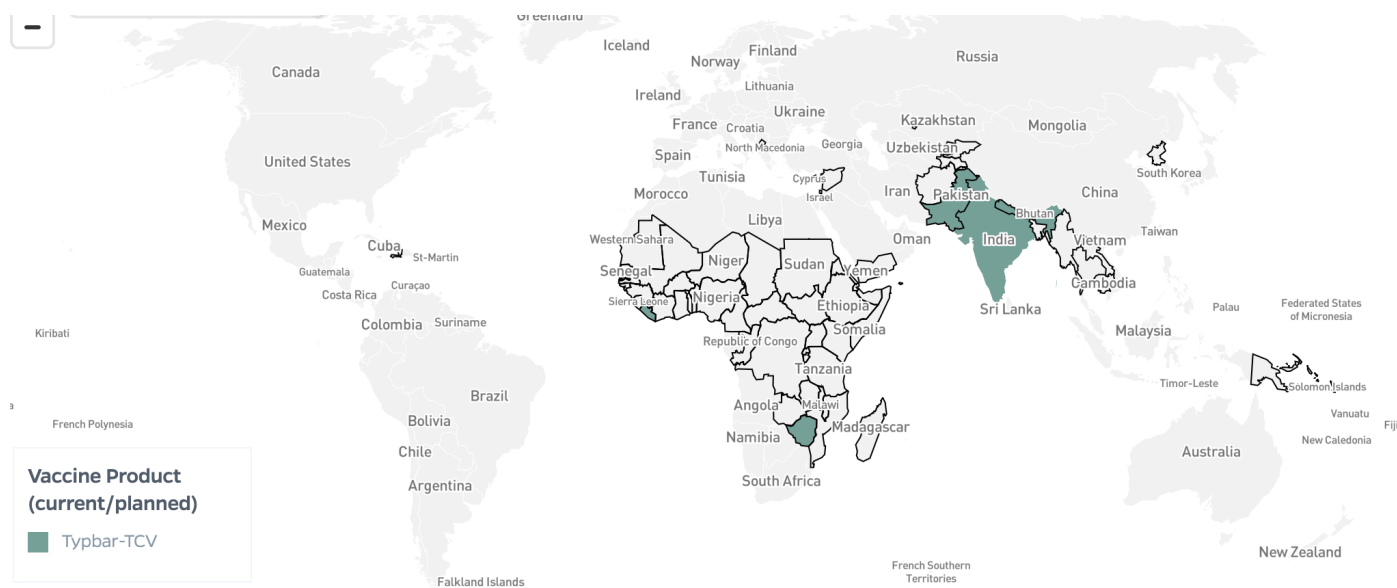
As of January 2023, globally, seven countries have introduced typhoid conjugate vaccine into their national immunization program; Pakistan in a phased manner and Liberia, Zimbabwe, and Nepal universally. Five countries have announced plans to add TCV to their national immunization program. 181 countries are yet to make a decision regarding introduction.

Four Gavi countries have introduced TCV into their national immunization program, Pakistan has introduced subnationally. Four countries have been approved, with or without clarification, for Gavi support to introduce. Three countries have announced plans to add TCV to their national immunization program. 47 have yet to make a decision regarding introduction.

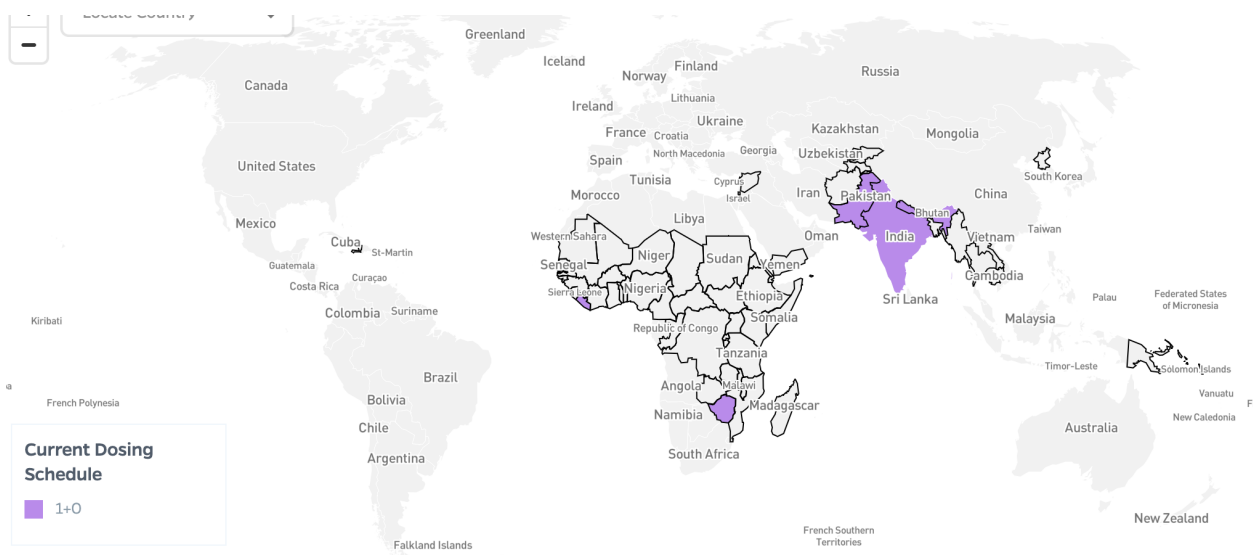
A map of the countries that have introduced TCV is below.



TCV- Current Product



TCV - Current Dosing Schedule

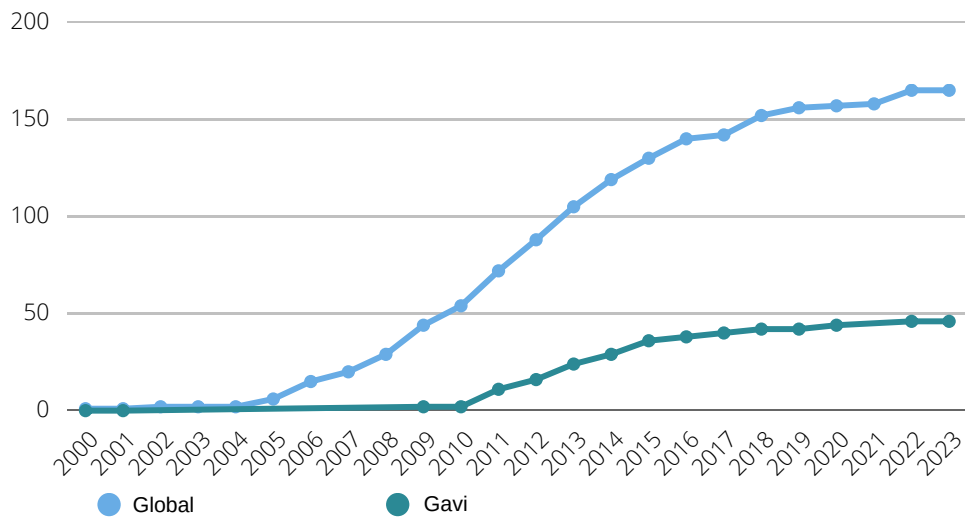


The countries outlined in black indicate countries approved for Gavi support.

See the TCV page on VIEW-hub for more information

PNEUMOCOCCAL CONJUGATE VACCINE

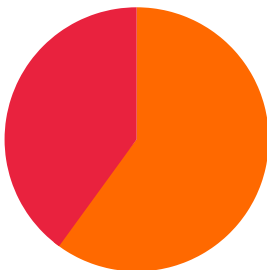
PCV Introduction by Year



Coverage estimates are calculated using 2022 WHO/UNICEF estimates of national immunization coverage. Information on how these estimates are calculated is included in the Methods section.

Global Coverage

Vaccinated (54.2 million)
40%

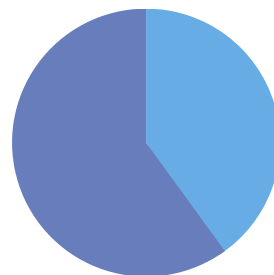


Unvaccinated (81.4 million)
60%

With Access (80.8 million)
60%

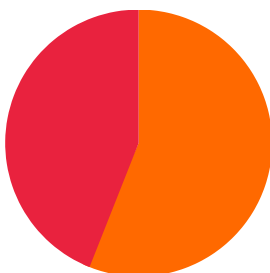
Global Access

No Access (54.9 million)
40%



Gavi Coverage

Vaccinated (35.1 million)
44%

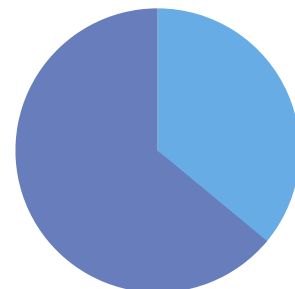


Unvaccinated (45.4 million)
56%

With Access (51.5 million)
64%

Gavi Access

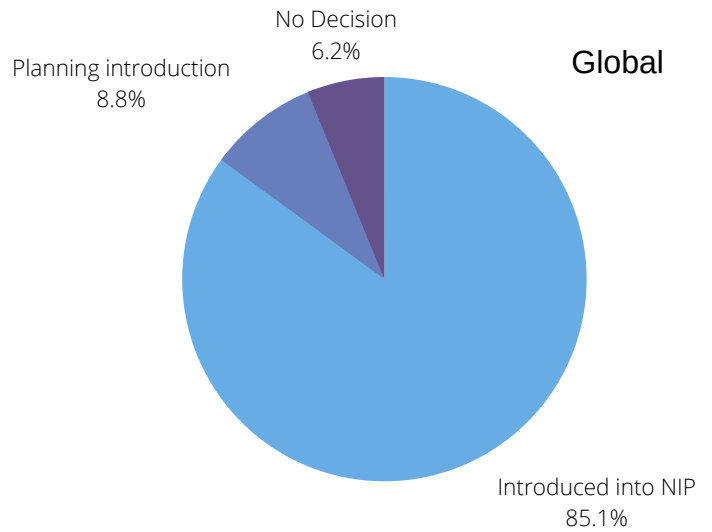
No Access (29.0 million)
36%



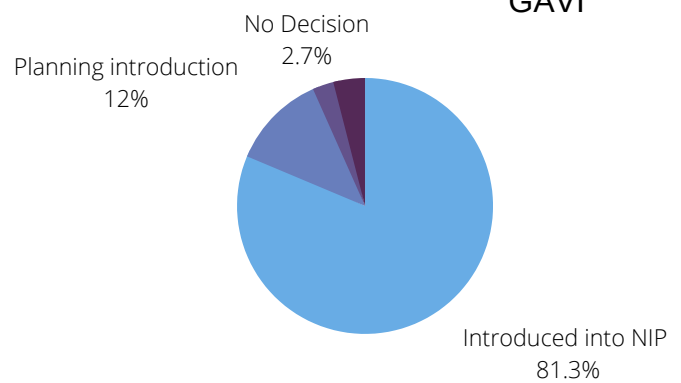
PNEUMOCOCCAL CONJUGATE VACCINE

PCV Introduction Status

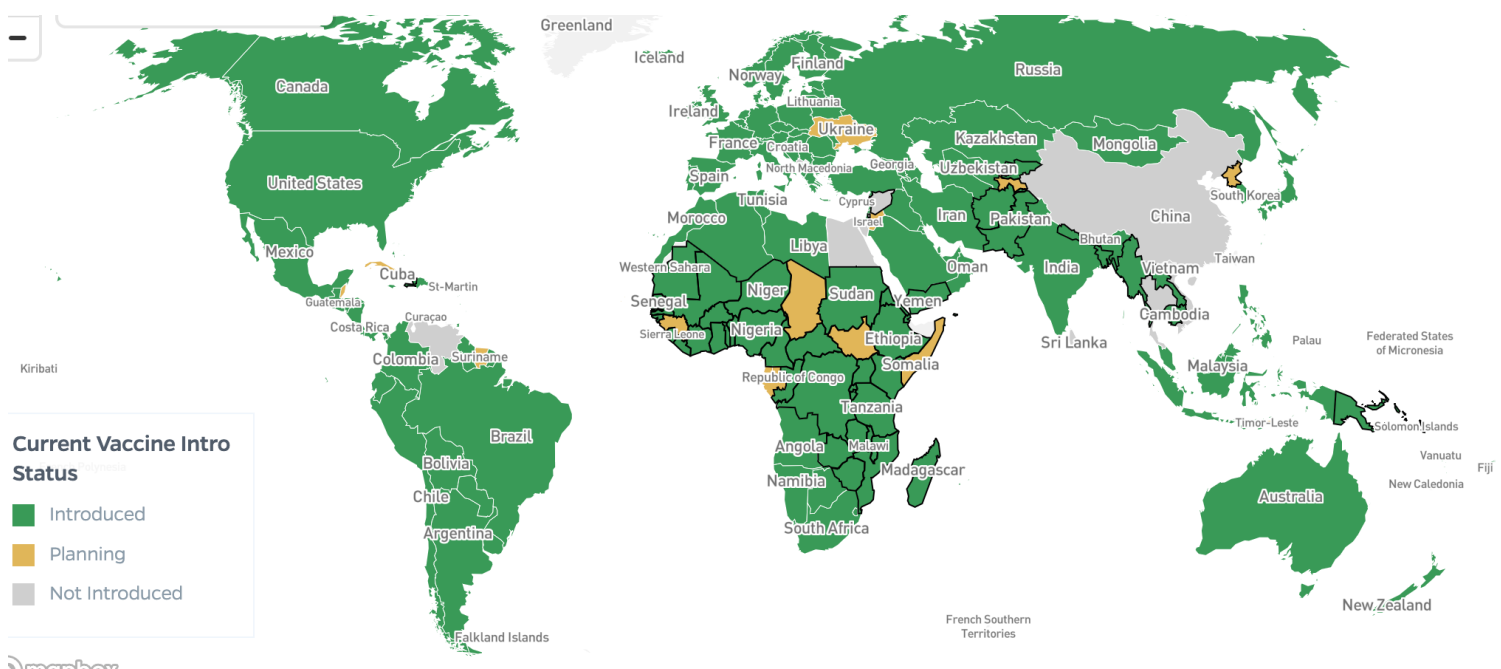
As of January 2023, 165 countries have introduced PCV into their National Immunisation Program, including 154 universal, three subnational, and eight risk programs. Seventeen countries have announced plans to introduced PCV into their NIP. 12 countries have yet to make a decision regarding introduction.



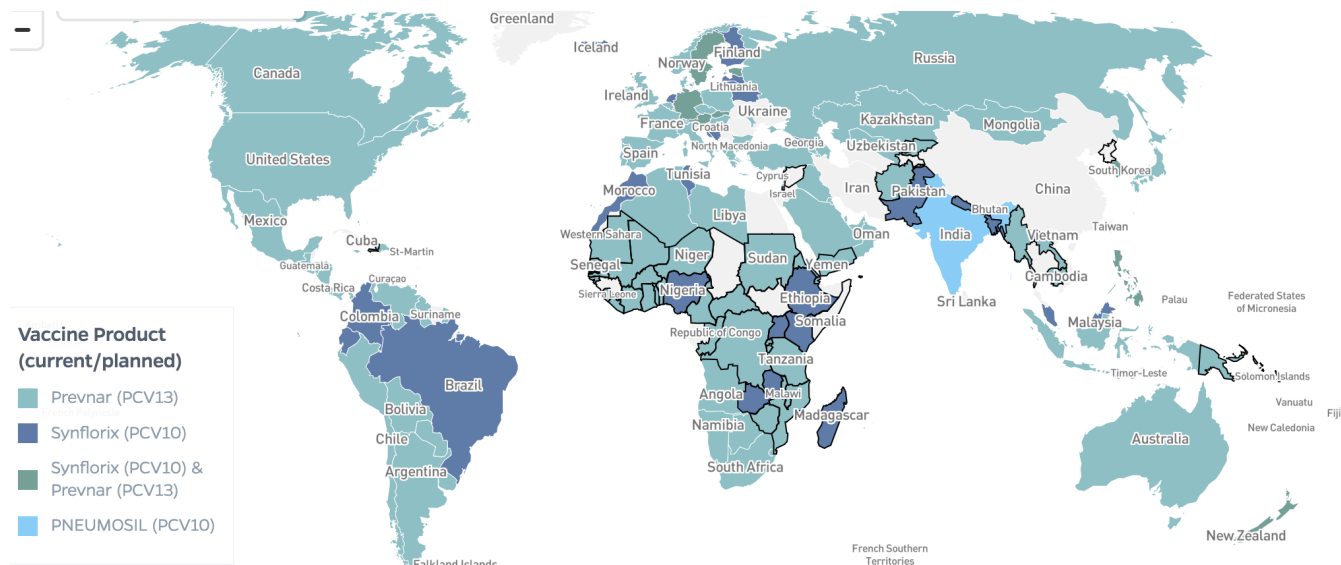
46 Gavi countries have introduced PCV into their National Immunization Program. Seven countries have announced plans to introduce PCV into their NIP. 46 countries have been approved, with or without clarification, for Gavi support to introduce. One country has yet to make a decision regarding introduction.



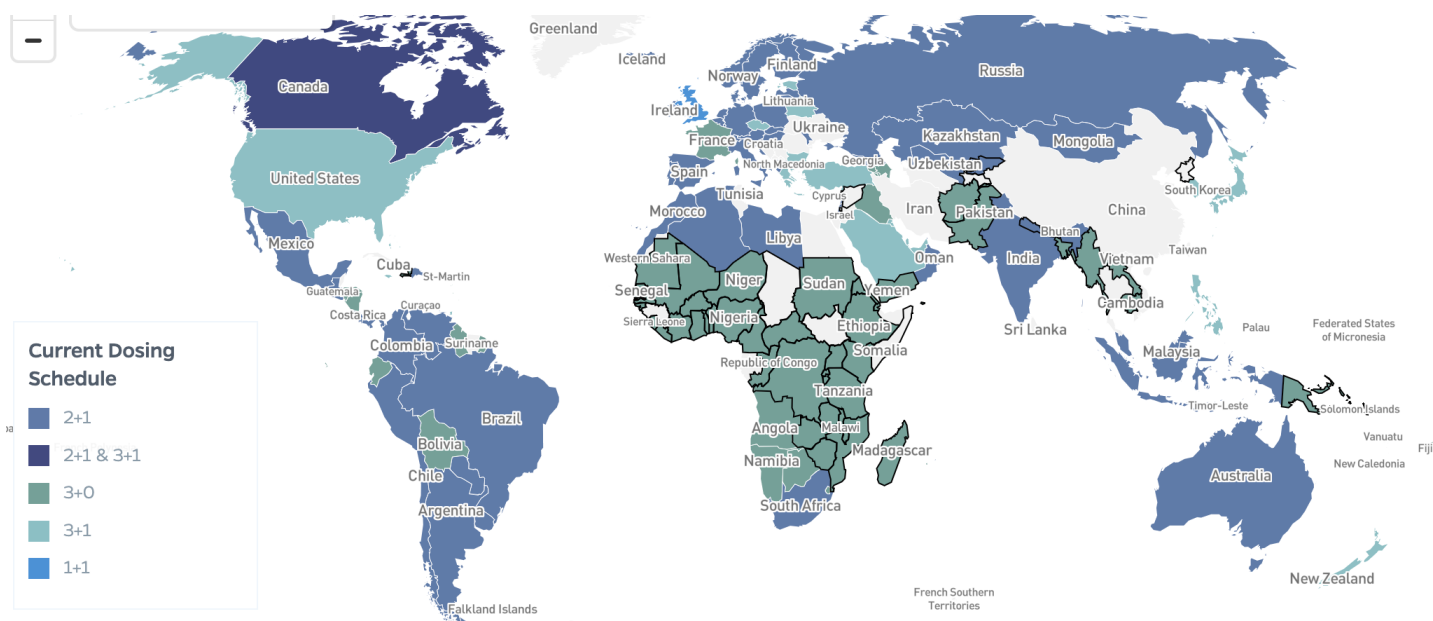
A map of the countries that have introduced PCV is below.



PCV - Current Product



PCV - Current Dosing Schedule

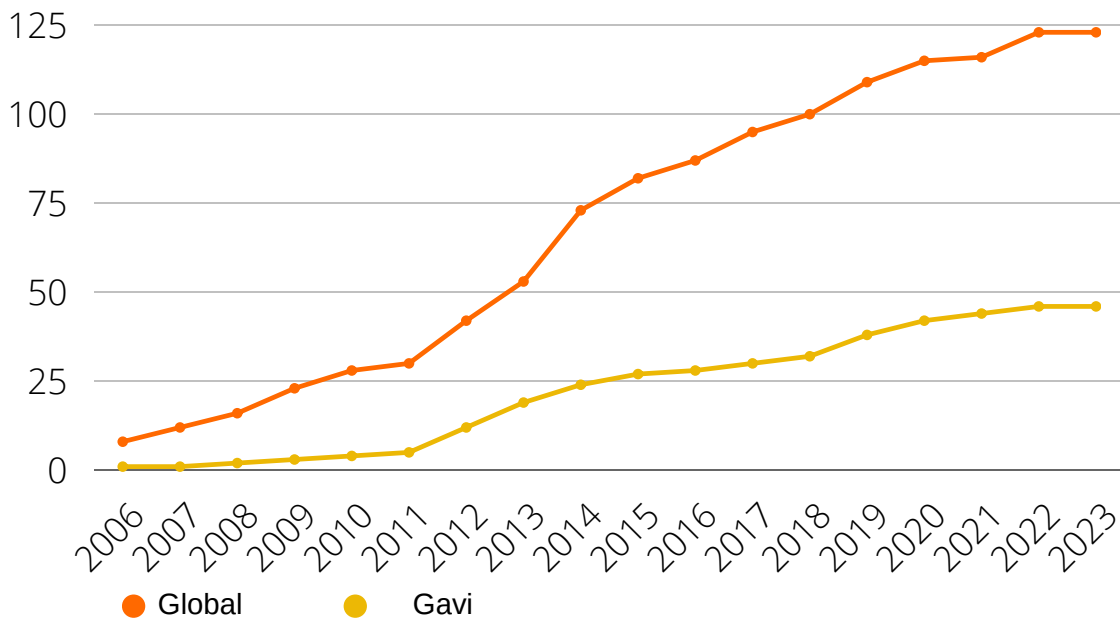


The countries outlined in black indicate countries approved for Gavi support.

See the PCV page on VIEW-hub for more information

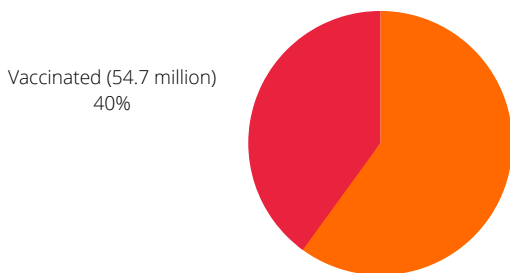
ROTAVIRUS VACCINE

Rotavirus Introduction by Year

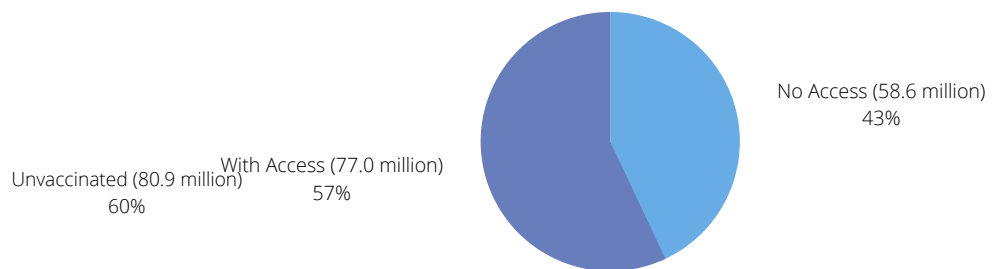


These estimates are calculated using 2022 WHO/UNICEF estimates of national immunization coverage. Information on how these estimates are calculated is included in the Methods section.

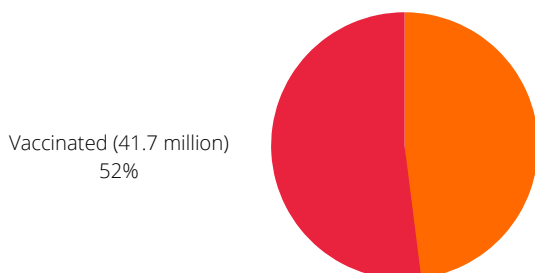
Global Coverage



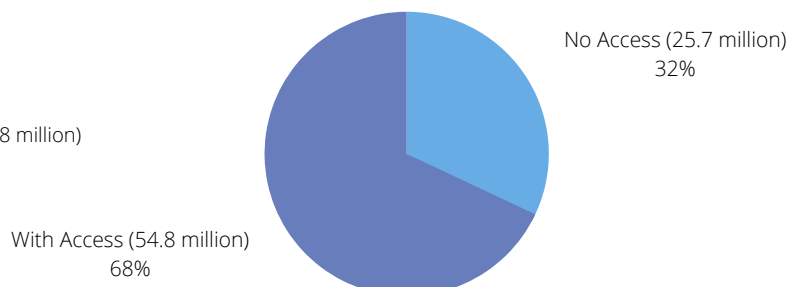
Global Access



Gavi Coverage

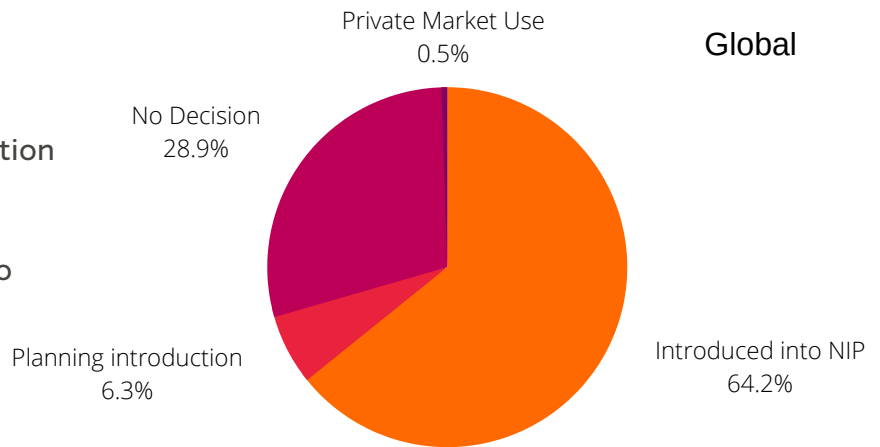


Gavi Access

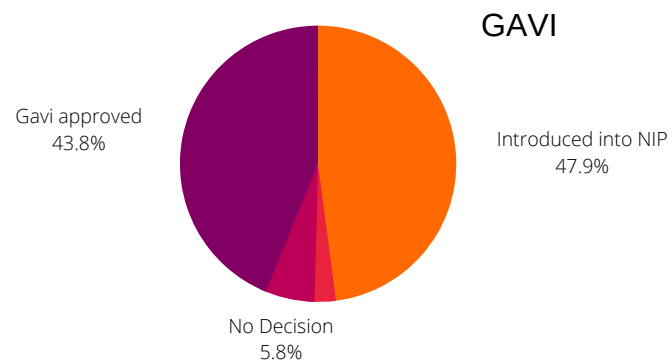


Rotavirus Vaccine Introduction Status

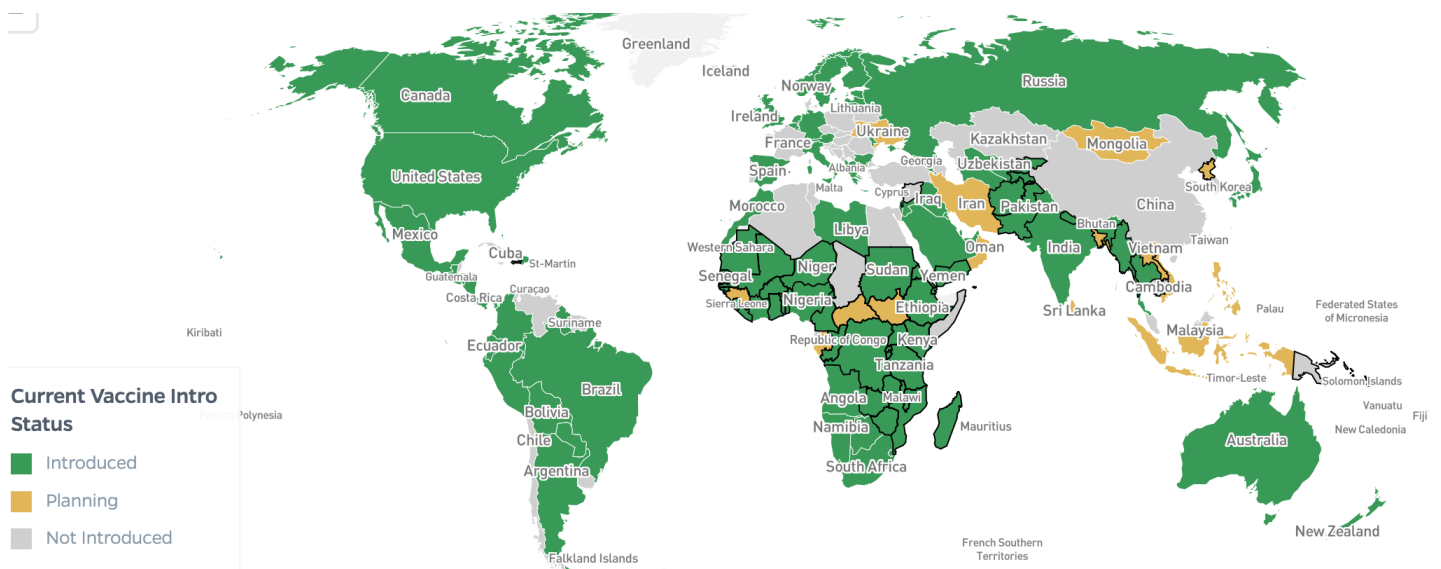
As of January 2023, 123 countries have introduced RV into their National Immunization Program; three of these countries have introduced subnationally. Twelve countries have announced plans to introduced RV into their NIP. 54 countries have yet to make a decision regarding introduction.



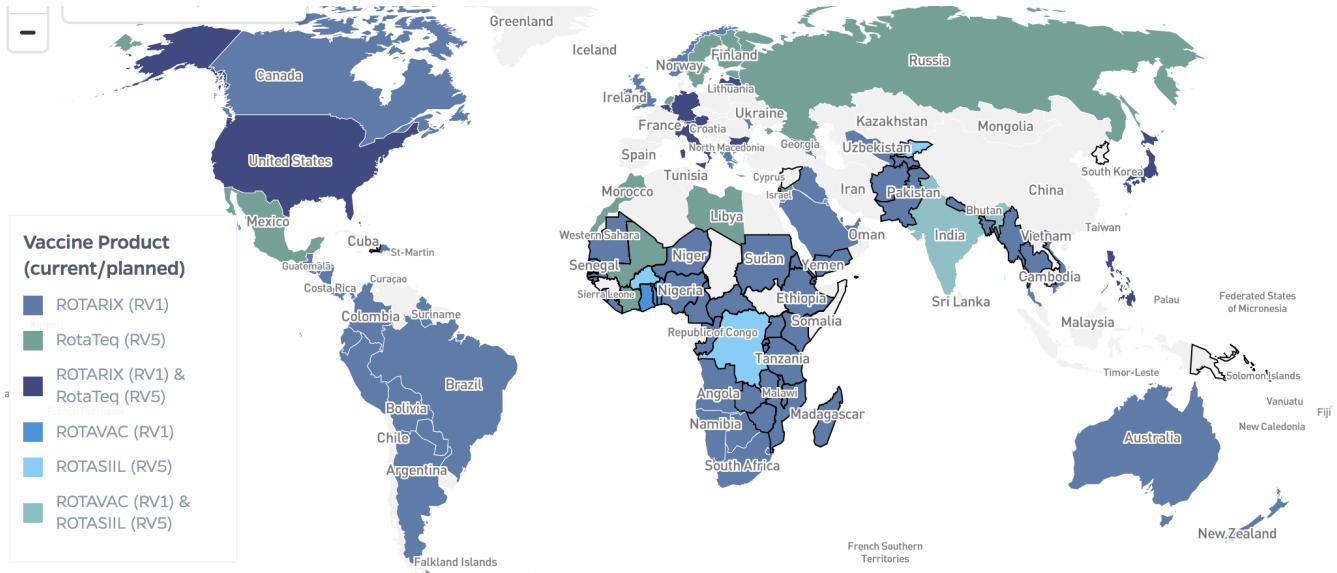
42 Gavi countries have introduced rotavirus vaccine into their National Immunization Program. Three countries are approved, with or without clarification, for Gavi support to introduce. Three countries have announced plans to introduce rotavirus vaccine into their NIP. Six countries have yet to make a decision regarding introduction.



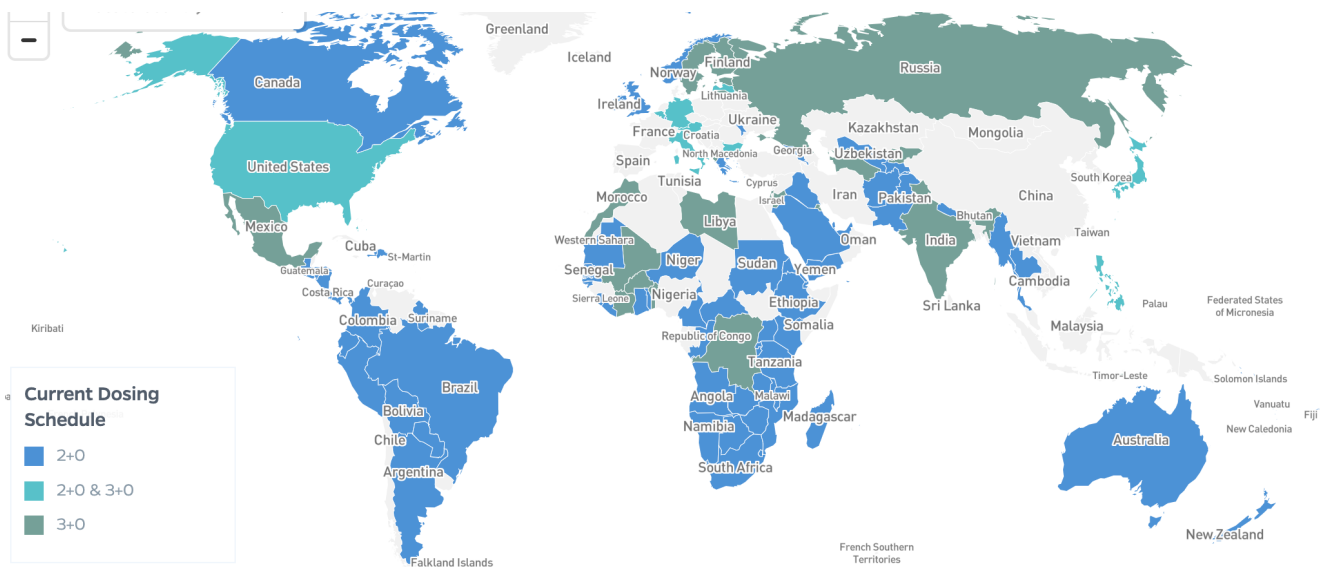
A map of countries that have introduced rotavirus vaccine is below.



Rotavirus Vaccine - Current Product



Rotavirus Vaccine - Current Dosing Schedule

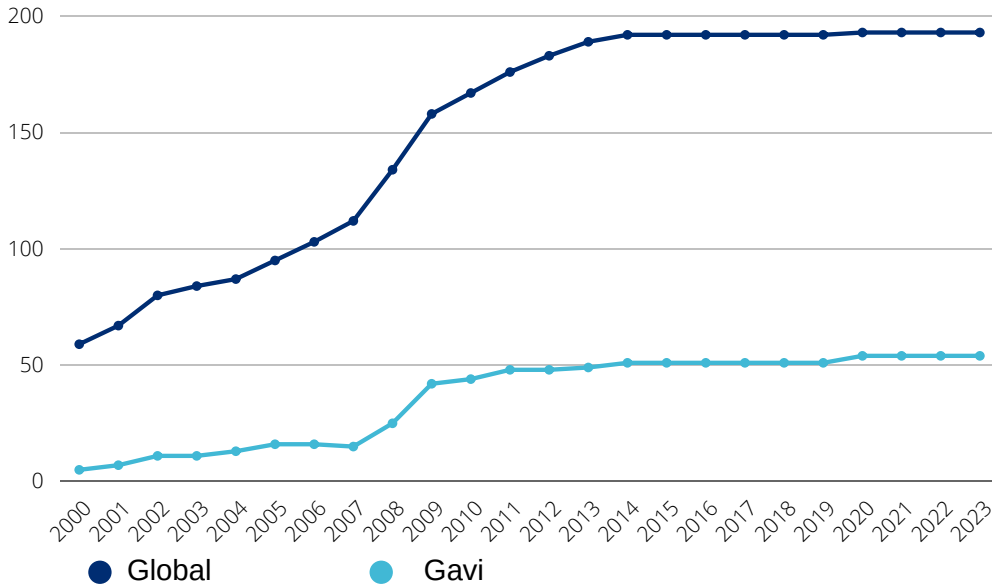


The countries outlined in black indicate countries approved for Gavi support.

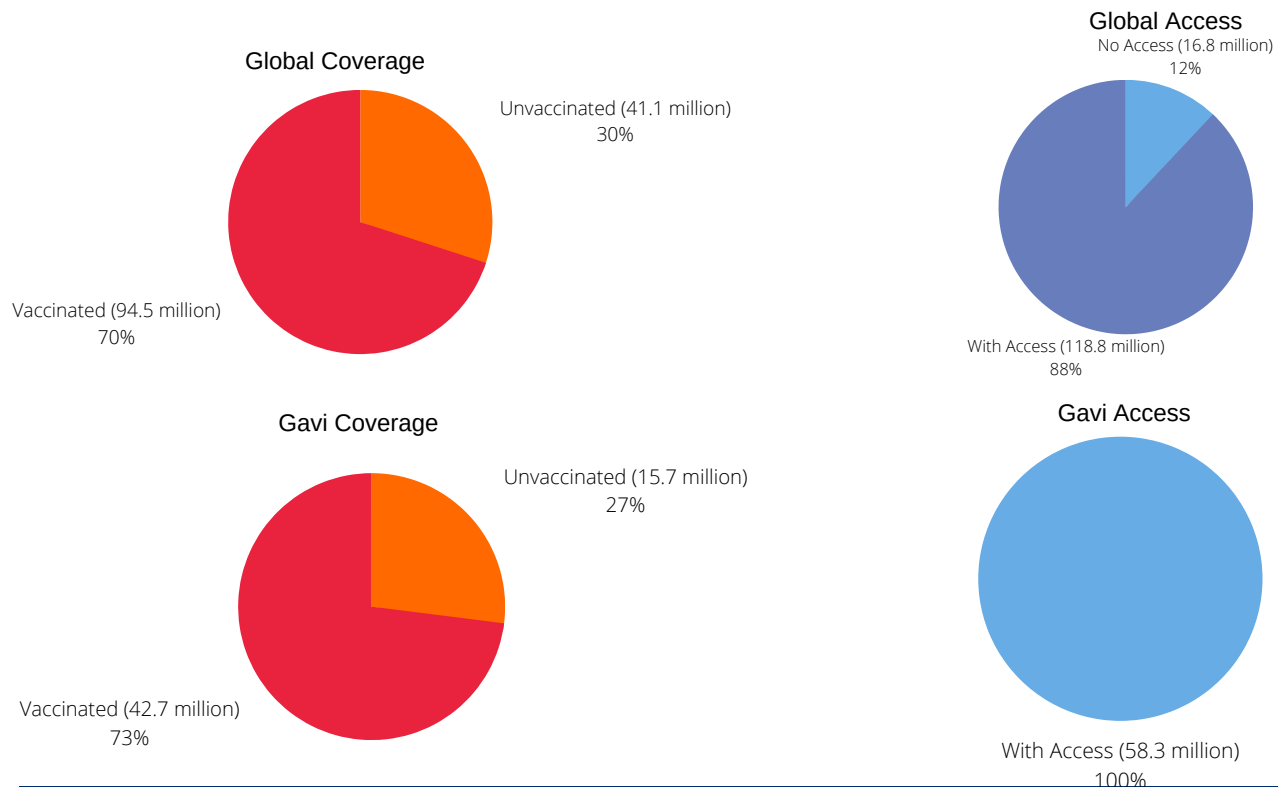
See the RV page on VIEW-hub for more information

HIB-CONTAINING VACCINE

Hib Introduction by Year



These estimates are calculated using 2022 WHO/UNICEF estimates of national immunization coverage. Information on how these estimates are calculated is included in the Methods section.



HIB-CONTAINING VACCINE

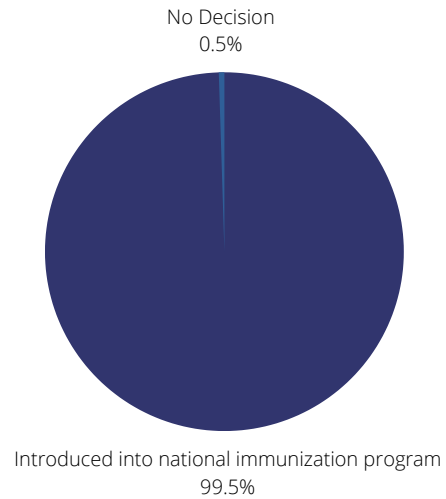
Hib Vaccine Introduction Status

As of January 2023, 193 countries have introduced a Hib-containing vaccine into their National Immunization Program, Belarus introduced subnationally and Russia introduced to at risk populations. One country (China) has yet to make a decision regarding introduction.

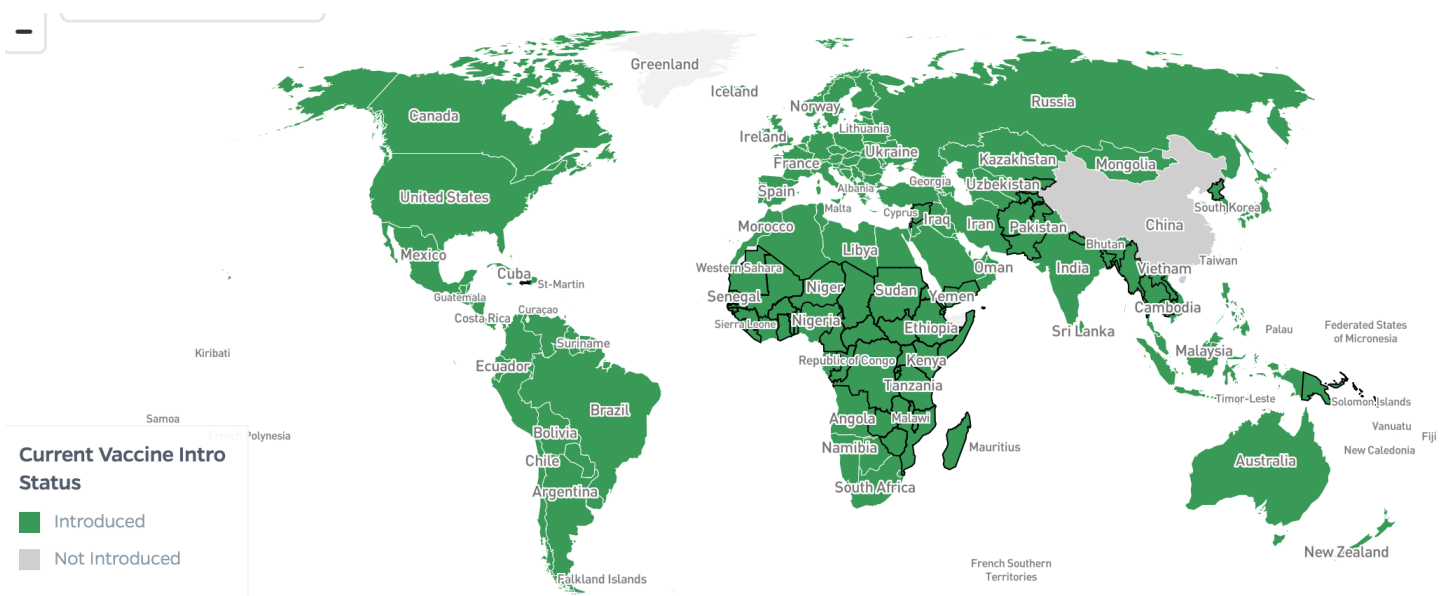
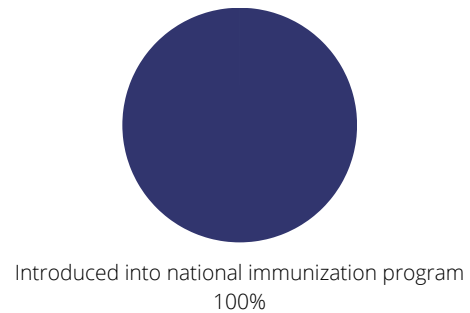
54 Gavi countries have introduced Hib-containing vaccine into their National Immunization Program.

A map of countries that have introduced Hib is below.

Global

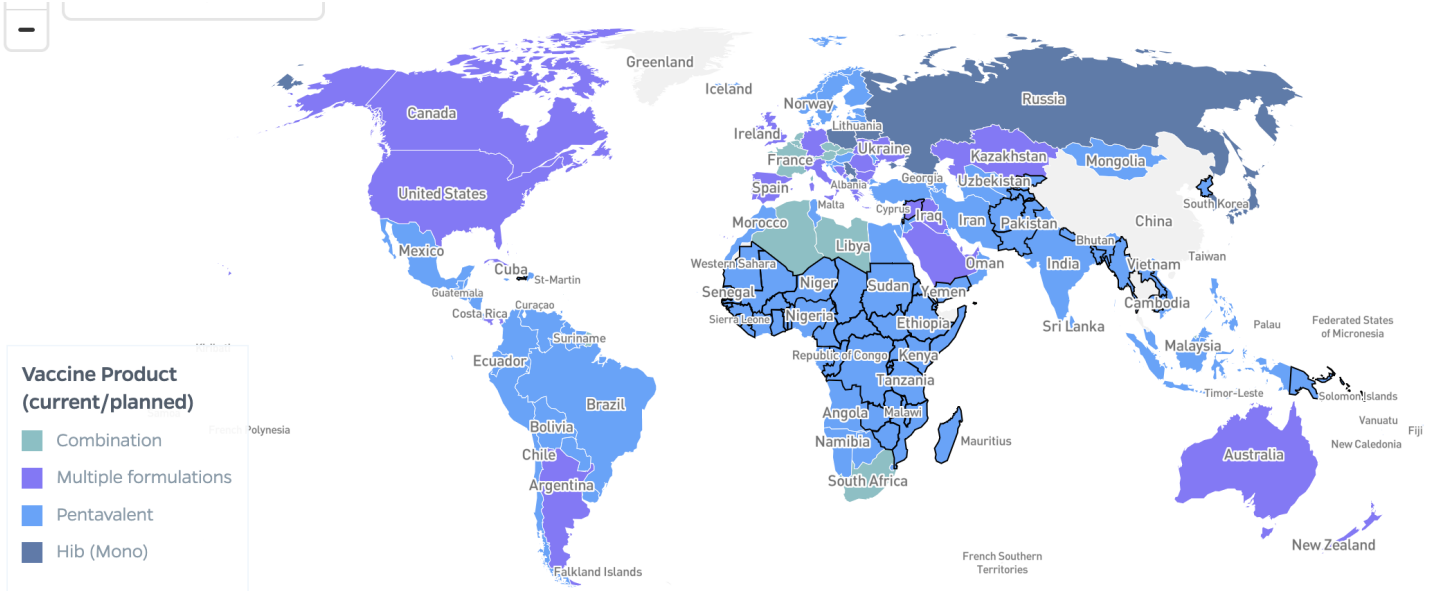


GAVI

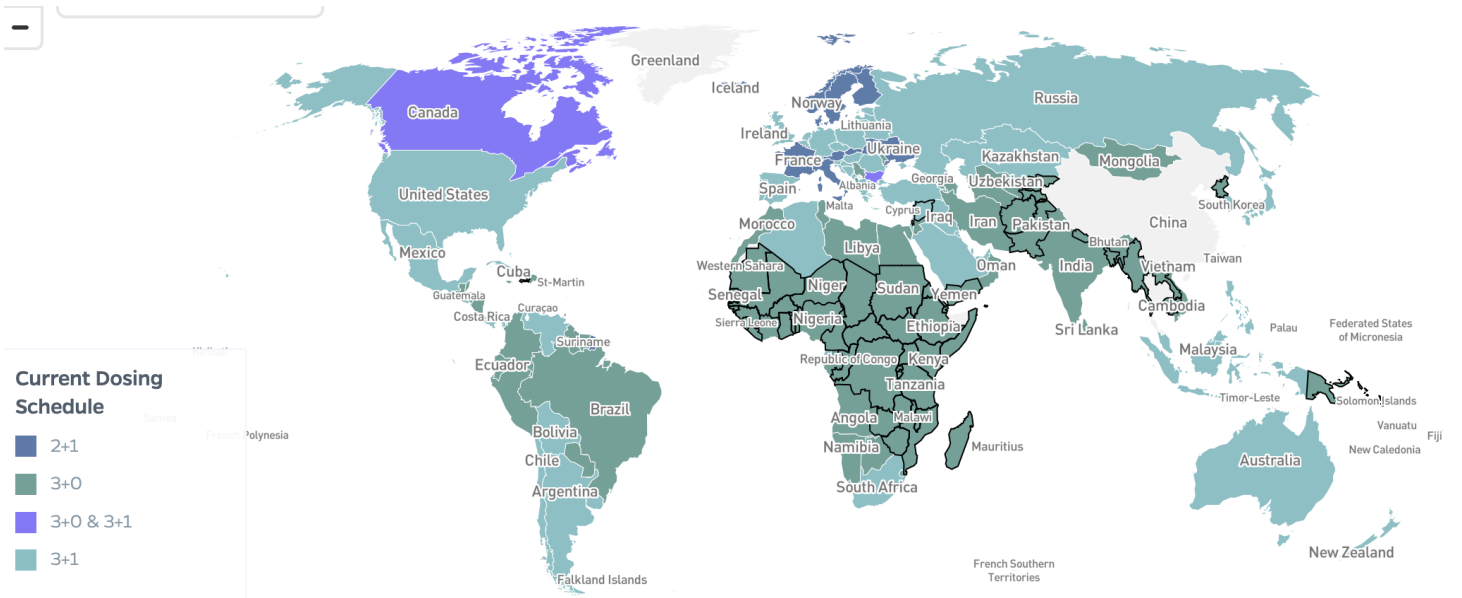


HIB-CONTAINING VACCINE

Hib - Current Product



Hib - Current Dosing Schedule

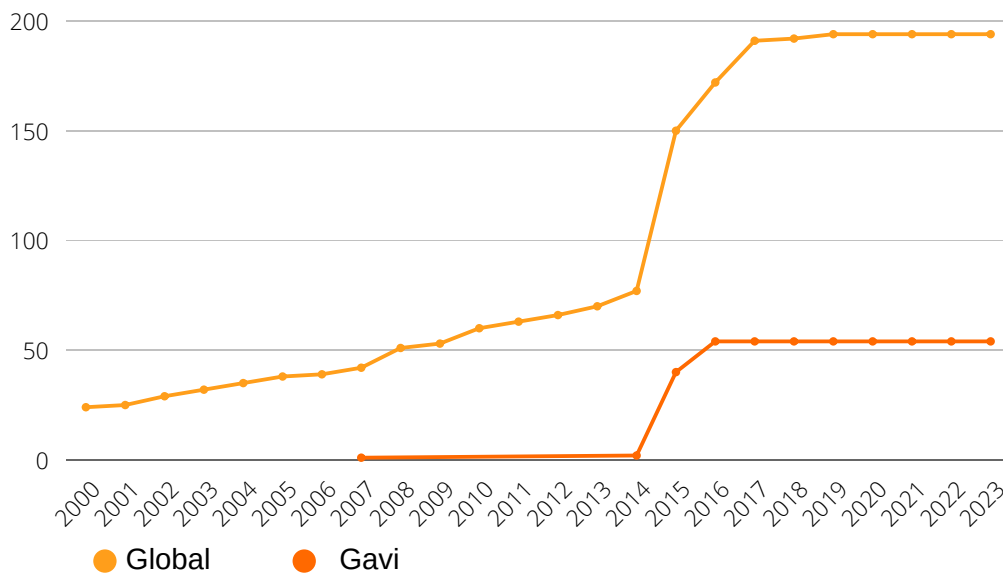


The countries outlined in black indicate countries approved for Gavi support.

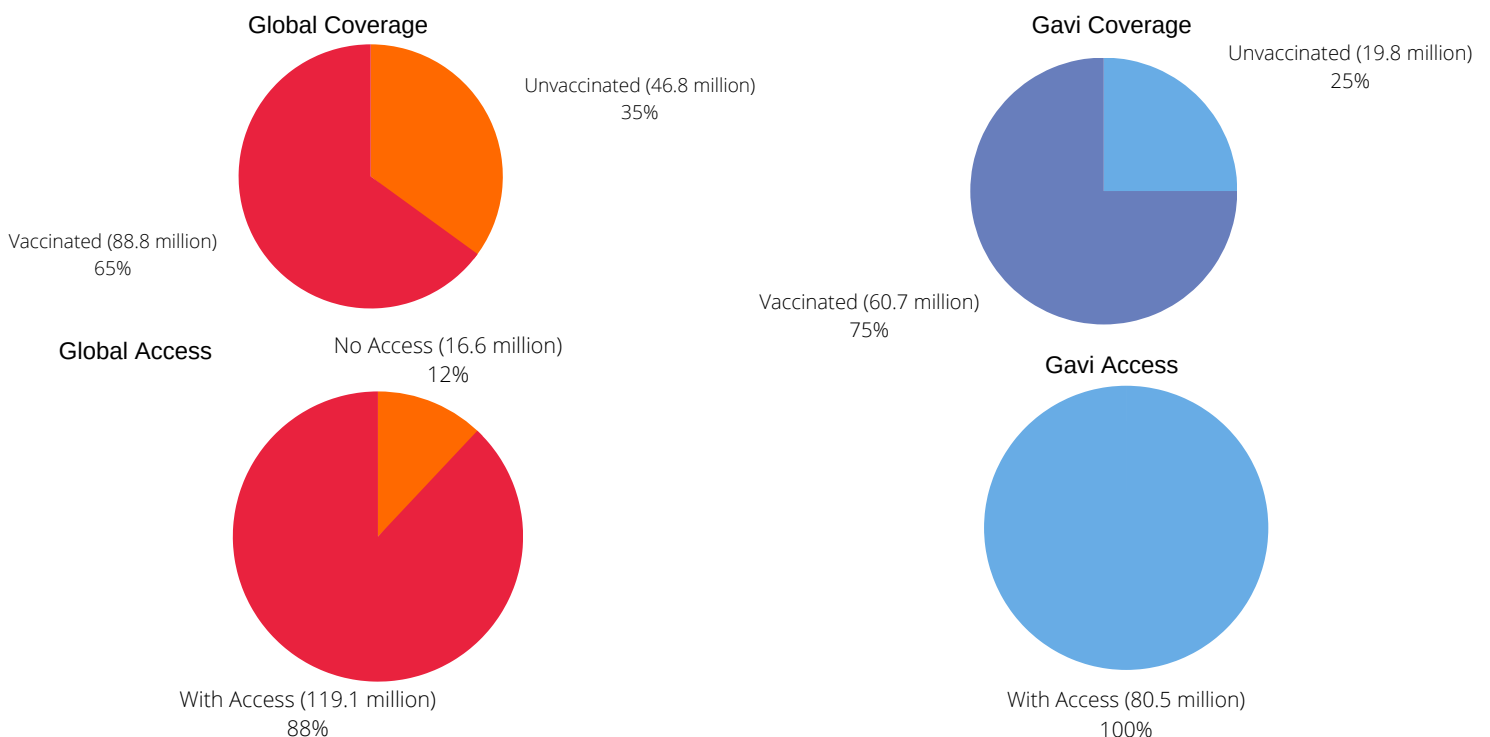
See the Hib page on VIEW-hub for more information

INACTIVATED POLIO VACCINE

IPV Introduction by Year

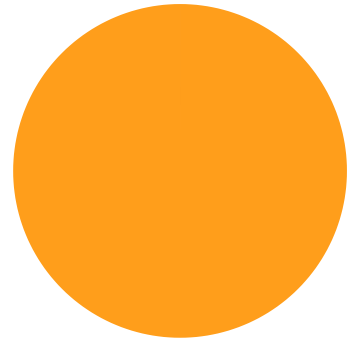


These estimates are calculated using 2022 WHO/UNICEF estimates of national immunization coverage. Information on how these estimates are calculated is included in the Methods section.



IPV Vaccine Introduction Status

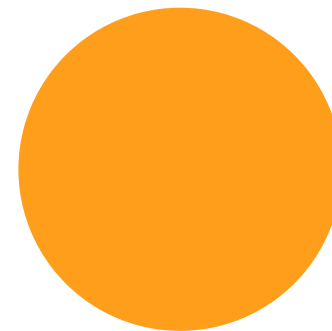
As of January 2023, 194 countries have introduced IPV into their national immunization program; among these, four countries have introduced subnationally.



Global

Introduced into national immunization program
100%

54 Gavi countries have introduced IPV into their national immunization program, three of which have introduced subnationally.



GAVI

Introduced into national immunization program
100%

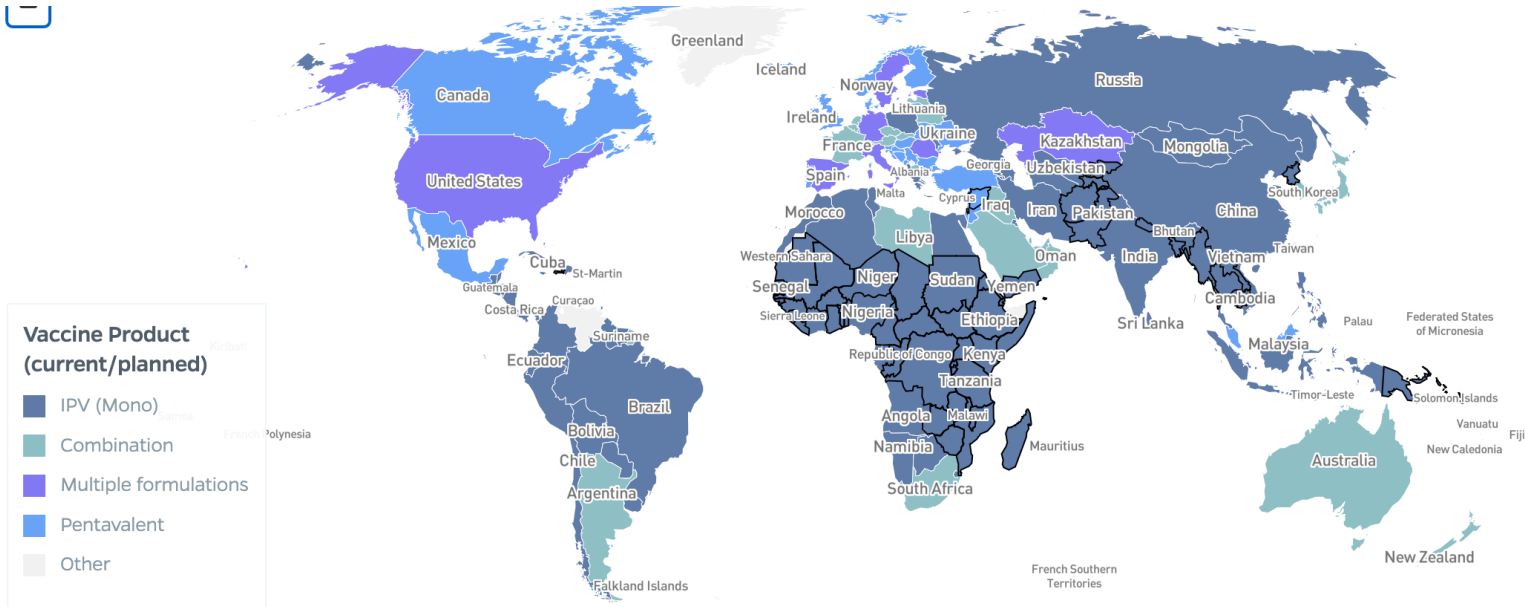
A map of countries that have introduced IPV is below.



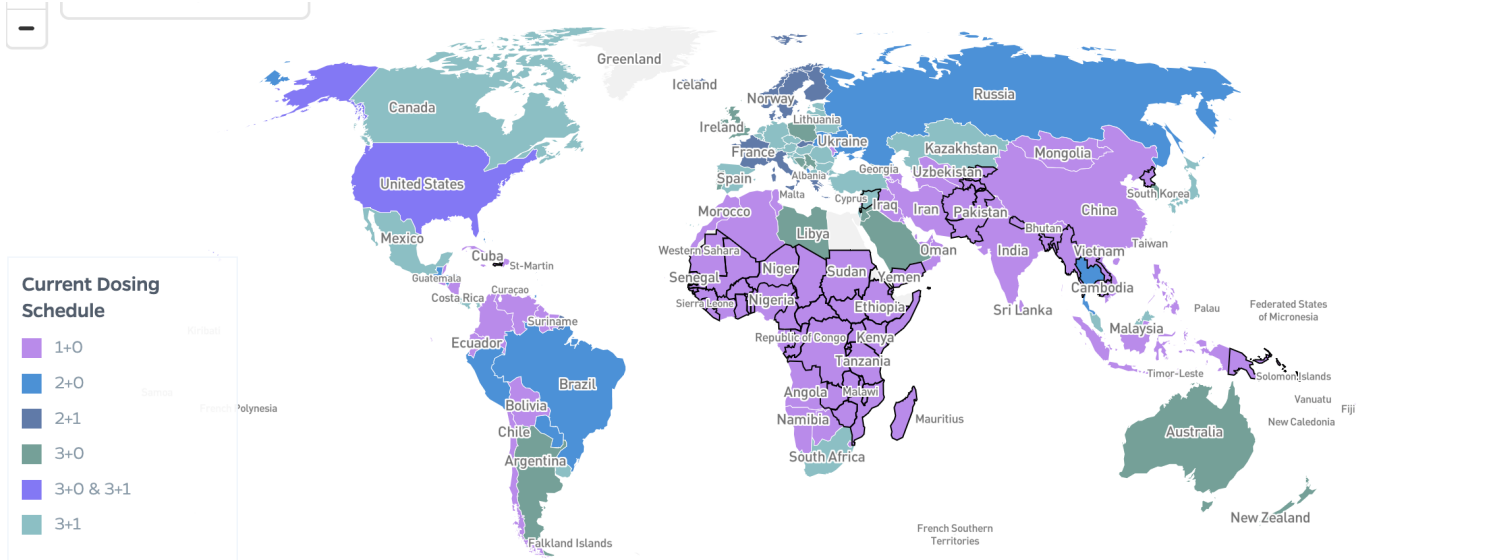
The countries outlined in black indicate countries approved for Gavi support.

INACTIVATED POLIO VACCINE

IPV - Current Product



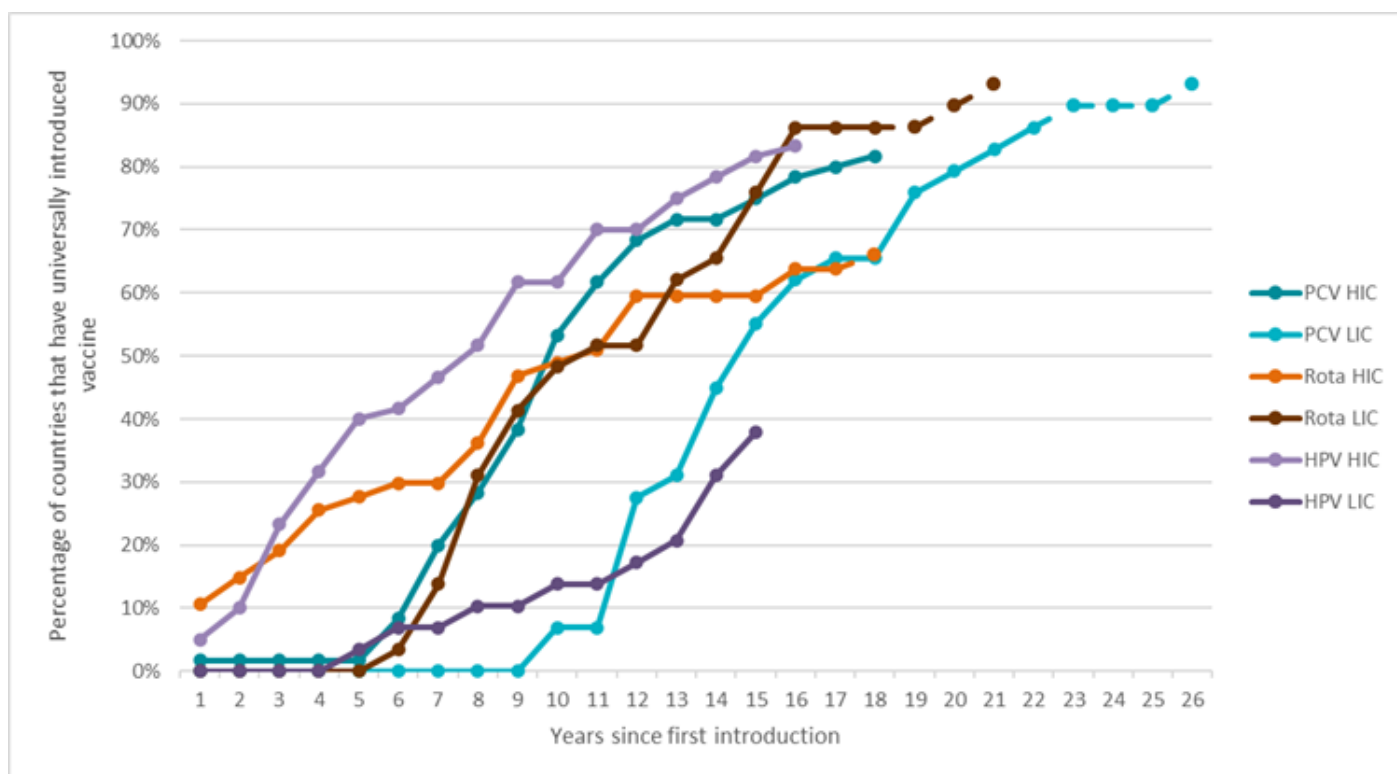
IPV - Current Dosing Schedule



The countries outlined in black indicate countries approved for Gavi support.

See the IPV page on VIEW-hub for more information

VACCINE INTRODUCTION: BY INCOME GROUP



Note: Limited projections are available for vaccine introductions in High Income Countries

The line graph shows the proportion of high- and low-income countries that have introduced or are projected to introduce PCV, rotavirus, or HPV vaccine in the target population over time. Year of first introduction for PCV is 2000, for rotavirus vaccine is 2006 and for HPV is 2006.

The gap between low- and high-income in the proportion of countries that have introduced is wider for HPV than either PCV or rotavirus vaccine: after 15 years since first introduction, less than 40% of low-income countries have introduced HPV compared to over 80% of high-income countries; for PCV after 20 years, 80% of both low- and high-income countries have introduced; for rotavirus vaccine after 18 years, a greater proportion of low-income countries (over 85%) have introduced than high-income countries (approximately 65%).

SOURCES

<p>Gavi Eligibility Status</p>	<p>Gavi, The Vaccine Alliance. Gavi Eligible Countries. 2016. Last accessed Jan 2016 at https://www.gavi.org/types-support/sustainability/eligibility</p>
<p>DTP3 Coverage Rate</p>	<p>WHO/UNICEF Estimates of National Immunization Coverage. 2022 data as of 15 Jul 2022. Retrieved from: https://immunizationdata.who.int/listing.html?topic=coverage&location=</p>
<p>Surviving Infants</p>	<p>United Nations Population Division. World Population Prospects (WPP): 2022 Revision. Retrieved from: https://population.un.org/wpp/</p>
<p>Projected Introduction Dates</p>	<p>This information comes from a variety of sources, primarily the most recent Gavi Strategic Demand Forecast and WHO regional projections. For more information, please contact Marley Jurgensmeyer at mjurgen4@jhu.edu or Anurima Baidya at abaidya1@jh.edu</p>
<p>Dates of Introduction</p>	<p>This information comes from a variety of sources, such as Gavi, WHO, UNICEF, ministries of health, the news media, and IVAC partners/contacts. For more information, please contact Anurima Baidya at abaidya1@jh.edu. It is cross-referenced with WHO information (below). World Health Organization. Immunization Repository. I. Retrieved from: https://immunizationdata.who.int/listing.html?topic=vaccine-intro&location=</p>
<p>Current Vaccine Use Status and Program Type</p>	<p>This information comes from a variety of sources, such as Gavi, WHO, UNICEF, ministries of health, news media, and IVAC partners/contacts. For more information, please contact Anurima Baidya at abaidya1@jh.edu</p>

SELECTED KEY TERMS

Approved: the application meets all the criteria and is approved for Gavi support.

Approved with clarification: the application lacks specific pieces of data, which must be provided generally within a month. Data must be received before the application is considered officially approved for Gavi support.

Children with access: the number of children (based on surviving infants 2015) who live in a country that has introduced the vaccine into the national immunization program. This does not include countries with widespread market use or high-risk programs. For regional introductions, those regions that have introduced may be included and the regions which have not introduced excluded.

Children vaccinated: the number of surviving infants who received the vaccination based on the 2018 coverage rates of countries who have introduced. The WHO/UNICEF estimates of national immunization coverage (WUENIC) coverage rates are used for this figure.

Introduced into national immunization program: the vaccine has been incorporated into the national government's immunization program, either for all children or for special populations at high-risk of disease, and it may include programs that are being phased in over time. This status can apply to any country, regardless of Gavi eligibility. For IPV, this status covers all countries that have introduced at least one dose of IPV into its child national immunization schedule.

Subnational introductions: the vaccine has been introduced into the vaccination schedule for a geographic subset of the country. This status can apply to any country, regardless of Gavi eligibility.

Gavi application submitted under review: the country has submitted a New and Underused Vaccines Support (NVS) application for this vaccine and is awaiting Gavi evaluation.

Gavi approved/approved with clarification: the country's application to Gavi for New and Underused Vaccines Support (NVS) financing for this vaccine has been approved or approved with clarifications.

SELECTED KEY TERMS (CONT.)

Gavi conditional approval to introduce: the application to Gavi for New and Underused Vaccines Support (NVS) for this vaccine does not fulfill specific or significant application requirements. Missing requirements must be provided in a subsequent round to complement the original application. If the conditions are not met within the given timeframe after the first submission, re-submission of a new application is required.

Gavi resubmission: the New and Underused Vaccines Support (NVS) application for this vaccine is incomplete and a full application should be submitted in a future round.

Gavi plan to apply: the country has made a public statement (through government or other recommending body on vaccines) that they plan to introduce the vaccine and apply for Gavi New and Underused Vaccines Support (NVS), but has not yet submitted an application.

No decision: the country has not indicated a firm decision to introduce the vaccine into its national immunization program or to apply for Gavi New and Underused Vaccines Support (NVS) for the vaccine.

Non-Gavi planning introduction: a country that is not eligible for Gavi support has plans to introduce the vaccine into its national immunization program and has taken steps to initiate its program, such as contacting the vaccine manufacturer OR a country that is eligible for Gavi support and plans to introduce without it.

Planning introduction: the combination of countries that have announced plans to apply for Gavi support, Gavi countries that have announced plans to introduce the vaccine without Gavi support, or non-Gavi countries that have announced a plan to introduce.

Risk: program for this vaccine only covers children in special populations at high-risk for disease; this may include children with health conditions, those of vulnerable socioeconomic statuses or ethnic groups, or those living in regions of high risk.

Widespread coverage through private market: most (over half) of the target population is receiving the vaccine through private market use.

For any definitions not provided above, please refer to the data dictionary in VIEW-hub at <https://view-hub.org/resources>.

APPENDIX

This report has been generated using data and maps from VIEW-hub, developed and maintained by the International Vaccine Access Center (IVAC) at the Johns Hopkins Bloomberg School of Public Health for use by IVAC and its affiliated projects and partners. VIEW-hub is a publicly-accessible interactive platform that allows real-time visualization of data on vaccine introduction, use, and impact. Information was gathered from internationally-recognized sources, such as WHO, Gavi, UNICEF, vaccine manufacturers, ministries of health, and news media.

Please note that all forecasted dates in this report rest on assumptions and actual dates may vary. Vaccine introduction dates do not imply an obligation by Gavi to support coverage.

Disclaimer: The presentation of VIEW-hub maps in this report is not by any means an expression of IVAC's opinion regarding the legal status of countries/territories, their governing authorities, or their official boundaries. On VIEW-hub's website, country borders which are not in full agreement are displayed with dotted lines, which may be difficult to visualize at the global view presented in this report.

Definitions and sources are available within VIEW-hub at www.VIEW-hub.org.

This report and the PowerPoint slides with the report graphics can be found at: www.VIEW-hub.org/resources. All maps shown in this report were generated on VIEW-hub and can be replicated/updated on the site.

Any data on projected introduction dates should not be reproduced or disseminated without prior consent from VIEW-hub personnel.

If data are used in a presentation, please cite VIEW-hub accordingly:
Source: International Vaccine Access Center (IVAC), Johns Hopkins Bloomberg School of Public Health. VIEW-hub Report: Global Vaccine Introduction and Implementation, October 2022. www.jhsph.edu/ivac/view-hub. Accessed: [Day Month Year].

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THANK YOU

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