



SEPTEMBER
2021

VIEW-hub Report: Global Vaccine Introduction and Implementation

www.VIEW-hub.org

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International Vaccine Access Center (IVAC)

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JOHNS HOPKINS
BLOOMBERG SCHOOL
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VACCINE ACCESS
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The appendix includes a description of VIEW-hub, support and funding for VIEW-hub, and how to cite VIEW-hub as a source

NOTE: The coverage and access graphs have been removed from this report due to the COVID-19 pandemic

NEW INTRODUCTIONS:

Samoa has introduced rotavirus vaccine.

VACCINE INTRODUCTION DASHBOARD

The following section provides contextual historic information about Hib vaccine, PCV, Rotavirus vaccine and IPV introduction in low-, middle-, and high-income countries, as well as Gavi-supported countries. It also provides a summary snapshot of the cumulative number of countries that have introduced each vaccine to date (globally and for Gavi countries only).

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				2019 (Pakistan)

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	140	3	5	148
Rotavirus	102	0	6	108
IPV**	190	0	4	194
HPV	105	0	5	110
Typhoid	1	0	1	2

Vaccine	Gavi Introductions (73 countries)			Total
	Universal	Special Risk Populations*	Subnational	
Hib	73	0	0	73
PCV	57	0	3	60
Rotavirus	50	0	1	51
IPV**	70	0	3	71
HPV	25	0	3	28
Typhoid	1	0	1	2

*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 is an extension of the previous VIMS report, with enhanced content and figures generated by IVAC's newly launched VIEW-hub data visualization platform, now accessible at www.VIEW-hub.org. VIEW-hub is an interactive platform (supported by internal databases), developed and maintained by IVAC and supported by Gavi, The Vaccine Alliance, the Bill & Melinda Gates Foundation and the ROTA Council.

The VIEW-hub report displays data and figures on the introduction status of Haemophilus influenzae type b (Hib) vaccine, pneumococcal conjugate vaccine (PCV), rotavirus vaccine, inactivated polio vaccine (IPV), and human papillomavirus vaccine (HPV) both globally and in the 73 Gavi countries. The images and text below describe: the number of countries that have introduced each vaccine or plan to in the future, global and Gavi rates of vaccine coverage and access, projected introduction dates for Gavi countries, historical trends in the rate of global vaccine introduction.

Since March 2016, new additions to the VIEW-hub report are information on countries' current product and dosing schedule for pneumococcal conjugate vaccine (PCV), rotavirus vaccine, and inactivated polio vaccine (IPV). Beginning in June 2016, besides the vaccine introduction dashboard section of the report, Hib updates will be limited to the global map of introductions and pie chart of introductions, given most countries (except 1) have already introduced the vaccine. Since July 2020, new additions to the VIEW-hub report are information on countries' human papillomavirus vaccine introduction, product, and dosing schedule. As of April 2021, the VIEW-hub report now includes information about the typhoid conjugate vaccine.

The report concludes with a more detailed description of VIEW-hub and its uses.

BACKGROUND

VIEW-hub is an interactive data visualization tool, which has replaced IVAC's previous Vaccine Information Management System (VIMS) - developed in 2008. VIMS was a web-based database with key information related to the vaccine introduction, which provided data for the quarterly VIMS Global Vaccine Introduction reports. VIEW-hub has retained important data elements (such as vaccine introduction information) previously found in VIMS, but has expanded both in scope and functionality to better meet the evolving needs of global vaccine stakeholders and decision makers.

Since the launch of VIEW-hub in 2016, the VIMS Global Vaccine Introduction reports developed by IVAC each quarter will now be known as the VIEW-hub reports. The data are continuously updated as information is received, so as to permit real-time reporting.

Through VIEW-hub, users can instantly visualize data on vaccine introductions, product usage, dosing schedules, access, coverage, impact studies, and more for a number of vaccines.

Custom queries and maps, exportable data and graphics, and a map gallery are just some of the interactive features users can access. VIEW-hub extends the functionality and content of the former VIMS, allowing users to track progress and strategize ways to accelerate and optimize vaccine implementation.

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 Vaccines, Typhoid, and Human Papillomavirus Vaccines

- Data on historical years of vaccine introduction are gathered from the WHO. Information on current introduction status are gathered from a variety of sources, such as 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 Kirithini Muralidharan at kmuralidharan@jhu.edu.

Coverage Estimates

- Vaccine coverage is calculated as the number of surviving infants globally covered by the vaccine in countries and subnational regions within countries that have introduced the vaccine. In the absence of coverage data for the vaccine, DTP3 coverage is used as a proxy,

Access Estimates

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

Vaccine Introduction by Income Level

- Countries were classified using 2021 World Bank income classifications (2020 GNI data). Year of introduction or forecasted introduction was determined through WHO reports, news media, and Gavi's Strategic Demand Forecast v12.

Countries Conducting PCV/Rotavirus Impact Evaluation

- Studies were identified for inclusion in the VIEW-hub impact study database via a literature search targeting published studies that evaluated the health impact of PCV/rotavirus vaccine in countries that have introduced the vaccine.

Table 1. Pneumococcal Conjugate Vaccine Introduction Forecast

- Projected introduction years for PCV were gathered from Gavi's Strategic Demand Forecast v12 and WHO sources.

Table 2. Rotavirus Vaccine Introduction Forecast

- Projected introduction years for Rotavirus vaccine were gathered from Gavi's Strategic Demand Forecast v12 and WHO sources.

Table 3. Human Papillomavirus Vaccine Introduction Forecast

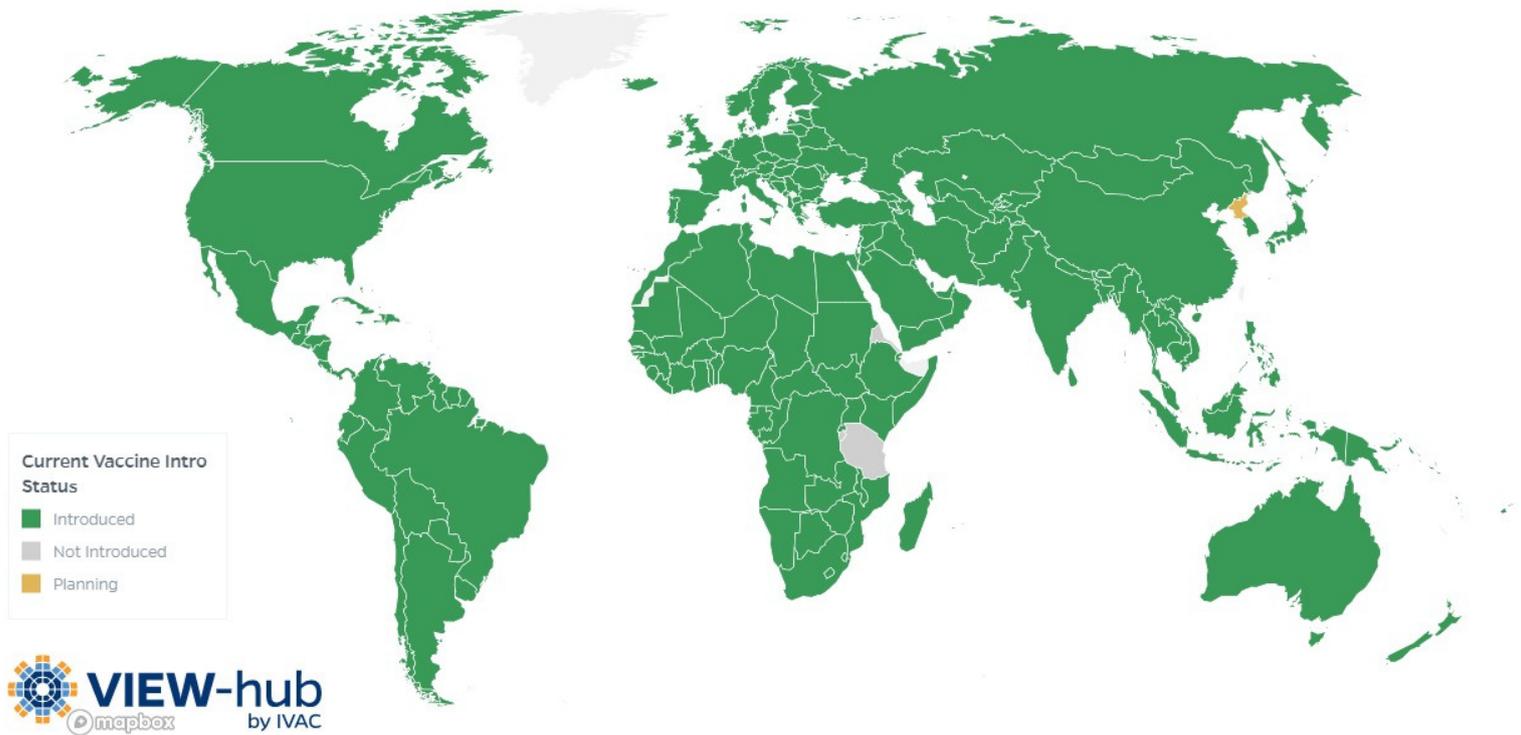
- Projected introduction years for HPV were gathered from Gavi's Strategic Demand Forecast v12 and WHO sources.

Table 4. Projected Vaccine Introduction by Year for Gavi Countries

- Gavi countries' projected introduction years for HPV, PCV, and rotavirus vaccine were gathered from Gavi's Strategic Demand Forecast v12 and WHO sources.

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.

COVID-19 VACCINES

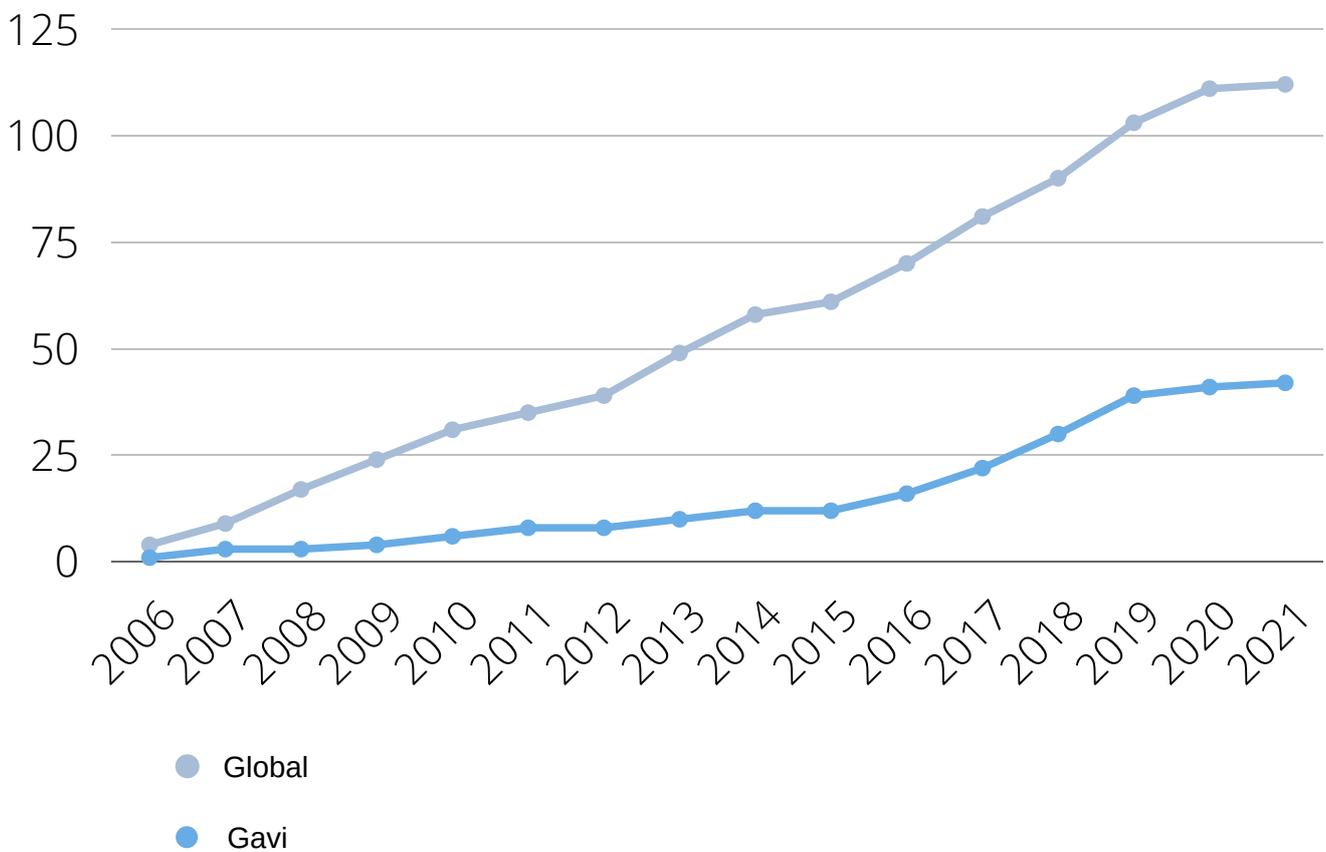


VIEW-hub now includes information on COVID-19 vaccines. Maps can be filtered by COVAX status, income strata, and region to show how COVID-19 vaccine rollout is progressing around the world. The module also includes information on which vaccines are being used around the world and which sub-populations are being targeted for vaccination. For easy reference, the different COVID-19 vaccines are also described, including their approval status, cold chain requirements, and country of manufacture.

Recently added: COVID-19 Vaccine Effectiveness module! Learn where studies are taking place, what vaccines, populations and outcomes are being studied.

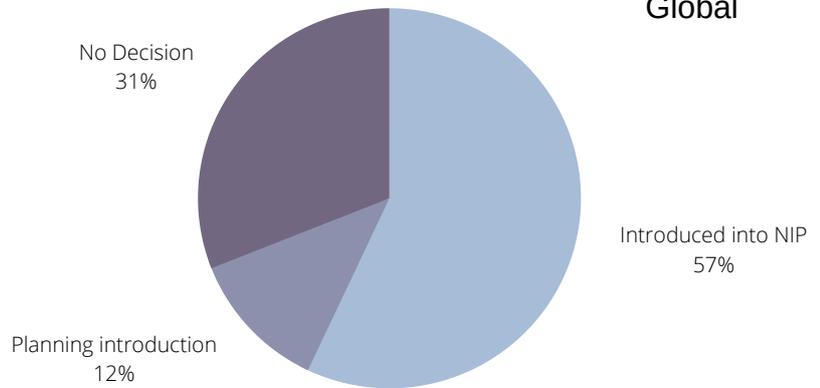
HPV VACCINE

HPV Introduction by Year

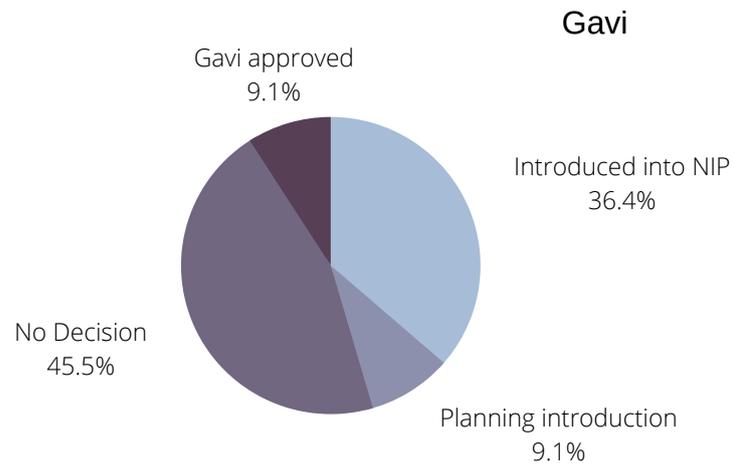


HPV Vaccine Introduction Status

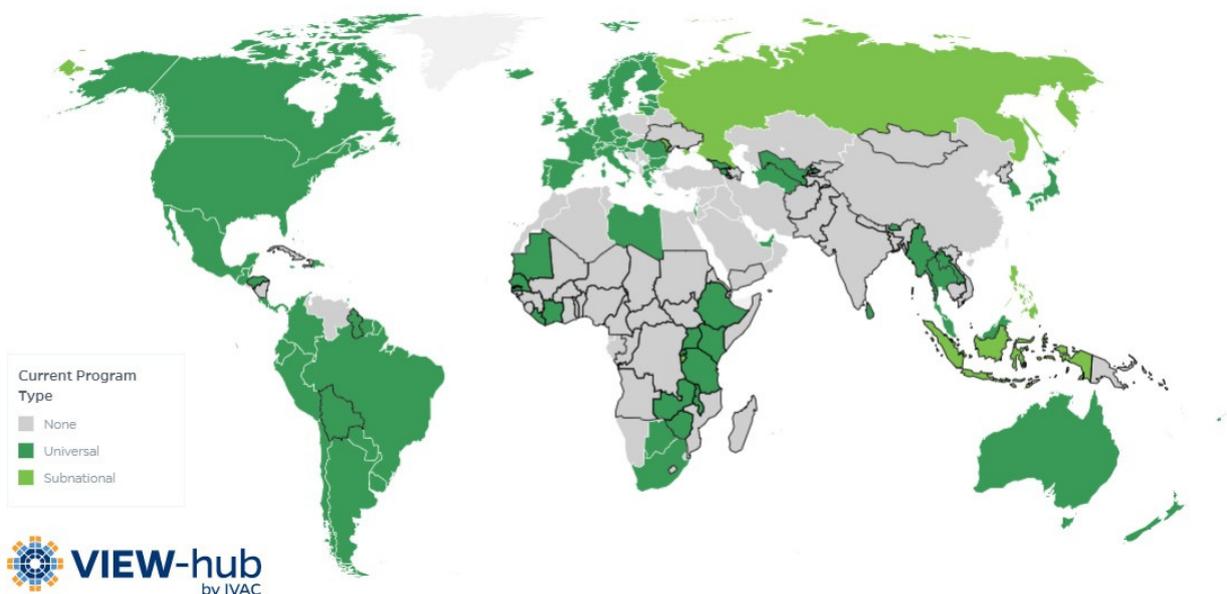
As of June 2021, globally, 109 countries have introduced HPV into their national immunization program; additionally, twenty countries have introduced demonstration projects. Twenty-three countries have announced plans to add HPV to their national immunization program. 61 countries are yet to make a decision regarding introduction.



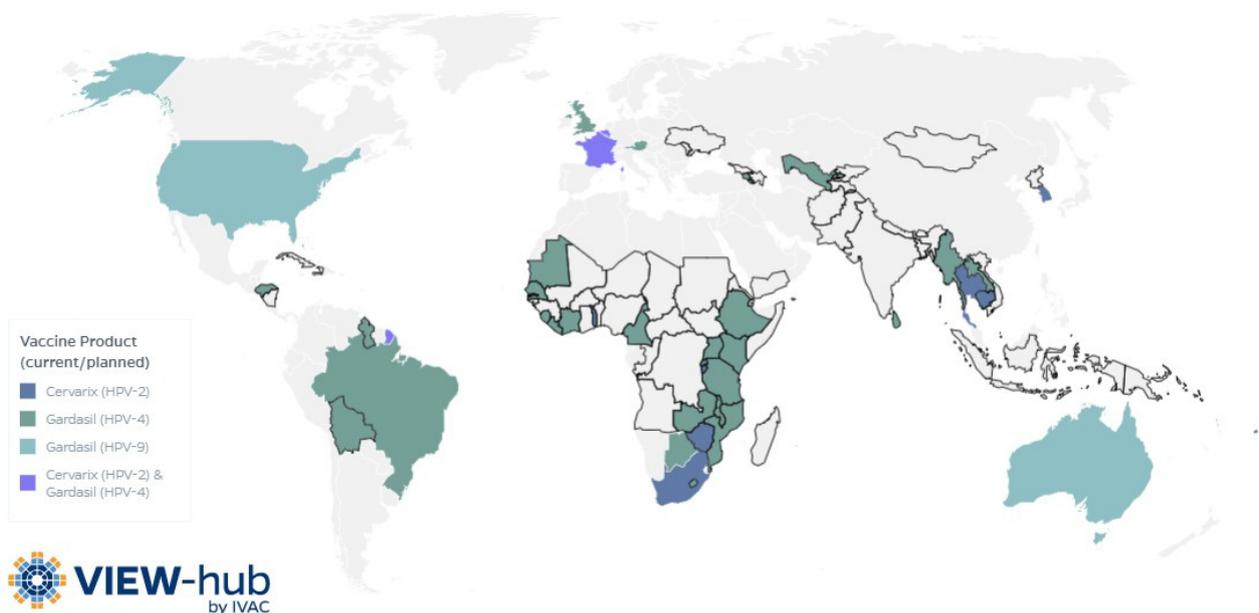
Twenty seven Gavi countries have introduced HPV into their national immunization program, four of which have introduced subnationally. Eight countries have been approved, with or without clarification, for Gavi support to introduce. Three have announced plans to add HPV to their national immunization program. Thirty five have yet to make a decision regarding introduction.



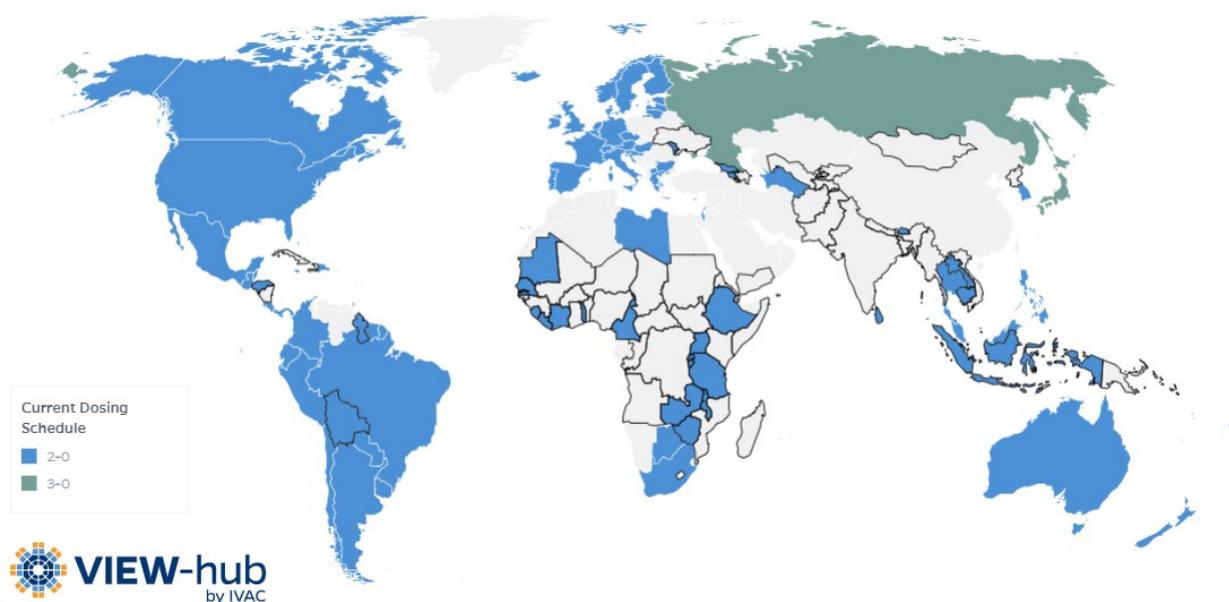
A map of the countries that have introduced HPV is below.



HPV - Current Product



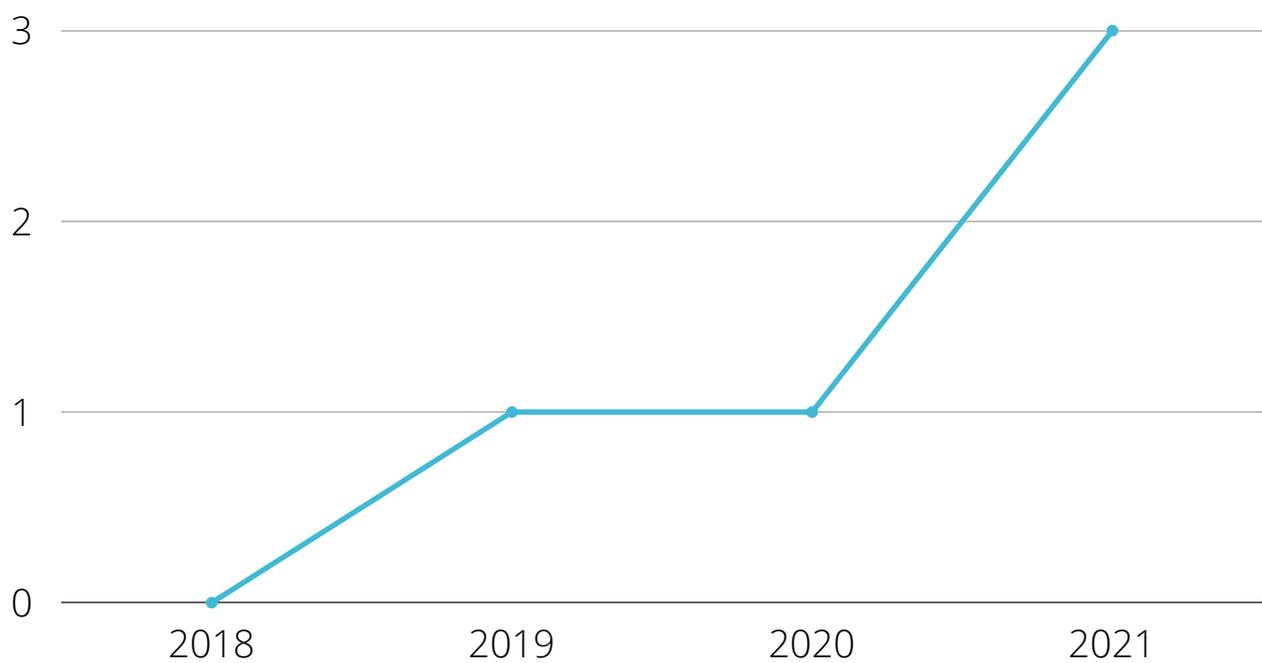
HPV - Current Dosing Schedule



See the HPV page on VIEW-hub for more information

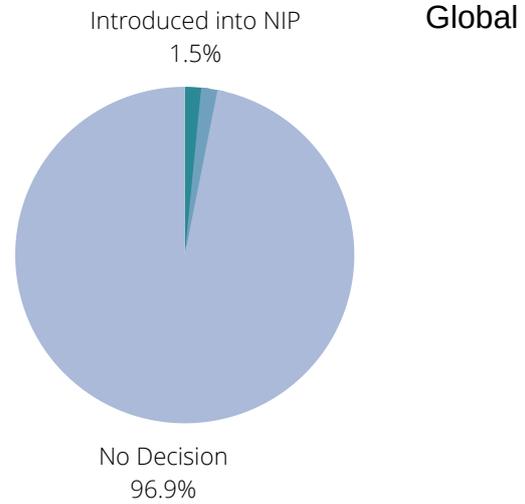
TYPHOID VACCINE

Typhoid Vaccine Introduction by Year

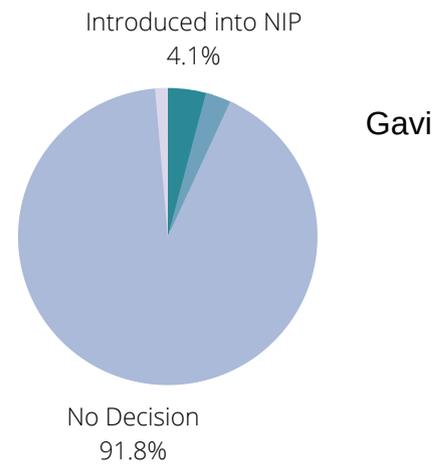


Typhoid Vaccine Introduction Status

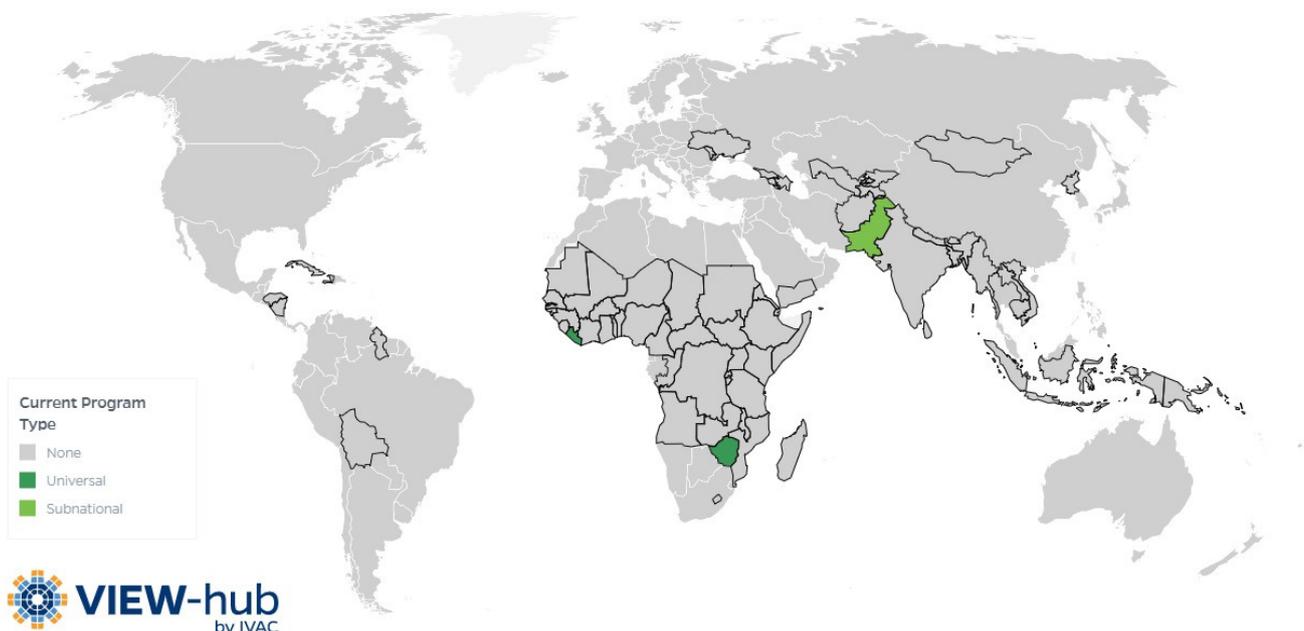
As of June 2021, globally, 3 countries have introduced typhoid conjugate vaccine into their national immunization program; Pakistan in a phased manner and Liberia universally. Three countries have announced plans to add TCV to their national immunization program. 188 countries are yet to make a decision regarding introduction.



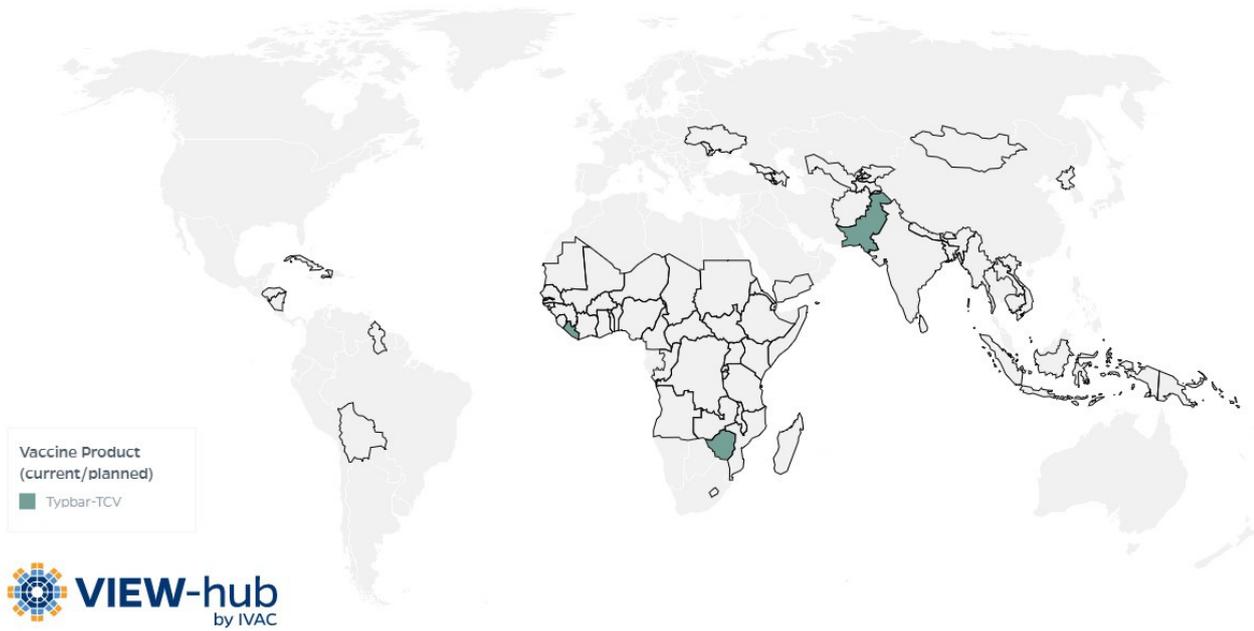
Two Gavi countries have introduced TCV into their national immunization program, Pakistan has introduced subnationally. Three countries have been approved, with or without clarification, for Gavi support to introduce. One has announced plans to add TCV to their national immunization program. Sixty seven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



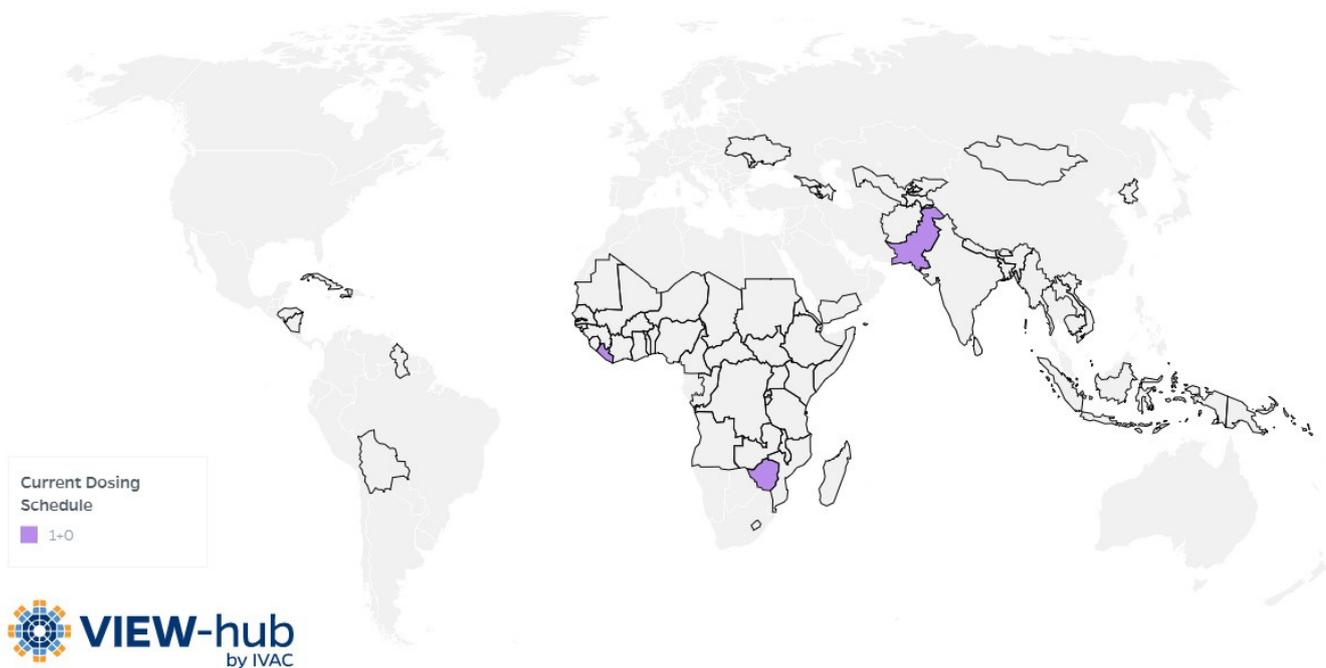
A map of the countries that have introduced HPV is below.



TCV- Current Product



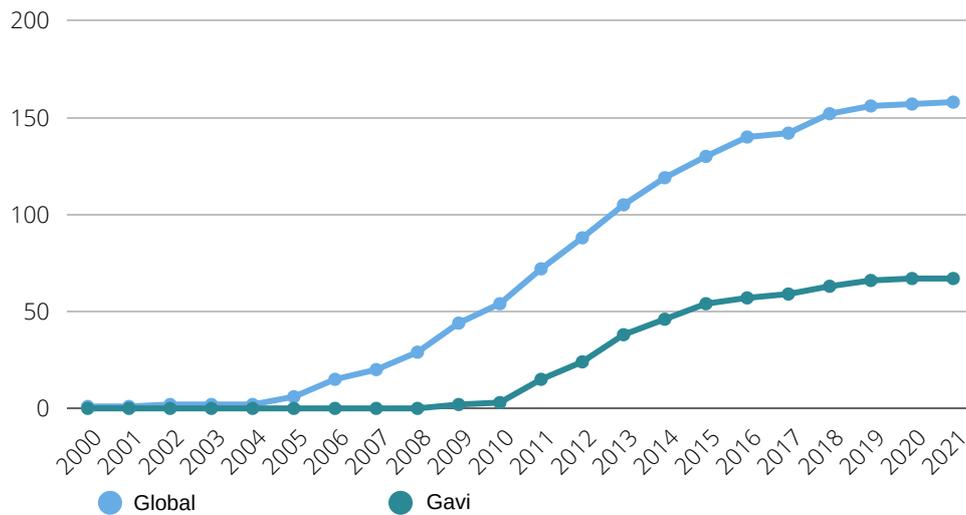
TCV - Current Dosing Schedule



See the TCV page on VIEW-hub for more information

PNEUMOCOCCAL CONJUGATE VACCINE

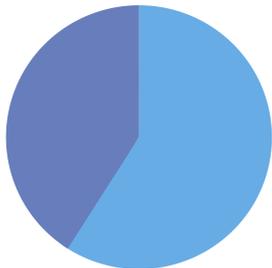
PCV Introduction by Year



These estimates are calculated using 2020 WHO/UNICEF estimates of national immunization coverage. Due to the COVID-19 pandemic, not all countries are reported in these estimates and these estimates will be updated as the data is updated. Information on how these estimates are calculated is included in the Methods section.

Global Coverage

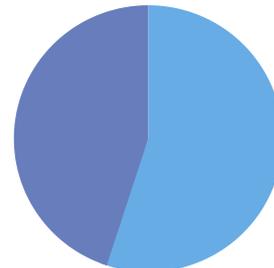
Vaccinated (55.2 million)
41%



Unvaccinated (80.4 million)
59%

Gavi Coverage

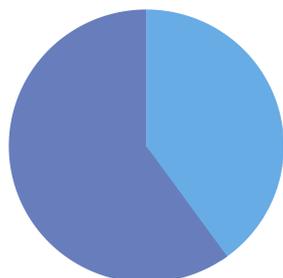
Vaccinated (36.0 million)
45%



Unvaccinated (44.4 million)
55%

Global Access

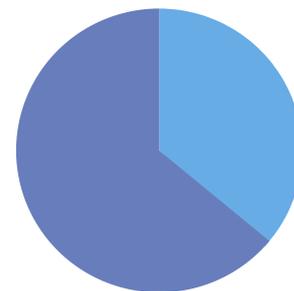
With Access (80.8 million)
60%



No Access (54.9 million)
40%

Gavi Coverage

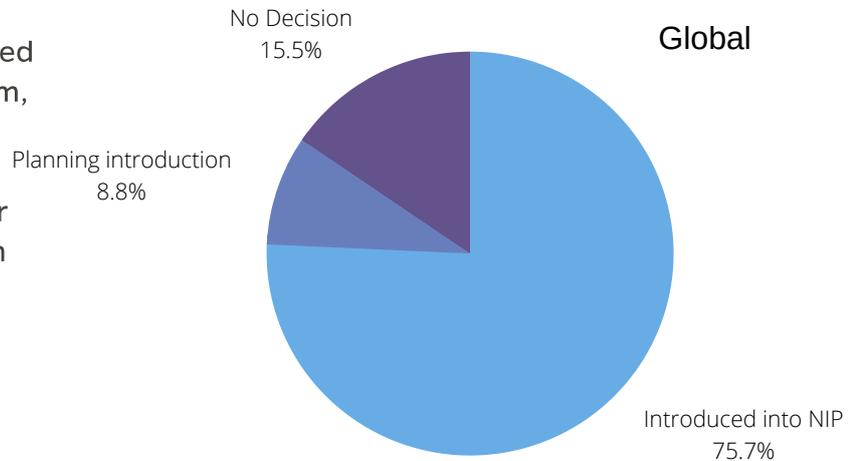
With Access (51.5 million)
64%



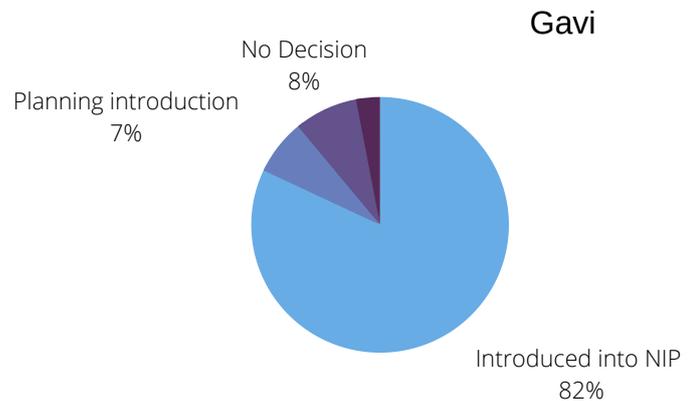
No Access (29.0 million)
36%

PCV Introduction Status

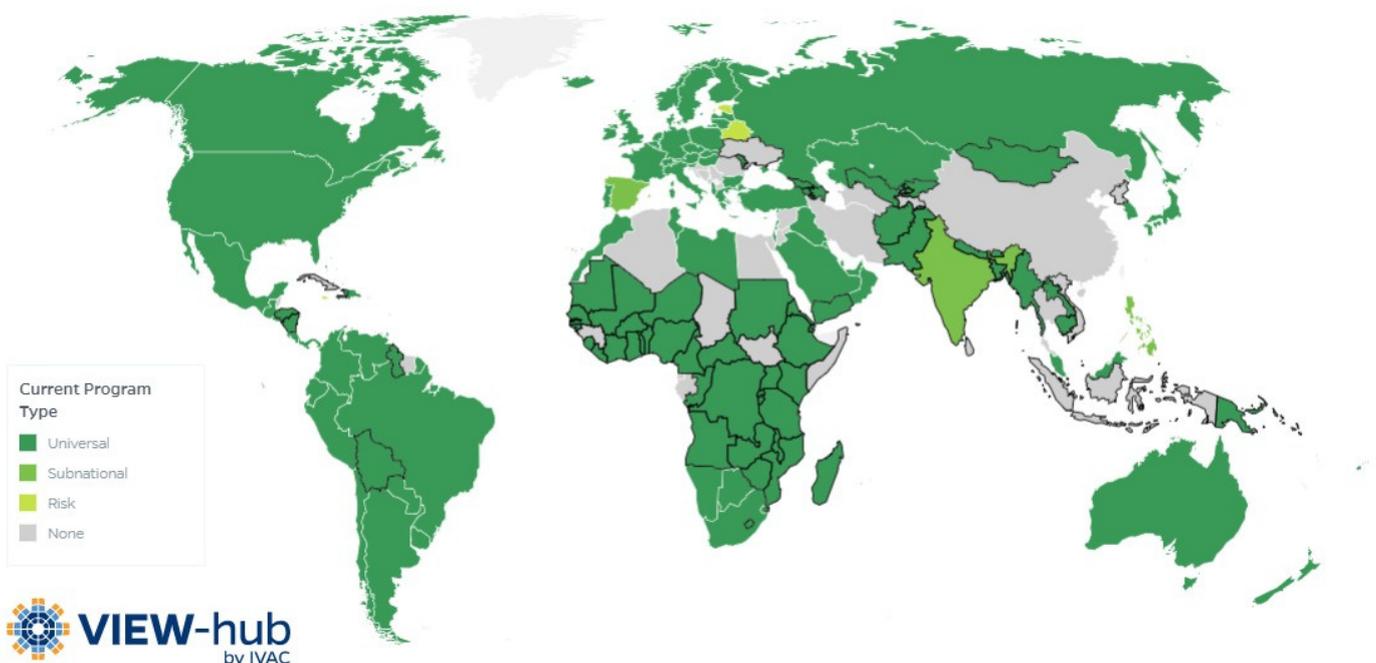
As of June 2021, 147 countries have introduced PCV into their National Immunization Program, including 140 universal, 4 subnational, and 3 risk programs. Seventeen countries have announced plans to introduced PCV into their NIP. 30 countries have yet to make a decision regarding introduction.



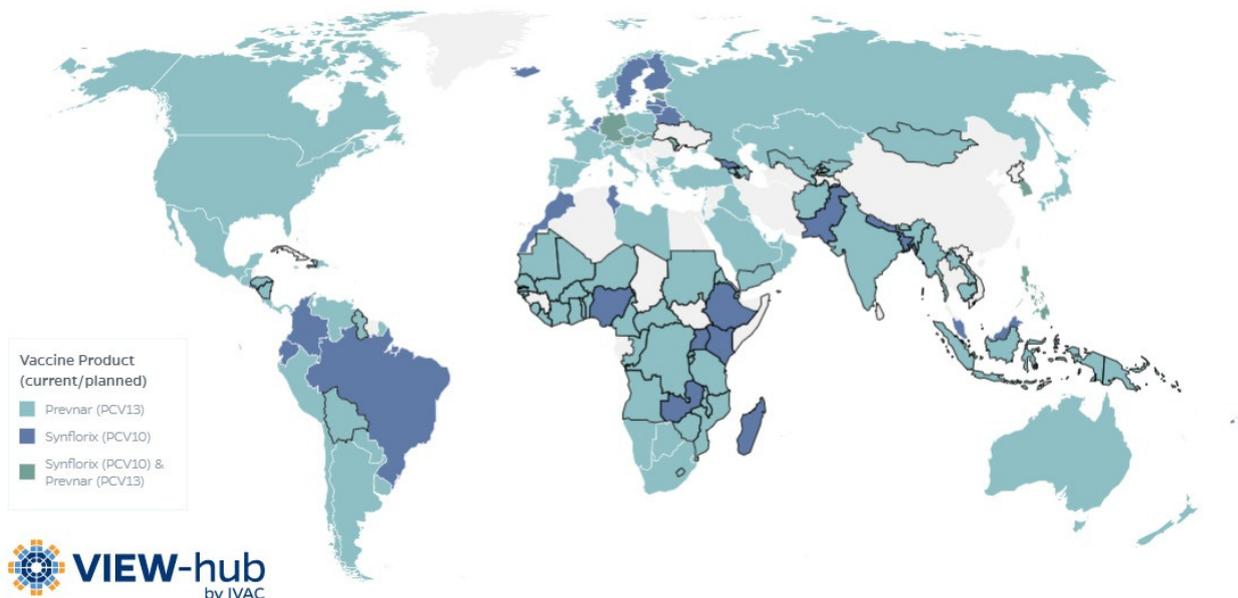
60 Gavi countries have introduced PCV into their National Immunization Program. Seven countries have announced plans to introduce PCV into their NIP. Six countries have yet to make a decision regarding introduction.



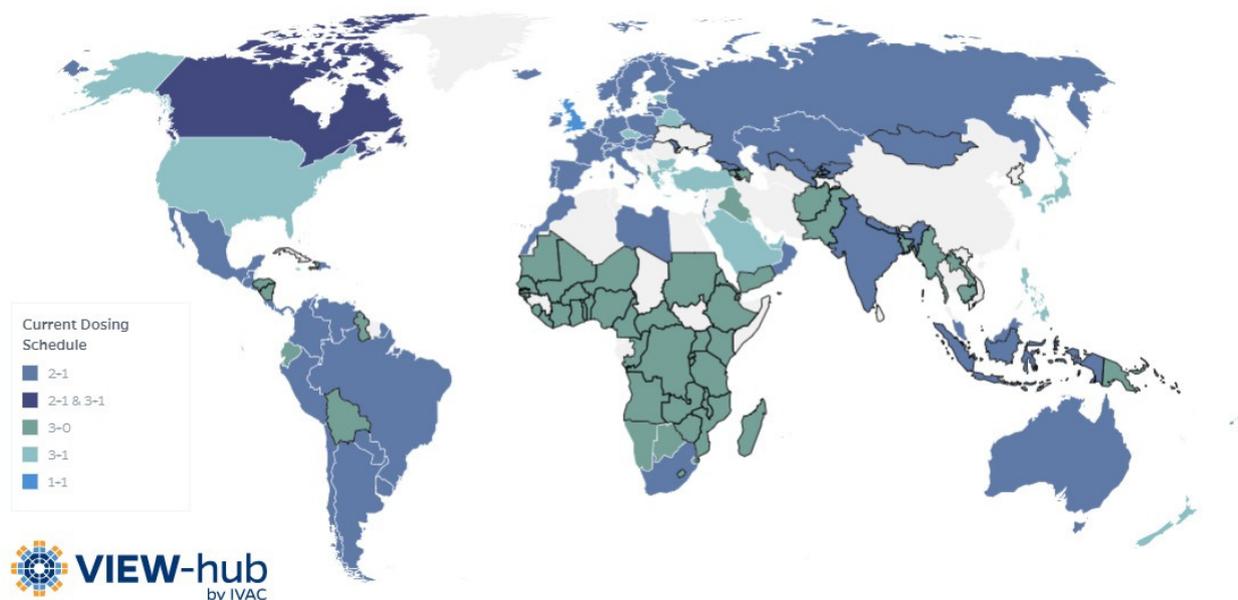
A map of the countries that have introduced PCV is below.



PCV - Current Product



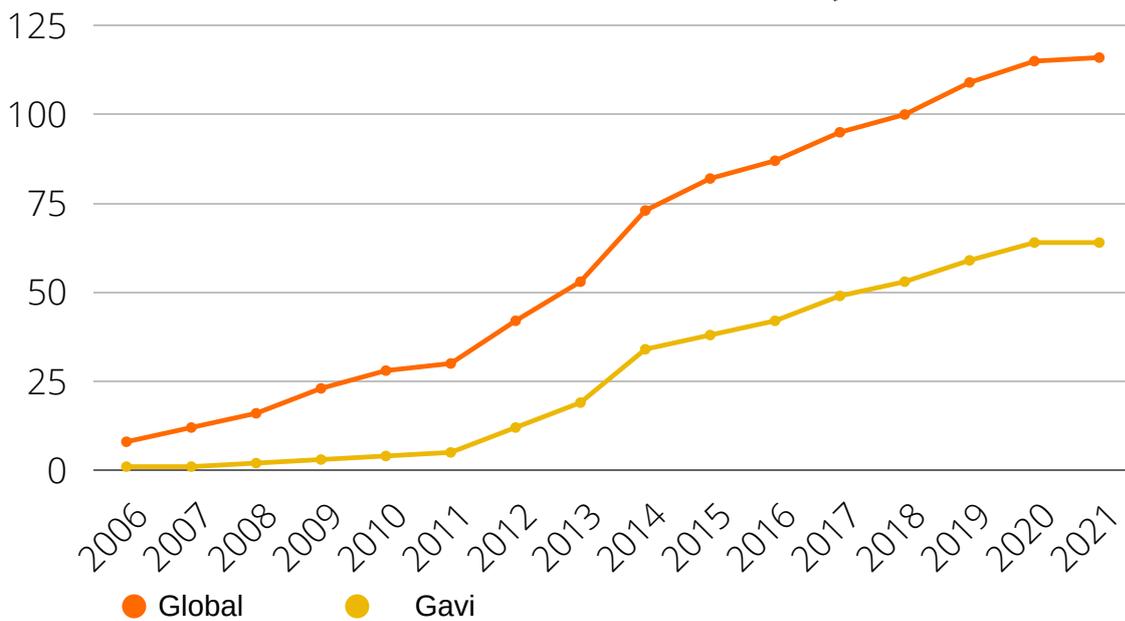
PCV - Current Dosing Schedule



See the PCV page on VIEW-hub for more information

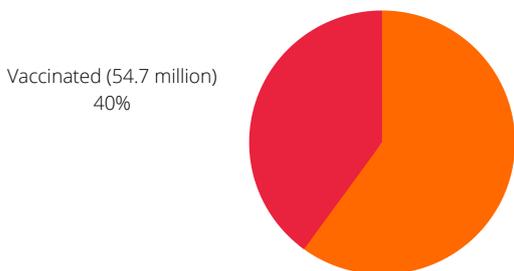
ROTAVIRUS VACCINE

Rotavirus Introduction by Year

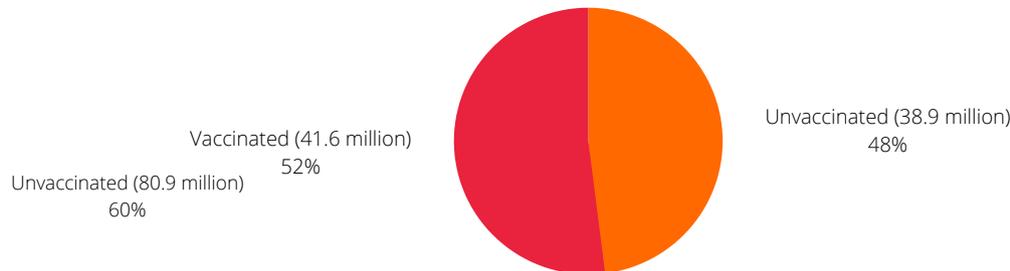


These estimates are calculated using 2020 WHO/UNICEF estimates of national immunization coverage. Due to the COVID-19 pandemic, not all countries are reported in these estimates and these estimates will be updated as the data is updated. Information on how these estimates are calculated is included in the Methods section.

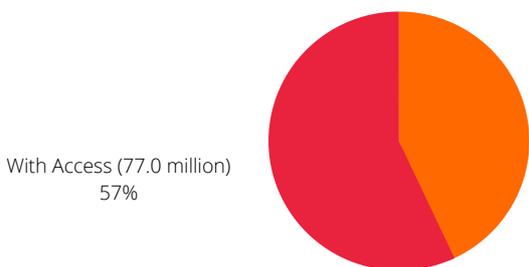
Global Coverage



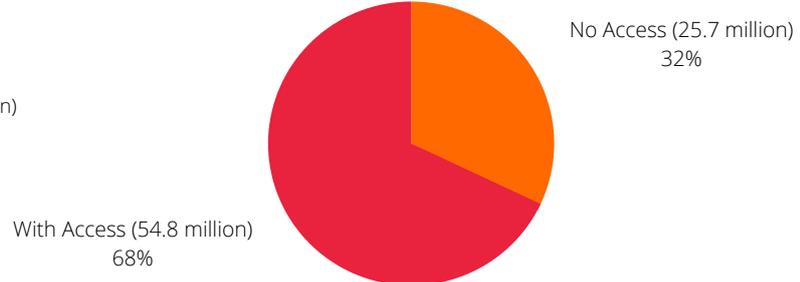
Gavi Coverage



Global Access

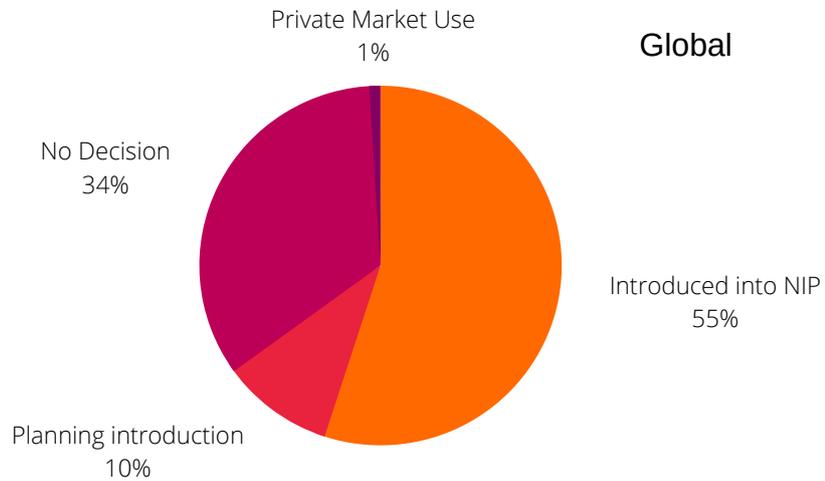


Gavi Access

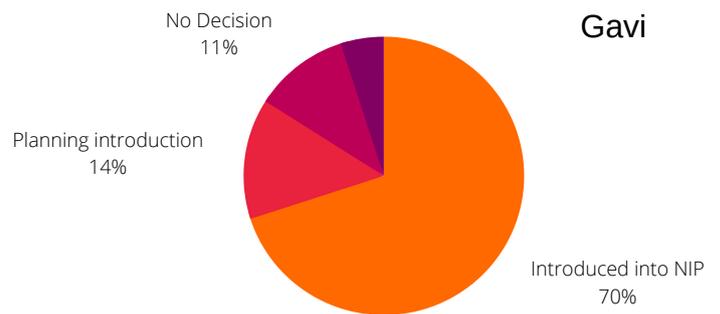


Rotavirus Vaccine Introduction Status

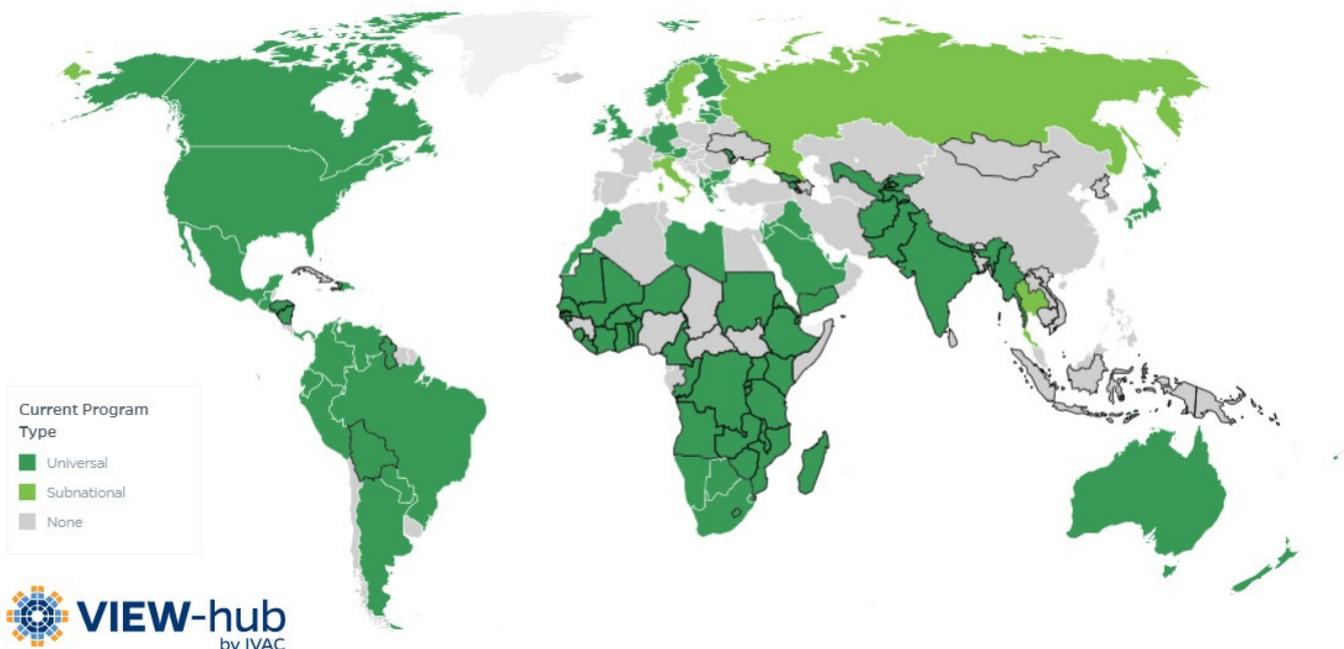
As of June 2021, 108 countries have introduced RV into their National Immunization Program; six of these countries have introduced subnationally. Eighteen countries have announced plans to introduced RV into their NIP. 62 countries have yet to make a decision regarding introduction.



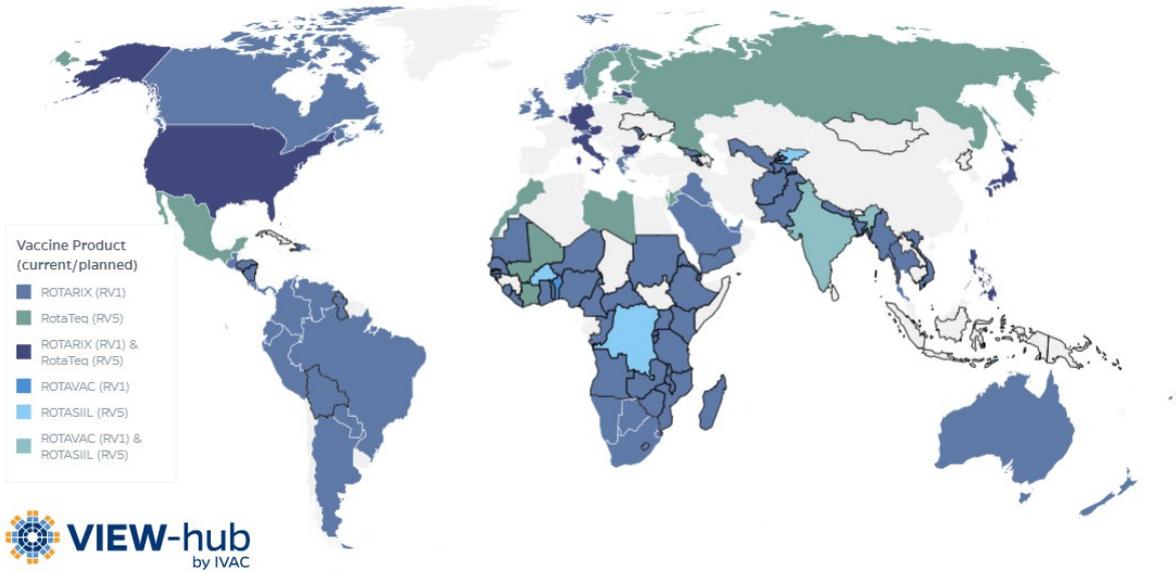
51 Gavi countries have introduced rotavirus vaccine into their National Immunization Program. Four countries are approved, with or without clarification, for Gavi support to introduce. Ten countries have announced plans to introduce rotavirus vaccine into their NIP. Eight countries have yet to make a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



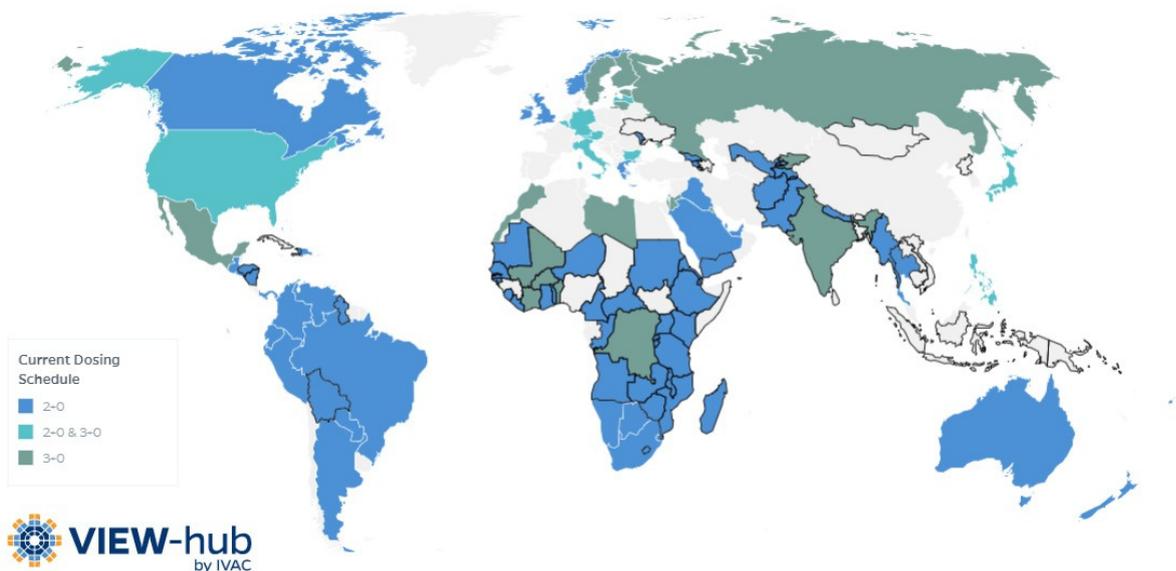
A map of countries that have introduced rotavirus vaccine is below.



Rotavirus Vaccine - Current Product



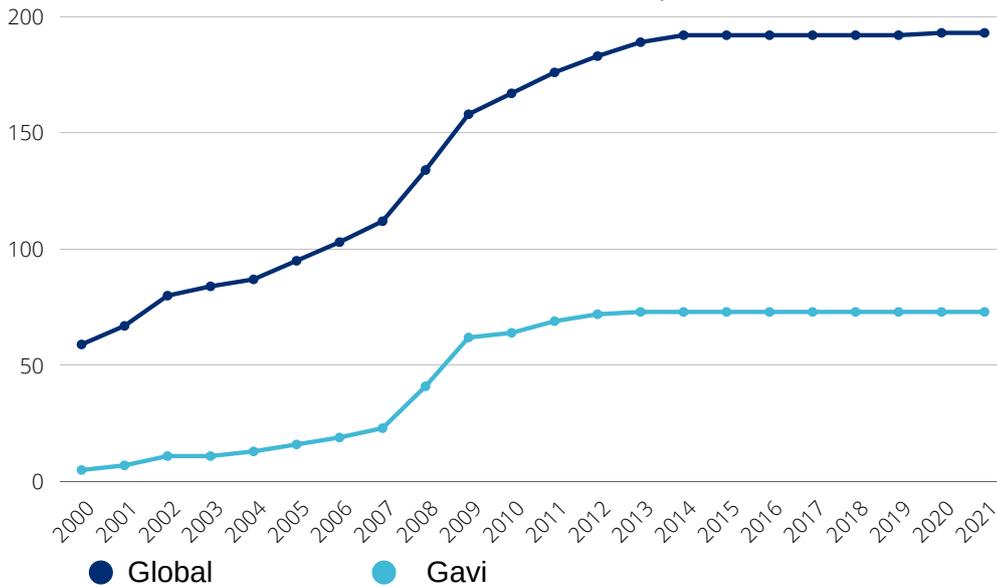
Rotavirus Vaccine - Current Dosing Schedule



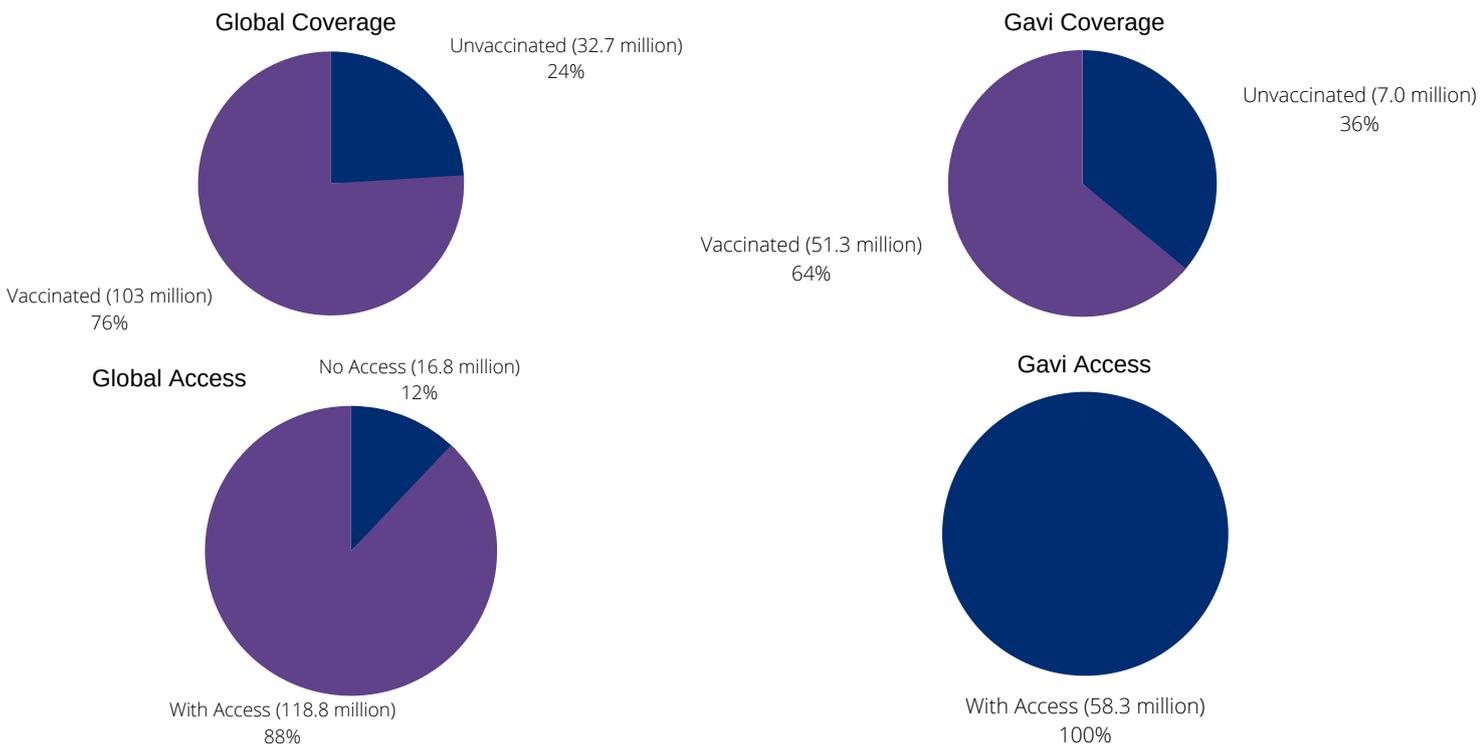
[See the RV page on VIEW-hub for more information](#)

HIB-CONTAINING VACCINE

Hib Introduction by Year



These estimates are calculated using 2020 WHO/UNICEF estimates of national immunization coverage. Due to the COVID-19 pandemic, not all countries are reported in these estimates and these estimates will be updated as the data is updated. Information on how these estimates are calculated is included in the Methods section.

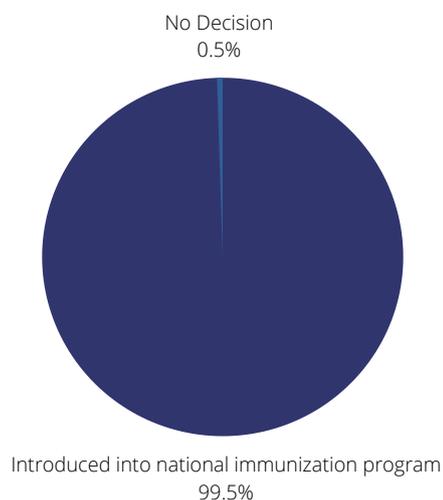


HIB-CONTAINING VACCINE

Hib Vaccine Introduction Status

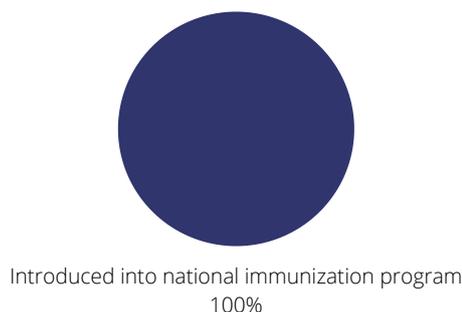
As of June 2021, 193 countries have introduced a Hib-containing vaccine into their National Immunization Program, Belarus introduced subnationally and Russia introduced to at risk populations. One country (China) has yet to make a decision regarding introduction.

Global

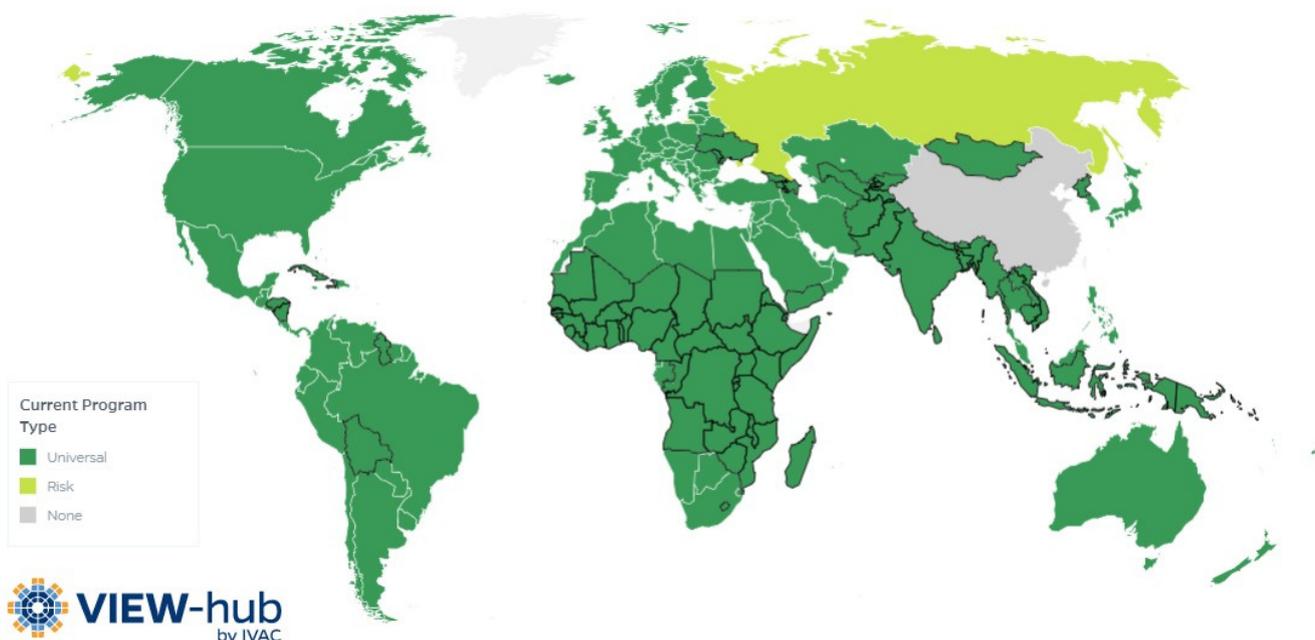


73 Gavi countries have introduced Hib-containing vaccine into their National Immunization Program.

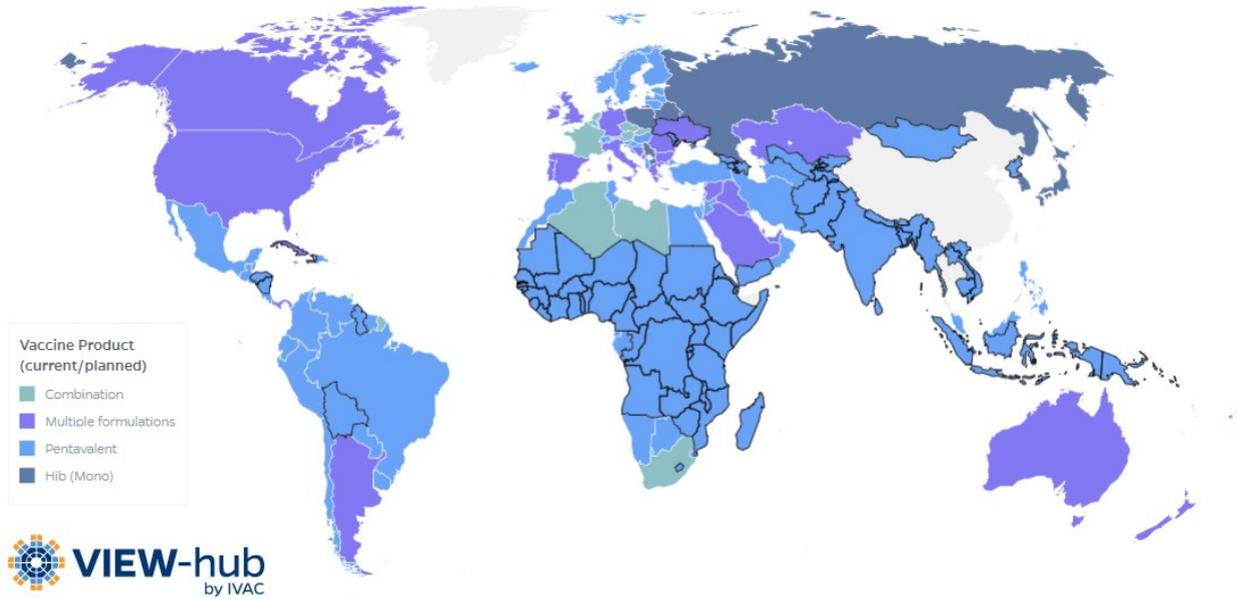
Gavi



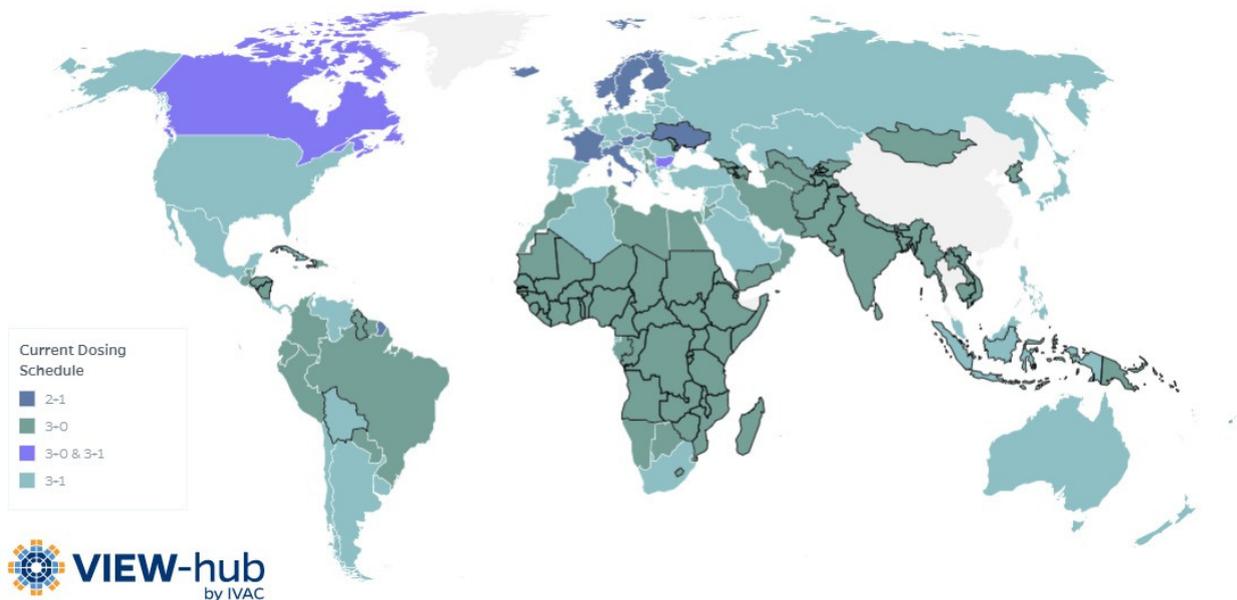
A map of countries that have introduced Hib is below.



Hib - Current Product



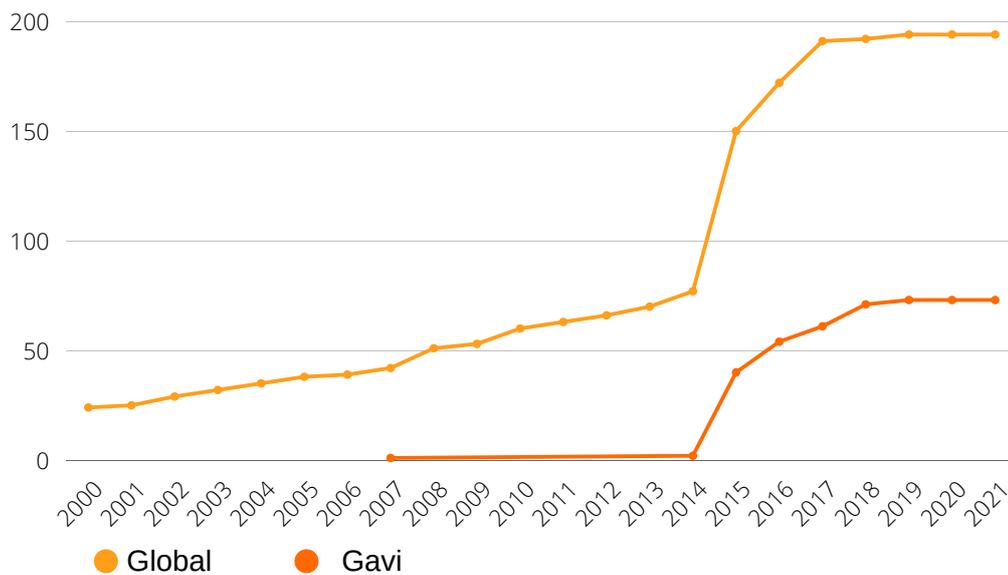
Hib - Current Dosing Schedule



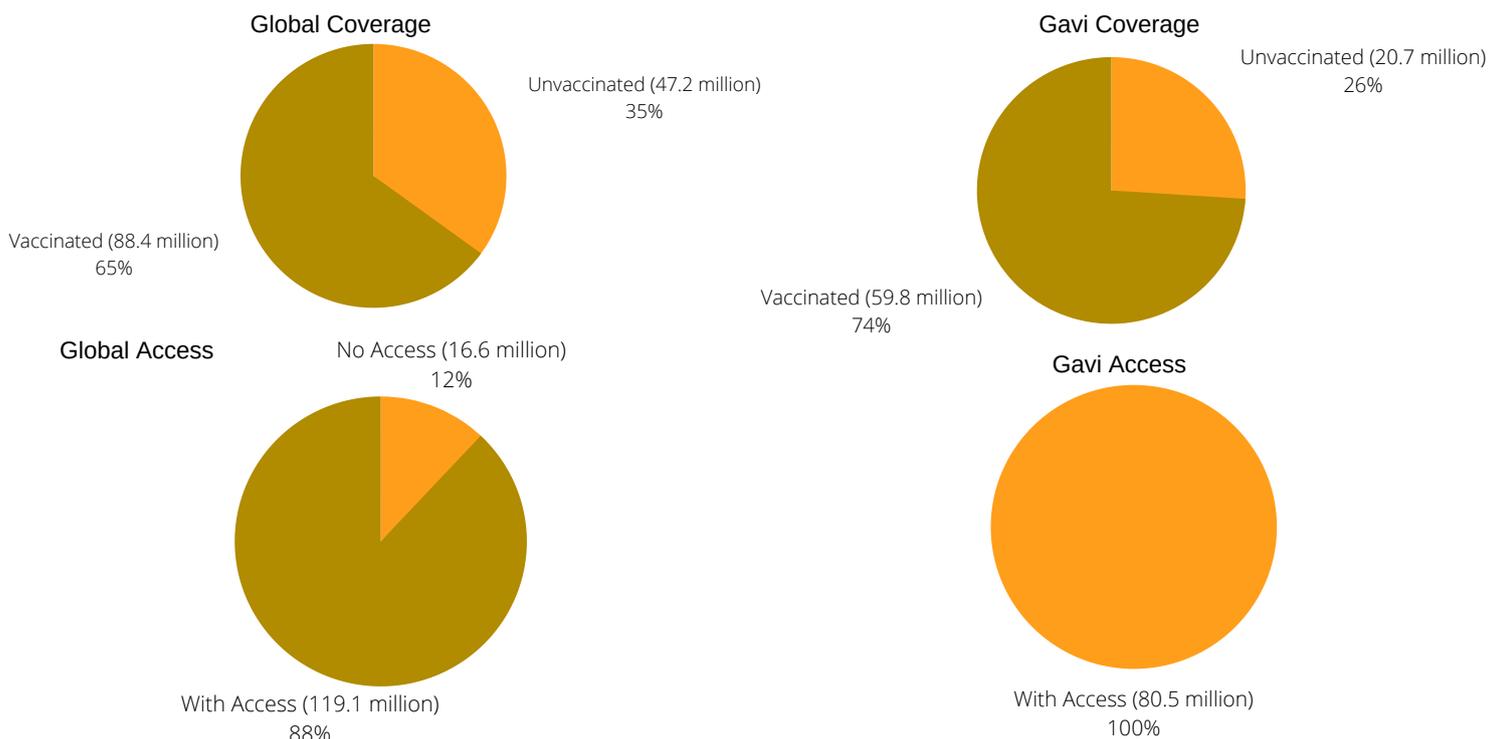
[See the Hib page on VIEW-hub for more information](#)

INACTIVATED POLIO VACCINE

IPV Introduction by Year



These estimates are calculated using 2020 WHO/UNICEF estimates of national immunization coverage. Due to the COVID-19 pandemic, not all countries are reported in these estimates and these estimates will be updated as the data is updated. Information on how these estimates are calculated is included in the Methods section.



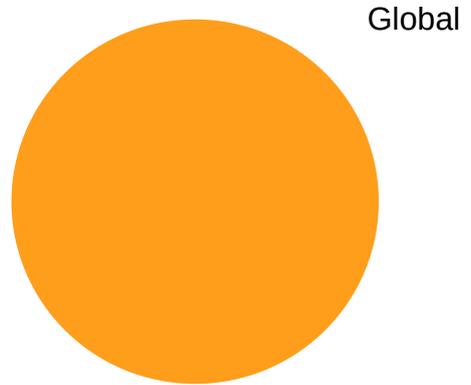
INACTIVATED POLIO VACCINE

IPV Vaccine Introduction Status

As of June 2021, 194 countries have introduced IPV into their national immunization program; among these, four countries have introduced subnationally.

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

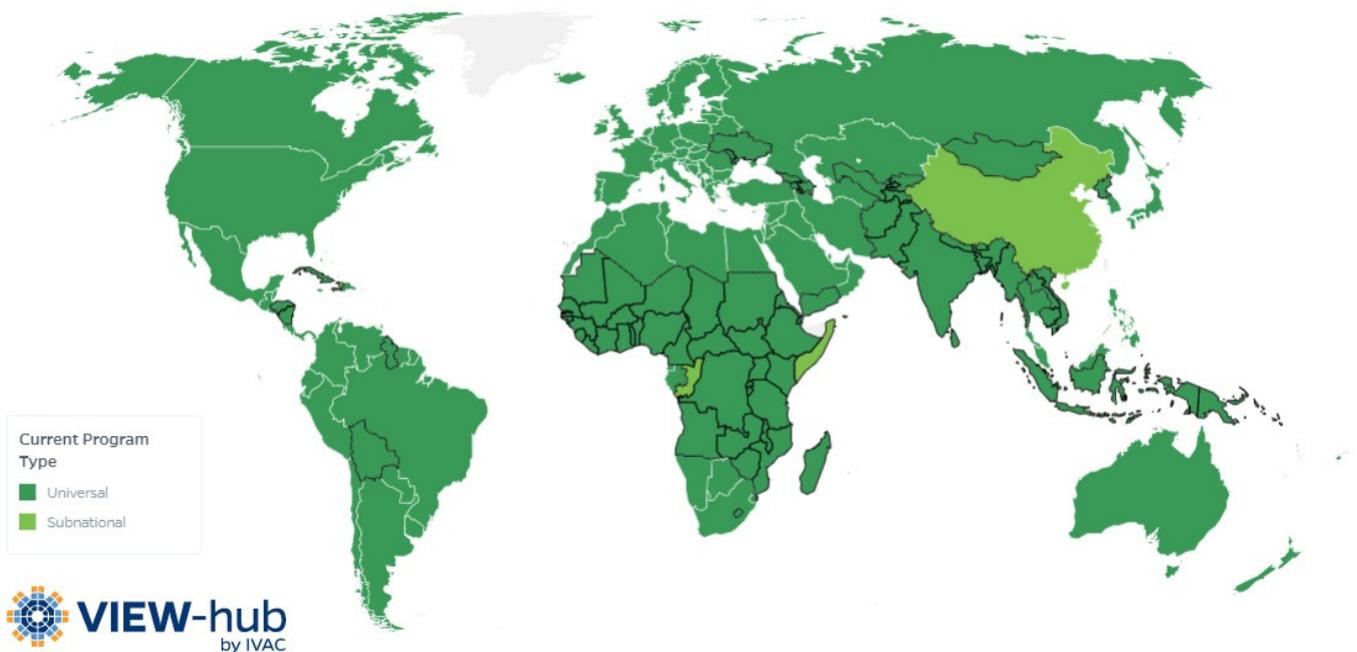
A map of countries that have introduced PCV is below.



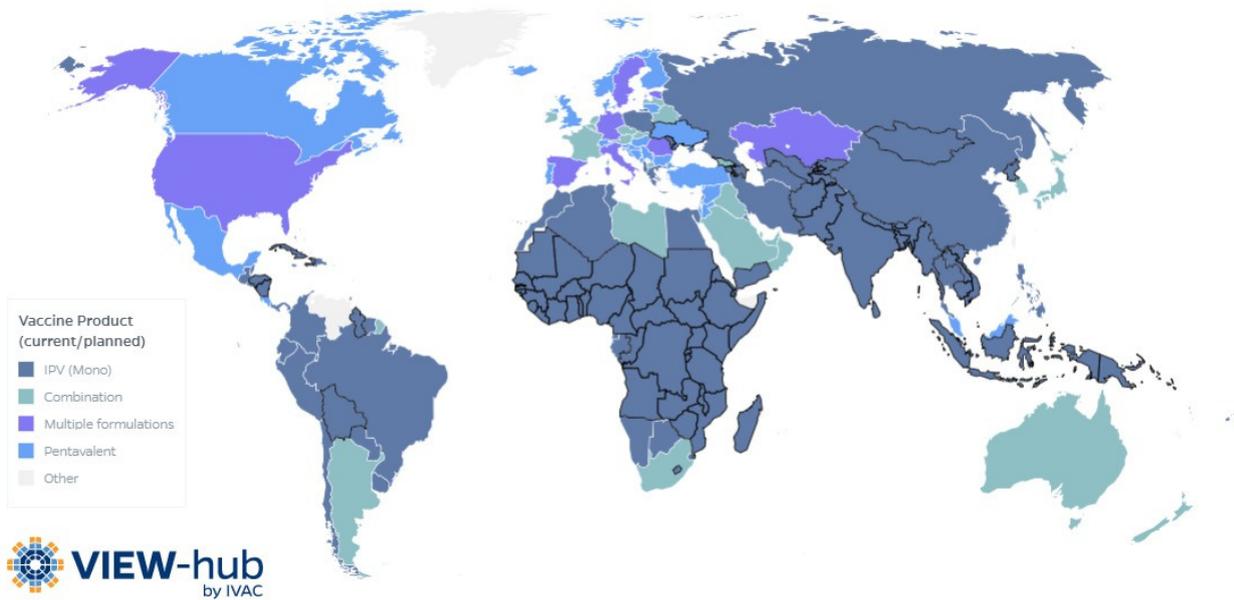
Introduced into national immunization program
100%



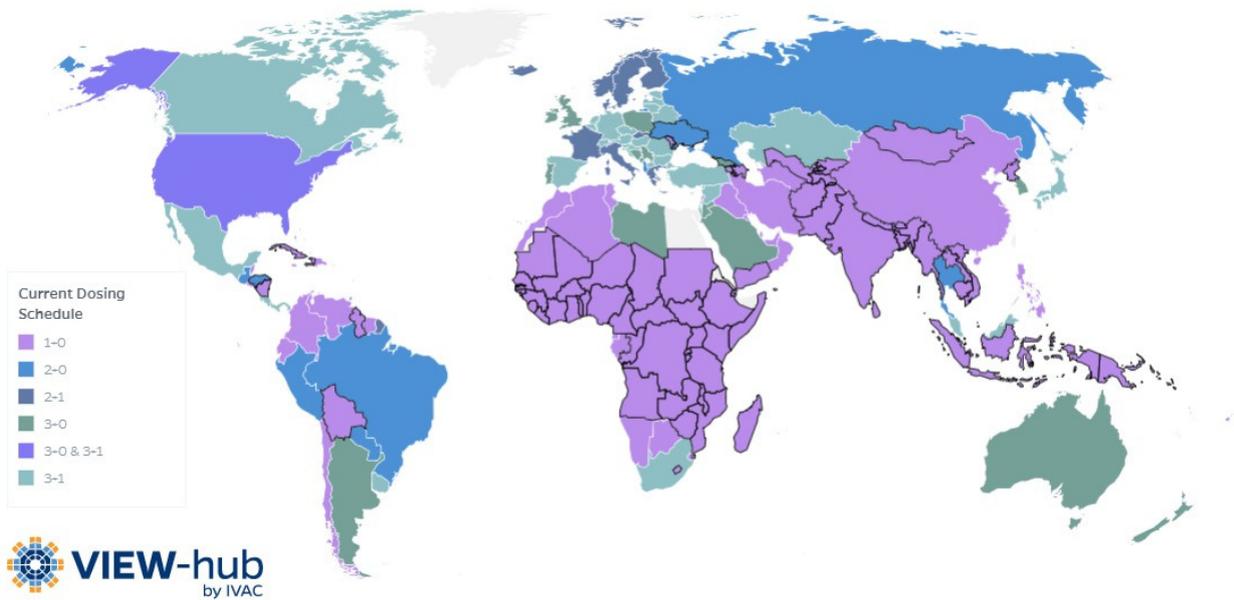
Introduced into national immunization program
100%



IPV - Current Product

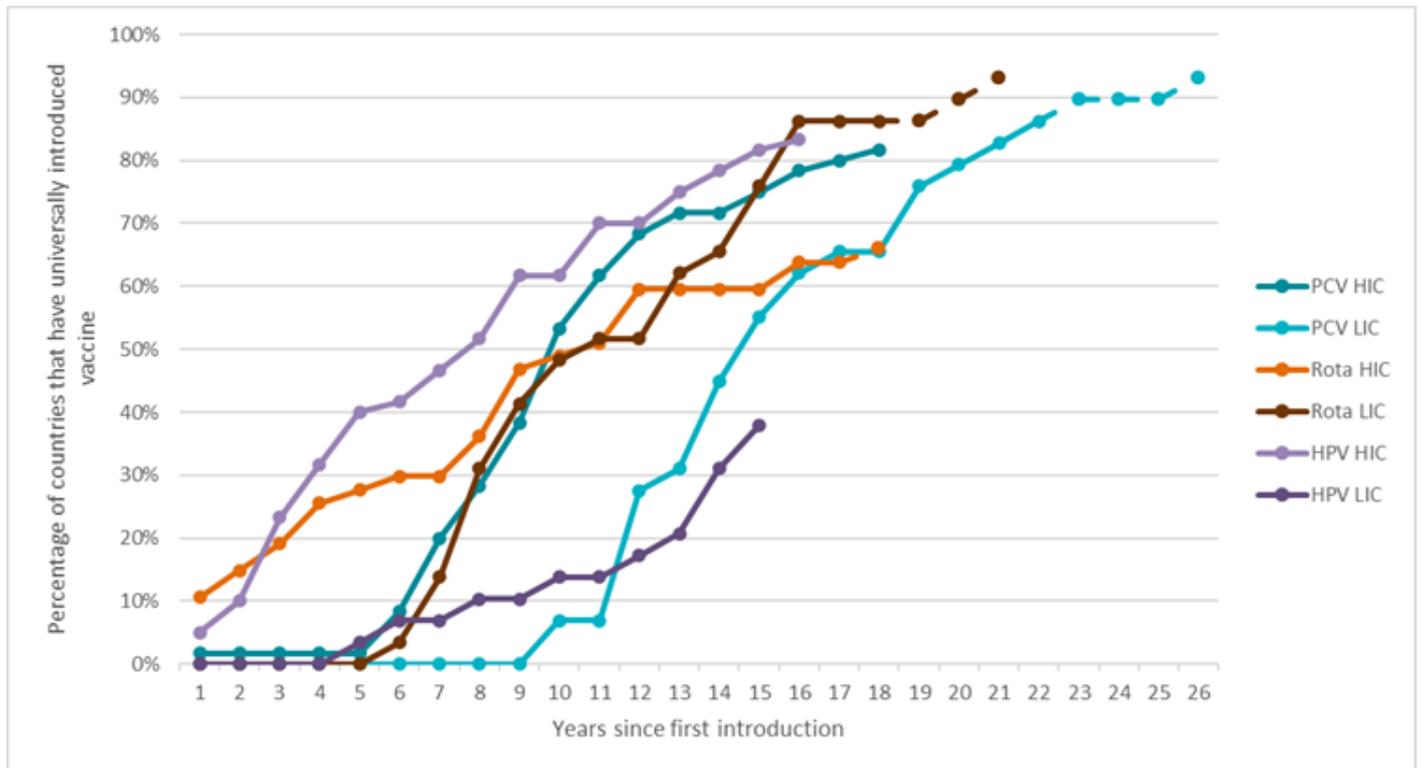


IPV - Current Dosing Schedule



[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

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

SOURCES

<p>Gavi Eligibility Status</p>	<p>Gavi, The Vaccine Alliance. Gavi Eligible Countries. 2016. Last accessed Jan 2016 at http://www.gavialliance.org/support/apply/countries-eligible-for-support/</p>
<p>DTP3 Coverage Rate</p>	<p>WHO/UNICEF Estimates of National Immunization Coverage. 2019 data as of 15 Jul 2020. Retrieved from: http://www.who.int/immunization/monitoring_surveillance/data/en/</p>
<p>Surviving Infants</p>	<p>United Nations Population Division. World Population Prospects (WPP): 2019 Revision. Retrieved from: http://esa.un.org/unpd/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 Kirthini Muralidharan at kmuralidharan@jhu.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 Kirthini Muralidharan at kmuralidharan@jhu.edu. It is cross-referenced with WHO information (below). World Health Organization. Immunization Repository. Includes data on introductions through the end of Dec 2020, as of Jan 2021.</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 Kirthini Muralidharan at kmuralidharan@jhu.edu</p>

SELECTED KEY TERMS

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

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.)

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

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.

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, June 2021. www.jhsph.edu/ivac/view-hub. Accessed: [Day Month Year].

If you have any questions, please contact Kirthini Muralidharan at kmuralidharan@jhu.edu.

THANK YOU

VIEW-hub is made possible with support from Gavi, the Vaccine Alliance, the Bill & Melinda Gates Foundation, the World Health Organization, and the ROTA Council.

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