

COVID-19

CONSOLIDATED REGIONAL AND GLOBAL INFORMATION ON ADVERSE EVENTS FOLLOWING IMMUNIZATION (AEFI) AGAINST COVID-19 AND OTHER UPDATES

Thirty-fourth report

WASHINGTON, DC

Updated: 31 March 2022

PAHO



Pan American
Health
Organization



World Health
Organization
ORGANISATION MONDIALE DE
SANTÉ



In partnership with

Canada

CONTENTS

OFFICIAL REPORTS ON PHARMACOVIGILANCE PROGRAMS.....	3
CANADA.....	3
ENGLISH-SPEAKING CARIBBEAN	6
CHILE.....	6
COLOMBIA.....	8
UNITED STATES.....	8
PARAGUAY	10
<i>Publications on potential safety signals detected in the use of COVID-19 vaccines</i>	11
Risk of Second Allergic Reaction to SARS-CoV-2 Vaccines: A Systematic Review and Meta-analysis.....	11
Association of AZD1222 and BNT162b2 COVID-19 Vaccination with Thromboembolic and Thrombocytopenic Events in Frontline Personnel. A Retrospective Cohort Study	12
Final Analysis of Efficacy and Safety of Single-dose Ad26.COV2.S	13
Heterologous versus homologous COVID-19 booster vaccination in previous recipients of two doses of CoronaVac COVID-19 vaccine in Brazil (RHH-001): a phase 4, non- inferiority, single blind, randomized study	14
Association Between the BNT162b2 Messenger RNA COVID-19 Vaccine and the Risk of Sudden Sensorineural Hearing Loss.....	16
Safety of Inactivated and mRNA COVID-19 Vaccination among Patients Treated for Hypothyroidism: A population-Based Cohort Study	17
Thrombotic events following COVID-19 vaccines compared to influenza vaccines	18
UPDATES	19
Recommendations of the European Medicines Agency's Committee for Medicinal Products for Human Use.....	19
Recommendations of the Pharmacovigilance Risk Assessment Committee of the European Medicines Agency, and safety updates for COVID-19 vaccines	20
CLARIFICATIONS/CONCLUSIONS ON EVENTS PRESENTED IN PREVIOUS COMMUNICATIONS ..	22
Interim Statement on COVID-19 vaccines in the context of the circulation of the Omicron SARS-CoV-2 Variant from the WHO Technical Advisory Group on COVID-19 Vaccine Composition.....	22
Suspension of supply of Bharat Biotech's Covaxin COVID-19 vaccine, through UN procurement agencies.....	23

Updated recommendations of WHO's Strategic Advisory Group of Experts (SAGE) on Immunization for Bharat Biotech, Sinopharm, Sinovac, and AstraZeneca/SII vaccines 23

***OTHER RELATED UPDATES*26**

Extension of Refrigerated Shelf Life of Janssen's COVID-19 Vaccine.....26

WHO Virtual Course on Vaccine Safety Basics.....26

Decisions of the Region's Regulatory Authorities.....27

CANADA

- As of 18 March 2022, 54,940,357 doses of the Pfizer-BioNTech COVID-19 vaccine, 22,892,884 doses of the Moderna vaccine, 2,797,156 doses of the AstraZeneca and Covishield vaccines (AstraZeneca vaccine manufactured by the Serum Institute of India), and 19,066 doses of the Janssen vaccine had been administered.
- There were 42,574 individual reports of one or more AEFI associated with these vaccines (0.052% of total doses administered).
- The majority of individual case reports were of non-serious adverse events. The most frequently reported adverse events were events such as paresthesia, injection-site pain, headache, pruritus, dyspnea, fatigue, urticaria, chest pain, and fever.

<i>Number of reports and reporting rate of adverse events (per 100,000 doses administered), by vaccine, as of 18 March 2022</i>						
Vaccine	<i>Number of reports of non-serious AEFI</i>		<i>Number of reports of serious AEFI</i>		<i>Total number of reports of AEFI</i>	
	<i>N*</i>	<i>Rate/100,000 doses administered</i>	<i>N*</i>	<i>Rate/100,000 doses administered</i>	<i>N*</i>	<i>Rate/100,000 doses administered</i>
Pfizer-BioNTech	19,304	35.14	6,029	10.97	25,333	46.11
Moderna	11,483	50.16	1,717	7.50	13,200	57.66
Covishield and AstraZeneca	2,891	103.35	864	30.89	3,755	134.24
Janssen	28	146.86	15	78.67	43	225.53
Total	33,706	41.79	8,625	10.69	42,331	52.49

*N = number of events

Note: The table does not reflect the number of reported events associated with unidentified vaccines.

On 19 November 2021, the Pfizer-BioNTech Comirnaty vaccine was authorized for children between the ages of 5 and 11. Information regarding adverse events in this population and, more generally, in the under-18-year-old population, already included in the above total for Pfizer-BioNTech, is broken down in the following table:

Number of reports and reporting rate of adverse events (per 100,000 doses administered) for the Pfizer-BioNTech vaccine in the under-18-year-old population, as of 18 March 2022						
Age group (doses administered, ds)	Number of reports of non-serious AEFI		Number of reports of serious AEFI		Total number of reports of AEFI	
	N*	Rate/100,000 doses administered	N*	Rate/100,000 doses administered	N*	Rate/100,000 doses administered
Ages 12 to 17	1,082	22.63	335	7.01	1,417	29.64
4,780,239						
Ages 5 to 11	372	13.15	65	2.30	437	15.44
2,829,435						
Total	1,454	19.11	400	5.26	1,854	24.36
7,609,674						

*N = number of events

Note: The 5-11 age group also included reports of those born in 2017 who were not yet five years old at the time of vaccination.

Lastly, the following table details the number and rate (per 100,000 doses administered) of the main adverse events of special interest (AESI), by vaccine.

Number of reports and reporting rate (per 100,000 doses administered) of adverse events of special interest (AESI), by vaccine, administered in the general population, as of 18 March 2022						
AESI	Vaccine					
	Pfizer-BioNTech		Moderna		Covishield and AstraZeneca	
	N*	Rate/100,000 doses administered	N*	Rate/100,000 doses administered	N*	Rate/100,000 doses administered
Anaphylaxis	599	1.09	184	0.80	29	1.04
Guillain-Barré syndrome	56	0.10	28	0.12	39	1.39
Myocardial infarction	74	0.13	23	0.10	6	0.21
Myocarditis/pericarditis	1,224	2.23	669	2.92	34	1.22
Thrombosis with thrombocytopenia syndrome (TTS)	30	0.05	13	0.06	69	2.47
Bell's palsy/facial paralysis	596	1.08	217	0.95	55	1.97
Cerebrovascular accident (Stroke)	129	0.23	53	0.23	36	1.29
Acute renal injury	35	0.06	20	0.09	7	0.25
Miscarriage	59	0.11	13	0.06	1	0.04
Fatal events	318* post-vaccination deaths					
** Following a medical review of the 318 deaths, 103 were determined to most likely be unrelated to administration of the COVID-19 vaccine, while 47 are still under investigation; in 168 cases, the cause of death could not be classified, due to insufficient information.						

*N = number of reports

Note: Information on the Janssen vaccine was not included, due to the small number of reported cases.

Source: Public Health Agency of Canada. Canadian COVID-19 vaccine safety report. Ottawa: Public Health Agency of Canada; March 25, 2022. <https://health-infobase.canada.ca/covid-19/vaccine-safety/>. Data reproduced by PAHO/WHO.

ENGLISH-SPEAKING CARIBBEAN

As of 15 March 2022, VigiBase, the Global Individual Case Safety Report (ICSR) database, had received 1,422 reports of AEFI associated with COVID-19 vaccines in the English-speaking Caribbean.

Reports came from Barbados, Jamaica, and Saint Vincent and the Grenadines, mostly in people under 65 years of age (85.1%), and mainly females (1,062 reports, 74.7%). As of 15 March 2022, a total of 1,422 events had been reported, with the most frequent adverse events being headache n=437 (30.7%), fever n=287 (20.2%), dizziness n=285 (20.0%), fatigue n=244 (17.2%), chills n=241 (16.9%), and myalgia n=211 (14.8%). A total of 240 ICSR (15.1%) were classified as serious.

Individual case reports were associated with the following COVID-19 vaccines: AstraZeneca, Covishield, Sputnik V, Pfizer-BioNTech, J&J/Janssen, BIBP-Sinopharm, Moderna, and unspecified COVID-19 vaccines.

Note: Individual case safety reports are of events that occurred following vaccination, and may include coincident events not attributable to the vaccine(s).

Source: The Caribbean Public Health Agency (CARPHA). Caribbean Regulatory System. VigiCarib News. 22 March 2022, Additional information is available at: <https://carpha.org/What-We-Do/CRS/VigiCarib>.

CHILE

On 16 March 2022, the Public Health Institute of Chile (ISP), through its National Pharmacovigilance Center, published the eighth statistical report on AEFI associated with COVID-19 vaccines among adults, and the third such report of AEFI in the pediatric and adolescent population.

Adults

- Between 24 December 2020 and 31 December 2021, 38,344,833 doses of COVID-19 vaccines were administered to people 18 years of age and older. In this period, 3,171,198 doses of the AstraZeneca COVID-19 vaccine, 574,673 doses of the CanSino vaccine, 13,900,002 doses of the Pfizer-BioNTech vaccine, and 20,698,960 doses of the Sinovac vaccine were administered.

Number of reports and reporting rate (per 100,000 doses administered) of adverse events, by vaccine, in the adult population, between 24 December 2020 and 31 December 2021						
Vaccine	Number of reports of non-serious AEFI		Number of reports of serious AEFI		Total number of reports of AEFI	
	N*	Rate/100,000 doses administered	N*	Rate/100,000 doses administered	N*	Rate/100,000 doses administered
Pfizer-BioNTech	5,894	42.40	249	1.79	6,143	44.19
Sinovac	6,382	30.83	356	1.72	6,738	32.55
AstraZeneca	1,336	42.13	180	5.68	1,516	47.81
CanSino	217	37.76	10	1.74	227	39.50
Not specified	393	0.00	2	0.00	395	0.00
Total	14,222	37.09	806**	2.10	15,028	39.19

*N = number of reports

** The total number of reports of serious events includes nine in which the patient's age was not indicated.

Children and adolescents

- Between 1 March and 31 December 2021, 5,714,304 doses of COVID-19 vaccines were administered to children under 18 years of age. A total of 709 AEFI were reported, representing 0.01% of doses administered, or 12 reports of AEFI per 100,000 doses administered, one third the rate observed in adults.
- The vast majority of reported AEFI (86.9%) were classified as non-serious, a rate of 11 reports per 100,000 doses of COVID-19 vaccines administered. Reports of serious AEFI amounted to 13.1% of total reported events, a reporting rate of two reports per 100,000 doses administered.

Sources: Public Health Institute of Chile (ISP). Ministry of Health. Eighth Statistical Report of AEFI associated with the administration of SARS-CoV-2 vaccines in Chile in people 18 years old and older. Period: 24 December 2020 to 31 December 2021. Available in Spanish at: <https://www.ispch.cl/wp-content/uploads/2022/03/8%C2%B0Informe-estadistico-poblacion-mayor-de-18-anos-VF.pdf>. Data reproduced by PAHO/WHO.

Public Health Institute of Chile. Ministry of Health. Third Statistical Report of AEFI associated with the administration of SARS-CoV-2 vaccines in Chile in the pediatric and adolescent population. Period: 1 March 2021 to 31 December 2021. Available in Spanish at: <https://www.ispch.cl/wp-content/uploads/2022/03/8%C2%B0Informe-estadistico-poblacion-mayor-de-18-anos-VF.pdf>. Data reproduced by PAHO/WHO.

COLOMBIA

As of 15 March 2022, a total of 79,329,323 doses of COVID-19 vaccines had been administered. As of the cut-off date, VigiFlow[®] had received 43,025 individual reports of AEFI, including serious cases reported to the National Institute of Health (INS). An individual case report may include one or more adverse events. The reporting rate was 54 reports per 100,000 doses administered. Of people vaccinated, 0.05% reported AEFI.

Of total individual case reports, 3.3% (1,411) involved serious AEFI, and 67% (28,911) involved women. Analyzing the distribution of reports by age, the highest percentage of reports, 12.6% (5,407), were in the 25-to-29-year-old age group, followed by individuals between the ages of 30 and 34, representing 11.5% of reports (4,936).

The most frequently reported signs and symptoms, without specifying the type of vaccine administered, were headache (17.1%), fever (8.1%), malaise (7.5%), muscle pain (7.1%), vaccination-site pain (6.3%), and weakness (5.3%).

Source: Colombia Ministry of Health, National Food and Drug Surveillance Institute (INVIMA), National Institute of Health (INS). Bulletin #11: March 2022. Surveillance of Adverse Events Following Vaccination with COVID-19 vaccines in Colombia. Reporting period: 17 February 2021 to 15 March 2022. Available at:

<https://www.minsalud.gov.co/sites/rid/Lists/BibliotecaDigital/RIDE/VS/ED/boletin11-farmacovigilancia-vacunas-mar2022.pdf>.

UNITED STATES

Following is updated information from the U.S. Centers for Disease Control and Prevention (CDC) regarding serious adverse events of special interest:

Anaphylaxis, a severe type of allergic reaction following COVID-19 vaccination, is rare and has occurred in approximately five people per million vaccinated in the United States. Anaphylaxis can occur after administration of any type of vaccine.

Thrombosis with thrombocytopenia syndrome (TTS) following vaccination with the Janssen (J&J/Janssen) COVID-19 vaccine is rare. TTS is a rare but serious adverse event that causes blood clots in large blood vessels and low platelets (blood cells that help form clots). As of 17 March 2022, more than 18.5 million doses of the J&J/Janssen COVID-19 vaccine had been administered in the United States. The CDC and FDA identified 60 confirmed reports of people who received this vaccine and later developed TTS. The CDC has also identified nine deaths that were caused by or were directly attributable to TTS following J&J/Janssen COVID-19 vaccination. Women ages 30-49, especially, should be made aware of the increased risk of this uncommon adverse event. There are other COVID-19 vaccine options available for which this risk has not been seen.

To date, four confirmed cases of TTS following vaccination with mRNA COVID-19 vaccines have been reported to VAERS (three after administration of the Moderna vaccine and one after administration of the Pfizer-BioNTech vaccine), after administration of more than 538 million doses of mRNA-based vaccines in the United States (Moderna and Pfizer-BioNTech). Based on available data, there is not an increased risk for TTS after mRNA COVID-19 vaccination.

Guillain-Barré syndrome (GBS) in people who have received the J&J/Janssen COVID-19 vaccine is rare. GBS is a rare disorder in which the body's immune system damages nerve cells, causing muscle weakness and, in some cases, paralysis. Most people fully recover from GBS, but some have permanent nerve damage. After administration of more than 18.5 million doses of J&J/Janssen's COVID-19 vaccine, there have been approximately 310 preliminary reports of GBS identified in VAERS as of 17 March 2022. These cases have been reported largely around two weeks after vaccination, and primarily in men aged 50 years and older.

Based on these data, the rate of GBS within the first 21 days after administration of the J&J/Janssen COVID-19 vaccine was 21 times higher than after administration of the Pfizer-BioNTech or Moderna COVID-19 mRNA vaccine; and in the 42 days following vaccination, the rate of GBS was 11 times higher for the J&J/Janssen vaccine than for the mRNA vaccines.

Cases of myocarditis and pericarditis after COVID-19 vaccination are rare. Myocarditis is inflammation of the heart muscle, and pericarditis is inflammation of the outer lining of the heart. Most patients with myocarditis or pericarditis after COVID-19 vaccination responded well to medicine and rest, and recovered quickly. As of 17 March 2022, VAERS had received 2,309 preliminary reports of myocarditis or pericarditis among people ages 30 years and younger who received COVID-19 vaccines. Most reported cases were among people, particularly male

adolescents and young adults, who received the Pfizer-BioNTech or Moderna COVID-19 mRNA vaccine. Through follow-up, including a review of medical records, the CDC and FDA verified 1,390 reported cases of myocarditis.

Reports of deaths after COVID-19 vaccination are rare. The FDA requires health care providers to report to VAERS any deaths following COVID-19 vaccination, even if it is unclear whether the vaccine was the cause. Between 14 December 2020 and 21 March 2022, more than 558 million doses of COVID-19 vaccine were administered in the United States. During this time, VAERS received 13,434 reports of death (0%) among people who received a COVID-19 vaccine. Scientists at the CDC and FDA review deaths reported to VAERS, including death certificates, autopsies, and medical records.

Source: Centers for Disease Control and Prevention (CDC). Selected Adverse Events Reported after COVID-19 Vaccination. Updated 28 March 2022. Available at: <https://www.cdc.gov/coronavirus/2019-ncov/vaccines/safety/adverse-events.html>.

PARAGUAY

As of 4 March 2022, 8,183,511 doses of COVID-19 vaccines had been administered. A total of 2,683 reports of AEFI have been reported since the start of the vaccination program (22 February 2021 to 4 March 2022), representing 0.03% of total doses administered. A total of 443 reported cases were classified as serious (16.5% of reported cases), representing 0.005% of total doses administered.

The highest reported rate of AEFI is associated with the Covaxin COVID-19 vaccine (80.32/100,000 doses administered), followed by CoronaVac (77.6/100,000 doses administered) and AstraZeneca (65.05/100,000 doses administered). Of reports associated with the vaccines, 94% were non-serious AEFI. Of total reported AEFI, 71% (1,903) involved females. Reports of AEFI were seen mostly in the 25-49-year-old age group (1,800/2,683).

Source: Paraguay Ministry of Public Health and Social Welfare, Paraguay. Information Bulletin No. 51 on Surveillance of AEFI associated with COVID-19 vaccination. National Program on Immunopreventable Diseases and Expanded Immunization Program, 4 March 2022. Available at: <https://pai.mspbs.gov.py/wp-content/uploads/2022/03/51-Boletin-Epidemiologico-ESAVI.pdf>.

Publications on potential safety signals detected in the use of COVID-19 vaccines

Risk of Second Allergic Reaction to SARS-CoV-2 Vaccines: A Systematic Review and Meta-analysis

On 21 February 2022, a systematic review and meta-analysis was published to assess the risk of severe immediate allergic reactions (e.g., anaphylaxis) to a second dose of SARS-CoV-2 mRNA vaccine among persons with immediate allergic reactions to their first dose. The following sources were searched: MEDLINE, Embase, Web of Science, and the World Health Organization Global Coronavirus database. Included studies addressed immediate allergic reactions of any severity to a second SARS-CoV-2 vaccine dose in persons with a known or suspected immediate allergic reaction (<4 hours after vaccination) after their first SARS-CoV-2 vaccine dose. Studies describing a second vaccine dose among persons reporting delayed reactions (>4 hours after vaccination) were excluded. Reaction severity was defined by the reporting investigator, using Brighton Collaboration, Ring and Messmer, World Allergy Organization, or National Institute of Allergy and Infectious Diseases criteria. Among 22 studies of SARS-CoV-2 mRNA vaccines, 1,366 individuals (87.8% women; mean age, 46.1 years) had immediate allergic reactions to their first vaccination; of these, 78 were severe. Analysis using the pooled random-effects model found that six patients developed severe immediate allergic reactions after their second vaccination (absolute risk, 0.16% [95% CI, 0.01%-2.94%]), 232 developed mild symptoms (13.65% [95% CI, 7.76%-22.9%]), and, conversely, 1,360 tolerated the dose (99.84% [95% CI, 97.09%-99.99%]). Among 78 persons with severe immediate allergic reactions to their first SARS-CoV-2 mRNA vaccination, four people (4.94% [95% CI, 0.93%-22.28%]) had a second severe immediate reaction, and 15 had non-severe symptoms (9.54% [95% CI, 2.18%-33.34%]). There were no deaths. Graded vaccine dosing, skin testing, and premedication as risk-stratification strategies did not alter the findings. Certainty of evidence was moderate for those with any allergic reaction to the first dose and low for those with severe allergic reactions to the first dose.

The authors conclude that, in this systematic review and meta-analysis of case studies and case reports, the risk of immediate allergic reactions and severe immediate reactions or anaphylaxis associated with a second dose of an SARS-CoV-2 mRNA vaccine was low among

persons who experienced an immediate allergic reaction to their first dose. These findings suggest that revaccination of individuals with an immediate allergic reaction to a first SARS-CoV-2 mRNA vaccine dose in a supervised setting equipped to manage severe allergic reactions can be safe.

Source: Chu DK, Abrams EM, Golden DBK, et al. Risk of Second Allergic Reaction to SARS-CoV-2 Vaccines: A Systematic Review and Meta-analysis. *JAMA Intern Med.* Published online 21 February 2022. doi:10.1001/jamainternmed.2021.8515.

Association of AZD1222 and BNT162b2 COVID-19 Vaccination with Thromboembolic and Thrombocytopenic Events in Frontline Personnel. A Retrospective Cohort Study

On 1 February 2022, a nationwide exploratory retrospective cohort study in Denmark was published, aimed at assessing the risk of outcomes related to thrombosis and thrombocytopenia after vaccination with AZD1222 (AstraZeneca) or BNT162b2 (Pfizer-BioNTech) COVID-19 vaccine. Between 27 December 2020 and 13 April 2021, 355,209 participants, who were frontline personnel designated for priority COVID-19 vaccination, were monitored. Linked Danish records on vaccination, hospitalizations, occupation, and other covariates were used. The outcomes analyzed in the study were: cerebral venous sinus thrombosis, splanchnic vein thrombosis, pulmonary embolism, deep vein thrombosis, arterial thrombosis, thrombocytopenia, and death. Cumulative incidences of study outcomes within 28 days of vaccination and time of risk without vaccination were compared using adjusted survival curves, resulting in risk differences (RD) at day 28 after vaccination. Adjustment was made for birth cohort, sex, calendar period, occupation, comorbid conditions, and prescription drug use. Vaccination with AZD1222 versus no vaccination was associated with significant RD at day 28 for deep vein thrombosis (RD, 8.35 [95% CI, 0.21 to 16.49] per 100,000 vaccinations). RDs for cerebral venous sinus thrombosis and thrombocytopenia were non-significant, with a result of RD 1.68 [CI -0.64 to 4.00] per 100,000 vaccinations for cerebral venous sinus thrombosis, and one of RD 2.39 [CI -1.09 to 5.87] per 100,000 vaccinations for thrombocytopenia. No adverse associations were observed for BNT162b2 vaccination.

The authors conclude that, in this exploratory retrospective cohort study among frontline personnel in Denmark, receipt of the AZD1222 vaccine was associated with a small excess risk for deep vein thrombosis. Although the corresponding risks for the more rare and severe thrombotic outcomes (such as cerebral venous sinus thrombosis) were not statistically

significantly increased, statistical precision was low, and clinically relevant risks could not be excluded with certainty. There was no statistically significant association of BNT162b2 vaccination with thrombotic or thrombocytopenic events.

Source: Hviid A, Hansen JV, Thiesson EM, Wohlfahrt J. Association of AZD1222 and BNT162b2 COVID-19 Vaccination with Thromboembolic and Thrombocytopenic Events in Frontline Personnel: A Retrospective Cohort Study. *JAMA Intern Med.* 2022 Feb 1:M21–2452. doi: 10.7326/M21–2452. Epub ahead of print. PMID: 35103482; PMCID: PMC 8805866.

Final Analysis of Efficacy and Safety of Single-dose Ad26.COV2.S

On 9 February 2022, the final analysis was conducted in the double-blind phase of a multinational (Argentina, Brazil, Chile, Colombia, Mexico, Peru, USA, and South Africa) double-blind, randomized, placebo-controlled trial, in which adults were assigned in a 1:1 ratio to receive single-dose Ad26.COV2.S (5×10¹⁰ viral particles) or placebo. The two primary end points were vaccine efficacy against moderate to severe–critical COVID-19, with onset at least 14 days after administration, and efficacy against moderate to severe–critical COVID-19 at least 28 days after administration in the per-protocol population. The efficacy of the vaccine against severe-critical COVID-19, safety, and key secondary and exploratory end points were also assessed. Median follow-up in this analysis was 4 months; 8,940 participants were followed for at least 6 months.

In the per-protocol population (39,185 participants), vaccine efficacy against moderate to severe–critical COVID-19 at least 14 days after administration was 56.3% (95% confidence interval [CI], 51.3 to 60.8); 484 cases in the vaccine group vs. 1,067 in the placebo group; and at least 28 days after administration, vaccine efficacy was 52.9% (95% CI, 47.1 to 58.1; 433 cases in the vaccine group vs. 883 in the placebo group). Vaccine efficacy in the United States, primarily against the reference strain (B.1.D614G) and the B.1.1.7 (Alpha) variant, was 69.7% (95% CI, 60.7 to 76.9); efficacy was reduced elsewhere against the P.1 (Gamma), C.37 (Lambda), and B.1.621 (Mu) variants.

Efficacy was 74.6% (95% CI, 64.7 to 82.1) against severe–critical COVID-19 (with only 4 severe–critical cases caused by the B.1.617.2 [Delta] variant), 75.6% (95% CI, 54.3 to 88.0) against COVID-19 leading to medical intervention (including hospitalization), and 82.8% (95% CI, 40.5 to 96.8) against COVID-19–related death, with protection lasting six months or longer. Efficacy against any SARS-CoV-2 infection was 41.7% (95% CI, 36.3 to 46.7).

The Ad26.COVS vaccine was associated with mainly mild-to-moderate adverse events, and no new safety concerns were identified.

The authors conclude that a single dose of Ad26.COVS provided 52.9% protection against moderate to severe-critical COVID-19. Higher protection was observed against severe COVID-19, medical intervention, and death than against other end points, and lasted for six months or longer

Source: Jerald Sadoff, Glenda Gray, An Vandebosch, et al. Final Analysis of Efficacy and Safety of Single-Dose Ad26.COVS N Engl J Med 2022;386:847–60. doi: 10.1056/NEJMoa2117608.

[Heterologous versus homologous COVID-19 booster vaccination in previous recipients of two doses of CoronaVac COVID-19 vaccine in Brazil \(RHH-001\): a phase 4, non-inferiority, single blind, randomized study](#)

On 21 January 2022, a blinded phase 4 study (RHH-001) was published, which evaluated the safety and immunogenicity of a third dose of a homologous or different vaccine in adults (18 years of age and older) at two centers in Brazil (São Paulo and Salvador) who had received two doses of CoronaVac six months previously. The third heterologous dose was of either a recombinant adenoviral vector vaccine (Ad26.COVS, Janssen), an mRNA vaccine (BNT162b2, Pfizer-BioNTech), or a recombinant adenoviral vector ChAdOx1 nCoV-19 vaccine (AZD1222, AstraZeneca), compared with a third homologous dose of CoronaVac. Between 16 August and 1 September 2021, 1,240 participants were randomly assigned (5:6:5:5) by a RedCAP computerized randomization system, to one of the four groups, of whom 1,239 were vaccinated (306 Ad26.COVS, 339 BNT162b2, 304 ChAdOx1 nCoV-19, and 290 CoronaVac) and 1,205 (295 Ad26.COVS, 333 BNT162b2, 296 ChAdOx1 nCoV-19, and 281 CoronaVac) were eligible for inclusion in the primary analysis. Each group was divided into two subsets according to age (group A: between 18–60 years old, group B: 61 years old and older). The primary outcome was non-inferiority of anti-spike IgG antibodies 28 days after the booster dose in the heterologous boost groups compared with the homologous regimen. Secondary outcomes included neutralizing antibody titers at day 28, local and systemic reactogenicity profiles, adverse events, and serious adverse events.

Antibody concentrations were low before administration of a booster dose, with detectable neutralizing antibodies of 20.4% (95% CI, 12.8-30.1) in adults aged 18-60, and 8.9% (4.2-16.2) in adults 61 years old and older.

From baseline to day 28 after the booster vaccine, all groups had a substantial rise in IgG antibody concentrations: the geometric fold-rise was 77 (95% CI, 67-88) for Ad26.COVID-2-S, 152 (134-173) for BNT162b2, 90 (77-104) for ChAdOx1 nCoV-19, and 12 (11-14) for CoronaVac.

All heterologous regimens had anti-spike IgG responses at day 28 that were superior to homologous booster responses: geometric mean ratios (heterologous vs. homologous) were 6.7 (95% CI 5.8-7.7) for Ad26.COVID-2-S, 13.4 (11.6-15.3) for BNT162b2, and 7.0 (6.1-8.1) for ChAdOx1 nCoV-19.

In addition, all heterologous boost regimens induced high concentrations of pseudovirus neutralizing antibodies. At day 28, all groups except for the homologous boost in the older adults (aged 61 and older) reached 100% seropositivity: geometric mean ratios (heterologous vs. homologous) were 8.7 (95% CI 5.9-12.9) for Ad26.COVID-2-S vaccine, 21.5 (14.5-31.9) for BNT162b2, and 10.6 (7.2-15.6) for ChAdOx1 nCoV-19.

In a sub-analysis of a random subset of 80 participants (Ad26.COVID-2-S N=20, BNT162b2 N=20, ChAdOx1 nCoV-19 N=20, CoronaVac N=20), live virus neutralizing antibodies were also boosted against Delta (B.1.617.2) and Omicron (B.1.1.529) variants.

There were five serious adverse events; three of these were considered possibly related to the vaccine received: one in the BNT162b2 group and two in the Ad26.COVID-2-S group. All participants recovered and were discharged home.

The authors concluded that antibody concentrations were low at six months after previous immunization with two doses of CoronaVac; however, all four vaccines administered as a third dose induced a significant increase in binding and neutralizing antibodies, which could improve protection against infection. Heterologous boosting resulted in more robust immune responses than homologous boosting, and might enhance protection.

Source: Clemens SA, Weckx L, Clemens R, et al. Heterologous versus homologous COVID-19 booster vaccination in previous recipients of two doses of CoronaVac COVID-19 vaccine in Brazil (RHH-001): a phase 4, non-inferiority, single-blind, randomized study. *Lancet*. 2022 Feb 5;399(10324):521–529. doi: 10.1016/S0140-6736(22)00094-0. Epub 2022 Jan 21. PMID: 35074136; PMCID: PMC8782575.

Association Between the BNT162b2 Messenger RNA COVID-19 Vaccine and the Risk of Sudden Sensorineural Hearing Loss

On 24 February 2022, a population-based cohort study was published. Its objective was to assess the association between the BNT162b2 mRNA COVID-19 vaccine and the risk of sudden sensorineural hearing loss (SSNHL) in Israel. This retrospective, population-based cohort study was performed from 20 December 2020 to 31 May 2021, using data from the largest health care organization in Israel. Patients 16 years or older who received the first vaccine dose between 20 December 2020 and 30 April 2021, and the second vaccine dose between 10 January 10, 2021, and April 30, 2021, were included. The main outcome was SSNHL based on International Classification of Diseases, Ninth Revision (ICD-9) codes in conjunction with concurrent dispensing of prednisone. Observed cases of SSNHL, occurring within 21 days after each of the first and second vaccine doses, were compared with the expected cases based on the experience of the population in 2018 and 2019. Standardized incidence ratios (SIRs), and attributable risks were computed. Overall, 2,602,557 patients (mean [SD] age, 46.8 [19.6] years; 51.5% female) received the first dose of BNT162b2 mRNA COVID-19 vaccine, with 91 cases of SSNHL reported. Of these patients, 2,441,719 (93.8%) received the second vaccine dose, with 79 cases of SSNHL reported. The age- and sex-weighted SIRs were 1.35 (95% CI, 1.09-1.65) after the first vaccine dose and 1.23 (95% CI, 0.98-1.53) after the second vaccine dose. After the first vaccine dose, the estimated SIRs were more pronounced in female patients aged 16 to 44 years (SIR, 1.92; 95% CI, 0.98-3.43) and female patients 65 years or older (SIR, 1.68; 95% CI, 1.15-2.37). After the second vaccine dose, the highest estimated SIR was observed in male patients 16 to 44 years old (SIR, 2.45; 95% CI, 1.36-4.07). The attributable risks were generally small, and the results were similar when 2019 was used as a reference to estimate the expected number of SSNHL cases.

The authors conclude that this study suggests that the BNT162b2 mRNA COVID-19 vaccine might be associated with increased risk of SSNHL; however, the effect size is very small. Further studies are warranted to establish this possible association.

Source: Yanir Y, Doweck I, Shibli R, Najjar-Debbiny R, Saliba W. Association Between the BNT162b2 Messenger RNA COVID-19 Vaccine and the Risk of Sudden Sensorineural Hearing Loss. *JAMA Otolaryngol Head Neck Surg.* 2022 Feb 24: e214278. doi: 10.1001/jamaoto.2021.4278. Epub ahead of print. PMID: 35201275; PMCID: PMC8874902.

Safety of Inactivated and mRNA COVID-19 Vaccination among Patients Treated for Hypothyroidism: A population-Based Cohort Study

On 25 February, a controlled cohort study was published; its objective was to determine the risks of thyroiditis and Graves' disease after COVID-19 vaccination among patients treated for hypothyroidism in Hong Kong. In this retrospective population-based cohort study of Hong Kong Hospital Authority electronic health records, with the Department of Health vaccination records linkage, levothyroxine (LT4) users were categorized into unvaccinated, vaccinated with BNT162b2 (mRNA vaccine), or CoronaVac (inactivated vaccine) between 23 February and 9 September 2021. Study outcomes analyzed were dosage reduction or escalation in LT4, emergency department visits, unscheduled hospitalizations, adverse events of special interest (AESI) according to the World Health Organization's Global Advisory Committee on Vaccine Safety, and all-cause mortality. Hazard ratios (HR) were estimated using Cox regression models. Patients were observed from the vaccination date until the occurrence of study outcome, death, or censored as of 30 September 2021, whichever came first. A total of 47,086 levothyroxine users (BNT162b2: n=12,310) were identified; CoronaVac: n=11,353; unvaccinated: n=23,423). COVID-19 vaccination was not associated with an increased likelihood of dosage reduction of LT4 (BNT162b2: HR=0.971, 95% CI 0.892–1.058; CoronaVac: HR=0.968, 95% CI 0.904–1.037) or escalation (BNT162b2: HR=0.779, 95% CI 0.519–1.169; CoronaVac: HR=0.715, 95% CI 0.481–1.062). In addition, COVID-19 vaccination was not associated with an increased risk of emergency room visits (BNT162b2: HR=0.944, 95% CI 0.700–1.273; CoronaVac: HR=0.851, 95% CI 0.647–1.120) or unscheduled hospitalizations (BNT162b2: HR=0.905, 95% CI 0.539–1.520; CoronaVac: HR=0.735, 95% CI 0.448–1.207). There were two deaths (0.016% of vaccine recipients) and six AESI (0.062%) recorded for BNT162b2 recipients, and one death (0.009%) and three AESI (0.035%) for CoronaVac recipients.

The authors conclude that neither BNT162b2 nor CoronaVac vaccination is associated with unstable thyroid status or an increased risk of adverse outcomes among patients treated for hypothyroidism in general.

Source: Xiong X, Wong CKH, Au ICH, Lai FTT, Li X, Wan EYF, Chui CSL, Chan EWY, Cheng FWT, Lau KTK, Lee CH, Woo YC, Lui D, Wong ICK. Safety of Inactivated and mRNA COVID-19 Vaccination among Patients Treated for Hypothyroidism: A Population-Based Cohort Study. *Thyroid*. 2022 Feb 25. doi: 10.1089/thy.2021.0684. Epub ahead of print. PMID: 35216517.

Thrombotic events following COVID-19 vaccines compared to influenza vaccines

On 9 March, a cohort study with a control group was published, evaluating the risk of thrombotic events after COVID-19 vaccination in Argentina. This study included adult patients vaccinated with the first dose of a COVID-19 vaccine [Gam-COVID-Vac (Sputnik), ChAdOx1 nCoV-19 (Oxford/AstraZeneca or Covishield), or BBIBP-CorV (Beijing Institute of Biological Products) (Sinopharm)] between 1 January and 30 May 2021, and a historical control group, defined as patients vaccinated against influenza between 1 March and 30 July 2019. The primary endpoint was cumulative incidence of any symptomatic thrombotic event at 30 days, defined as the occurrence of at least one of the following: symptomatic acute deep venous thrombosis (DVT); symptomatic acute symptomatic pulmonary embolism (PE); acute ischemic stroke (AIS); acute coronary syndrome (ACS), or arterial thrombosis. From a total of 29,985 adult patients who received at least a first dose of COVID-19 vaccine during study period and 24,777 who received influenza vaccine in 2019, the study excluded those who were vaccinated during hospitalization. Finally, 29,918 and 24,753 patients, respectively, were included. Median age was 73 years old (IQR 75–81) and 67% were females in both groups. Thirty-six subjects in the COVID-19 vaccination group (36/29,918) and 15 patients in the influenza vaccination group (15/24,753) presented at least one thrombotic event. The cumulative incidence of any thrombotic event at 30 days was 12 per 10,000 (95% CI 9–17) for the COVID-19 group and six per 10,000 (95% CI 4–10) for the influenza group (p -value=0.022).

The authors conclude that this study shows a significant increase in thrombotic events in subjects vaccinated with COVID-19 vaccines in comparison to a control group. The clinical implication of these findings should be interpreted with caution, in light of the high effectiveness of vaccination and the inherent risk of thrombosis from COVID-19 infection itself.

Source: Vallone MG, Falcón AL, Castro HM., et al. Thrombotic events following COVID-19 vaccines compared to Influenza vaccines. *Eur J Intern Med.* 2022 Mar 9: S0953–6205(22)00092–9. doi: 10.1016/j.ejim.2022.03.002. Epub ahead of print. PMID: 35288031; PMCID: PMC8904150.

Recommendations of the European Medicines Agency's Committee for Medicinal Products for Human Use

On 24-25 February 2022, the Committee for Medicinal Products for Human Use (CHMP) of the European Medicines Agency (EMA) published the following recommendations:

- Pfizer-BioNTech's Comirnaty COVID-19 vaccine: Recommended that a booster dose may be given where appropriate for adolescents aged 12 years and older. Comirnaty is already authorized in the EU as a two-dose primary course in adolescents, as well as in adults and in children five years old and older, and a booster dose is currently authorized for ages 18 years and older.

CHMP recommends that EU member countries, when considering the administration of booster doses, take into account factors such as the spread and likely severity of the disease (especially with the Omicron variant of concern [VOC]) in younger persons; the known risk of side effects (particularly the very rare but serious complication of myocarditis); and the existence of other protective measures and restrictions.

To learn more about this recommendation, see: <https://www.ema.europa.eu/en/news/ema-recommends-authorisation-booster-doses-comirnaty-12-years-age>.

- **Moderna's Spikevax COVID-19 Vaccine**

- **Use in children ages 6 to 11:** EMA's CHMP has recommended granting an extension of indication to include use in this age group; this vaccine is already approved for use in adults and in children ages 12 and older. The CHMP concluded that the evidence indicates that the efficacy and safety of Spikevax in children ages 6 to 11 are similar to those in adults, and that the benefits in this age group outweigh the risks, particularly in those with conditions that increase the risk of severe COVID-19.

The dose of Spikevax in children from 6 to 11 years of age will be lower than that used in people ages 12 and older (50 µg compared with 100 µg). As in the older age group, the vaccine is given as two injections in the muscles of the upper arm, four weeks apart.

Additional information about this recommendation is available at:

<https://www.ema.europa.eu/en/news/ema-recommends-approval-spikevax-children-aged-6-11>.

- **Booster:** For the Spikevax COVID-19 vaccine, CHMP recommended reducing the interval between primary vaccination and booster dose from six months to three months. Spikevax is given in two injections, usually in the muscle of the upper arm, 28 days apart, and a booster dose of 50 micrograms can be given at least three months after the second dose in people aged 18 and older.

CHMP also recommended that Spikevax be used as an adult booster dose at least three months after primary vaccination with another mRNA vaccine or an adenoviral vector vaccine.

Additional information is available at:

<https://www.ema.europa.eu/en/medicines/human/EPAR/spikevax>.

Recommendations of the Pharmacovigilance Risk Assessment Committee of the European Medicines Agency, and safety updates for COVID-19 vaccines

The European Medicines Agency (EMA) published the conclusions of the Pharmacovigilance Risk Assessment Committee (PRAC) meeting held 7-10 March 2022, and safety updates for COVID-19 vaccines as of 17 March 2022, which are summarized below:

- **Janssen Vaccine:**
 - **Cutaneous vasculitis:** PRAC has reviewed a total of 21 cases reported globally, including 10 cases consistent with the established definition of single organ cutaneous vasculitis (vasculitis affecting only one organ), and no other obvious explanation was identified; eight of these cases occurred soon after the administration of the vaccine. As of 31 December 2021, approximately 42.5 million doses of the vaccine had been administered worldwide.

PRAC has recommended that small vessel vasculitis with cutaneous manifestations (inflammation of blood vessels in the skin which may result in a rash, pointed or flat, red spots under the skin's surface and bruising) should be added to the product information as a possible side effect of unknown frequency.

- **Acute myocardial infarction:** PRAC reviewed the results of an epidemiological study using information from French national databases, posted on the EPI-PHARE website, suggesting a slightly increased risk of acute myocardial infarction with Janssen's COVID-19 vaccine, within 3 weeks of the first dose. PRAC will collect and assess all available data, including data from the marketing authorization holder, to determine whether myocardial infarction may be caused by this vaccine.
- **mRNA vaccines (Spikevax and Comirnaty):**
 - **Capillary leakage syndrome (CLS):** PRAC reviewed 55 reported cases of CLS, 11 with Moderna's Spikevax and 44 with Pfizer-BioNTech's Comirnaty. Global exposure at the time of the assessment was estimated at approximately 559 million doses for Spikevax and two billion doses for Comirnaty. It concluded that there was insufficient evidence to establish a causal association.

PRAC recommended that a warning on CLS should be added to the product information for the Spikevax and Comirnaty COVID-19 vaccines to inform healthcare professionals and patients of this potential risk.

- **Novavax's Nuvaxovid:** No safety updates.
- **AstraZeneca's Vaxzevria:**
 - **Acute myocardial infarction and pulmonary thromboembolism:** PRAC reviewed results of the French epidemiological study, which suggest a slightly increased risk of myocardial infarction and pulmonary embolism. It also observed a slightly increased risk of venous and/or arterial thrombosis in other studies published after vaccination with Vaxzevria. PRAC will collect and assess all available data, including data from the marketing authorization holder, to determine whether these conditions may be caused by the Vaxzevria vaccine.

Additional information is available at:

<https://www.ema.europa.eu/en/news/meeting-highlights-pharmacovigilance-risk-assessment-committee-prac-7-10-march-2022>.

https://www.ema.europa.eu/en/documents/covid-19-vaccine-safety-update/covid-19-vaccines-safety-update-17-march-2022_en.pdf.

Interim Statement on COVID-19 vaccines in the context of the circulation of the Omicron SARS-CoV-2 Variant from the WHO Technical Advisory Group on COVID-19 Vaccine Composition

On 8 March 2022, an interim statement was published by the WHO Technical Advisory Group on COVID-19 Vaccine Composition (TAG-CO-VAC), in the context of the circulation of the SARS-CoV-2 Omicron variant of concern (VOC), as an update to the statement initially published on 11 January 2022.

This updated statement highlights the global epidemiological situation, in which the Omicron VOC has become the dominant VOC, rapidly replacing other circulating SARS-CoV-2 variants. In this context, the TAG-CO-VAC continues to strongly support urgent and broad access to current COVID-19 vaccines for primary series and booster doses, particularly for groups at risk of developing severe disease, given that these vaccines continue to provide high levels of protection against serious disease and death.

To ensure that COVID-19 vaccines provide optimal protection into the future, they may need to be updated as new, antigenically distinct variants emerge. The updated vaccines may be monovalent, targeting the predominant circulating variant, or multivalent based on different SARS-CoV-2 variants. The development of pan SARS-CoV-2 or pansarbecovirus vaccines, as well as the development of vaccines that are able to elicit mucosal immunity, may be desirable options, but the time frame for their development and production is uncertain.

The TAG-CO-VAC continues to encourage COVID-19 vaccine manufacturers to generate and provide data to WHO on performance of current and variant-specific COVID-19 vaccines, including an assessment of the magnitude and durability of humoral and cell-mediated immunity. These data will help the TAG-CO-VAC to issue more specific advice to WHO on adjustments needed to COVID-19 vaccine strain composition. This statement will be updated as additional data become available.

Additional information is available at: [https://www.who.int/news/item/08-03-2022-interim-statement-on-covid-19-vaccines-in-the-context-of-the-circulation-of-the-Omicron-sars-cov-2-variant-from-the-who-technical-advisory-group-on-covid-19-vaccine-composition-\(tag-co-vac\)-08-march-2022](https://www.who.int/news/item/08-03-2022-interim-statement-on-covid-19-vaccines-in-the-context-of-the-circulation-of-the-Omicron-sars-cov-2-variant-from-the-who-technical-advisory-group-on-covid-19-vaccine-composition-(tag-co-vac)-08-march-2022).

Suspension of supply of Bharat Biotech's Covaxin COVID-19 vaccine, through UN procurement agencies

On 2 April 2022, WHO confirmed the suspension of supply of Covaxin produced by Bharat, through United Nations (UN) procurement agencies, in response to the outcomes of WHO post-EUL inspection conducted in March 2022, and the need to improve process and facility upgrades in production.

WHO reported that this suspension does not indicate changes in the benefit-risk ratio of Covaxin, and that this vaccine is effective and safe.

For continuation of vaccination with alternative sources of COVID-19 vaccines, countries should refer to the respective recommendations of WHO's Strategic Advisory Group of Experts (SAGE) on Immunization for this vaccine.

Additional information is available at: <https://extranet.who.int/pqweb/vaccines/suspension-supply-covid-19-vaccine-covaxin>.

Updated recommendations of WHO's Strategic Advisory Group of Experts (SAGE) on Immunization for Bharat Biotech, Sinopharm, Sinovac, and AstraZeneca/SII vaccines

On 15 March 2022, WHO's Strategic Advisory Group of Experts (SAGE) on Immunization issued updated recommendations for use of the following COVID-19 vaccines, included in the Emergency Use Listing (EUL). A summary of the key updates is provided below.

Summary of recommendations for use, updated by WHO/SAGE on 15 March 2022

Vaccine/Recommendation	Bharat Biotech's COVAXIN	Sinopharm/BIB P	Sinovac	AstraZeneca's Vaxzevria and SII's Covishield
Heterologous schedule* (Primary immunization series)	Two doses, in combination with any EUL COVID-19 vaccine	Two doses, in combination with any EUL COVID-19 vaccine	Two doses, in combination with any EUL COVID-19 vaccine	Two doses, in combination with any EUL COVID-19 vaccine (increased immune response if the second dose is with an mRNA vaccine)
Booster dose** (after completion of the primary series)	One dose at 4 to 6 months	One dose at 4 to 6 months	One dose at 4 to 6 months	One dose at 4 to 6 months
Heterologous schedule*	With any EUL COVID-19 vaccine	With an EUL mRNA or viral vector vaccine	With an EUL mRNA or viral vector vaccine	With an EUL mRNA vaccine or Novavax vaccine***
Pregnant women	When the benefits of vaccination outweigh the potential risks	When the benefits of vaccination outweigh the potential risks●	When the benefits of vaccination outweigh the potential risks●	When the benefits of vaccination outweigh the potential risks●

* Heterologous vaccination should only be implemented with careful consideration of current vaccine supply, vaccine supply projections, and other access considerations, alongside the potential benefits and risks of the specific products being used.

** Countries with moderate-to-high rates of primary series coverage in higher priority-use groups should usually prioritize available resources to first achieve high booster dose coverage in higher priority-use groups, older adults, health care workers, and people with comorbidities, before offering vaccine doses to lower priority-use groups.

*** Evidence to date is insufficient to recommend an inactivated vaccine as a booster dose.

- Text updated in the previous version of WHO/SAGE recommendations for this vaccine.

Additional information is available at:

<https://www.who.int/publications/i/item/WHO-2019-nCoV-vaccines-SAGE-recommendation-bbv152-covaxin>

https://www.who.int/publications/i/item/WHO-2019-nCoV-vaccines-SAGE_recommendation-Sinovac-CoronaVac-2021.1

<https://www.who.int/publications/i/item/WHO-2019-nCoV-vaccines-SAGE-recommendation-BIBP>

https://www.who.int/publications/i/item/WHO-2019-nCoV-vaccines-SAGE_recommendation-AZD1222-2021.1

Extension of Refrigerated Shelf Life of Janssen's COVID-19 Vaccine

The European Medicines Agency (EMA) has authorized the extension of the shelf life of Janssen's COVID-19 vaccine, when stored at between 2°C and 8°C for 4.5 to 11 months. For unopened vial: Two years when stored at -25 °C and -15 °C.

It is important to remember that unopened vaccine vials can be stored, refrigerated, at 2°C to 8°C, protected from light, for a single period of up to 11 months, not exceeding the printed expiration date. Once thawed, the vaccine should not be re-frozen.

WHO included this extension of the refrigerated shelf life for the Janssen vaccine in the Emergency Use Listing (EUL) for COVID-19 vaccines, and notes that it is applicable to all batches of this vaccine produced, provided that approved storage conditions have been met throughout the storage period, with the exception of batch XE533, manufactured at the ASPEN (South Africa) site, due to the fact that the EUL authorization holder was carrying out an assessment of that particular batch at the time the shelf life extension was authorized.

Additional information is available at: https://www.ema.europa.eu/en/documents/product-information/covid-19-vaccine-janssen-epar-product-information_en.pdf

<https://extranet.who.int/pqweb/vaccines/who-recommendation-janssen-cilag-international-nv-belgium-covid-19-vaccine-ad26cov2-s>

WHO Virtual Course on Vaccine Safety Basics

WHO, through the OpenWHO platform, recently made available the self-paced virtual course on vaccine safety basics.

The course content includes an introduction to vaccine safety; types of vaccines and adverse reactions; adverse events following immunization (AEFI); vaccine safety surveillance; institutions and mechanisms involved; and practical advice on how to communicate about vaccine safety.

This course is available in Spanish and English. To enroll, all that is required is to create an account on the OpenWHO platform.

The course is available at: https://openwho.org/courses/vaccine-safety-basics?tracking_user=5l8jlzXoeXNCmpNbb8v3QU&tracking_type=news&tracking_id=6gVcAcJvyjS8CLICtAV2zG.

Decisions of the Region's Regulatory Authorities

United States

Authorization of second booster doses of COVID-19 mRNA vaccines for older and immunocompromised individuals

On 29 March 2022, the Food and Drug Administration (FDA) authorized a second booster dose of either the Pfizer-BioNTech or the Moderna mRNA COVID-19 vaccine in the following cases:

- **Individuals 50 years of age and older:** May receive a second booster dose at least four months after receipt of a first booster dose of any COVID-19 vaccine authorized or approved in the U.S.
- **Individuals with certain kinds of immunocompromise:** These are people who have undergone solid organ transplantation or who are living with conditions that are considered to have an equivalent level of immunocompromise.

Pfizer-BioNTech vaccine: A second booster dose of the Pfizer-BioNTech COVID-19 vaccine may be administered to individuals 12 years of age and older with certain kinds of immunocompromise at least four months after receipt of a first booster dose of any COVID-19 vaccine authorized or approved in the U.S.

Moderna Vaccine: A second booster dose of the Moderna COVID-19 vaccine may be administered at least four months after the first booster dose of any COVID-19 vaccine authorized or approved in the U.S. to individuals 18 years of age and older with the same certain kinds of immunocompromise

<https://www.fda.gov/news-events/press-announcements/coronavirus-covid-19-update-fda-authorizes-second-booster-dose-two-covid-19-vaccines-older-and>.

Paraguay

Emergency Use Authorization of the MVC-COV1901 COVID-19 vaccine produced by Medigen Vaccine Biologics Corporation (MVC)

In February 2022, the National Directorate of Health Surveillance (DINAVISA) granted emergency use authorization (EUA) to the COVID-19 vaccine MVC-COV1901, based on a traditional protein subunit platform, produced by Medigen Vaccine Biologics Corporation (MVC), for use in adults aged 18 and older. It uses a two-dose intramuscular administration schedule, with the two doses four weeks apart; stored at 2°C to 8°C.

DINAVISA noted that the authorization was granted based on the results of the assessment and inspection carried out at Medigen's laboratories in Taiwan, and on the preliminary results of the phase 3 clinical study being conducted in Paraguay.

The objective of the clinical trial taking place in Paraguay is to assess the immunogenicity and safety of the MVC-COV1901 COVID-19 vaccine, compared with the AZD1222 vaccine, in adults aged 18 years and older; it is a phase 3, parallel group, prospective, randomized, double-blind, active-controlled, multi-center study, with 1,020 participants, and a completion date of June 2021.

Additional information is available at:

<https://www.mspbs.gov.py/portal/24823/covid-19-vacuna-taiwanesa-medigen-es-aprobada-para-uso-de-emergencia.html>

<https://clinicaltrials.gov/ct2/show/NCT05011526>

<https://extranet.who.int/pgweb/vaccines/who-recommendation-modernatx-incusfda-covid-19-mrna-vaccine-nucleoside-modified>

Note: This document includes material published by third parties and compiled by PAHO. PAHO has taken reasonable precautions to verify the information contained in the document. However, this material is being distributed without warranty of any kind. The reader is responsible for the interpretation and use of this information and in no event shall PAHO be held liable for any damages arising from its use.