

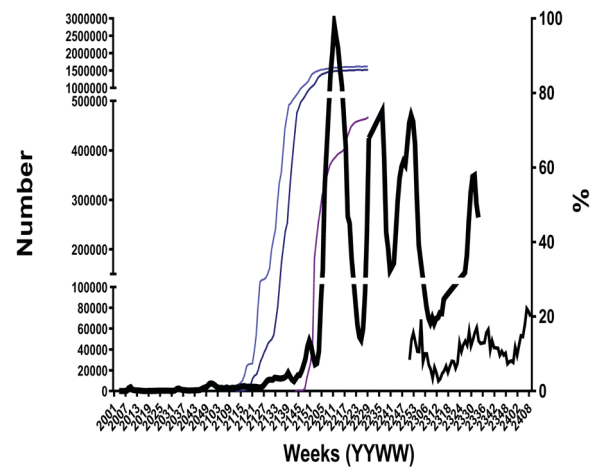
[Session 2. 항후 알레르기질환의 예방과 관리]

필수교육: 코로나 백신 계속 맞아야 하나요?

최성호
중앙의대 내과

코로나 백신 계속 맞아야 하나요?

2024년 대한천식알레르기학회
제63차 알레르기 교육강좌
2024년 3월 17일(일)
13:50 ~ 14:50
중앙의대 감염내과 최성호



TIMELINE OF THE VARIANTS OF CORONAVIRUS

Sources: WHO, National Collaborating Centre for Infectious Diseases, Centers for Disease Control and Prevention

* There are indications that Omicron was already spreading in western Europe before being identified in southern Africa. The WHO health authorities said it found Omicron in samples dating from November 19 and 21.



1 ALPHA B.1.1.7

TYPE OF VARIANT: Variant of concern

EARLIEST DOCUMENTED IN September 2020

EARLIEST DOCUMENTED IN United Kingdom

SPIKE PROTEIN: 10 (100% more transmissible than earlier strains)

IN CANADA: December 26, 2020

2 BETA B.1.351

TYPE OF VARIANT: Variant of concern

EARLIEST DOCUMENTED IN May 2020

EARLIEST DOCUMENTED IN South Africa

SPIKE PROTEIN: 10

IN CANADA: January 6, 2021

3 GAMMA B.1.1.248

TYPE OF VARIANT: Variant of concern

EARLIEST DOCUMENTED IN November 2020

EARLIEST DOCUMENTED IN Brazil

SPIKE PROTEIN: 12

IN CANADA: February 6, 2021

4 DELTA B.1.617.2

TYPE OF VARIANT: Variant of concern

EARLIEST DOCUMENTED IN October 2020

EARLIEST DOCUMENTED IN India

SPIKE PROTEIN: 10 (100% more transmissible than the Alpha variant)

IN CANADA: April 21, 2021

5 OMICRON* B.1.1.5.29

TYPE OF VARIANT: Variant of concern

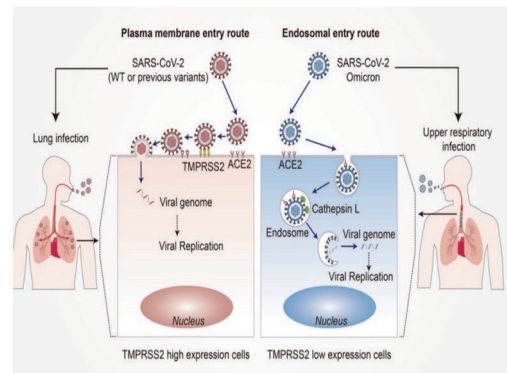
EARLIEST DOCUMENTED IN November 24, 2021

EARLIEST DOCUMENTED IN Multiple countries

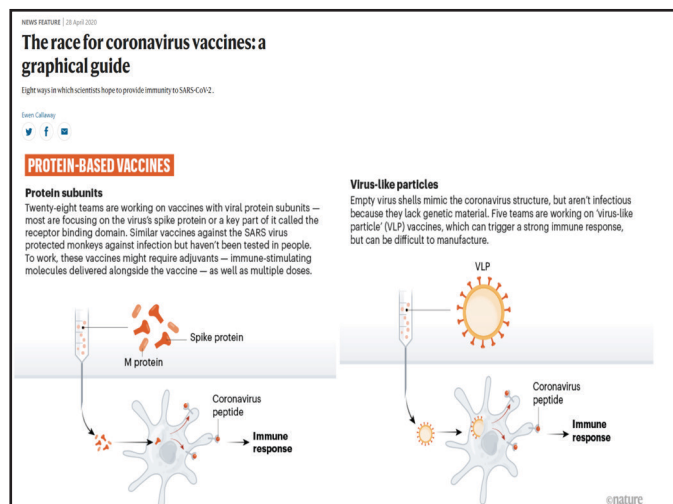
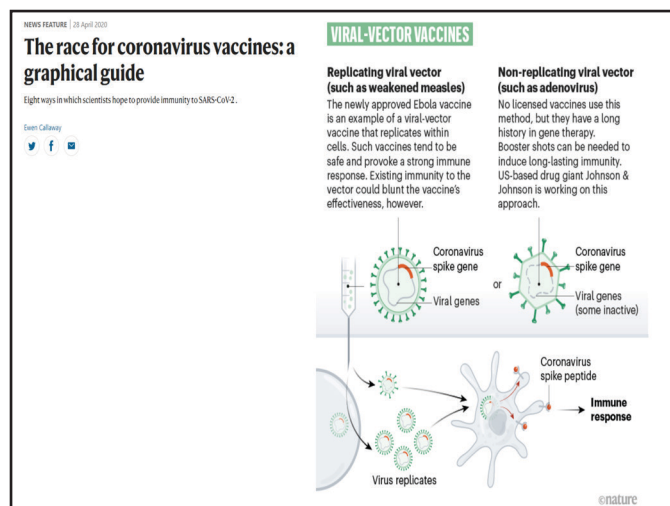
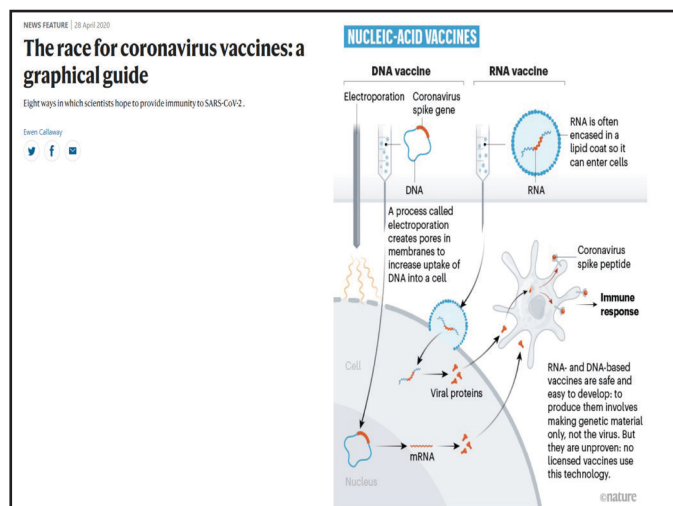
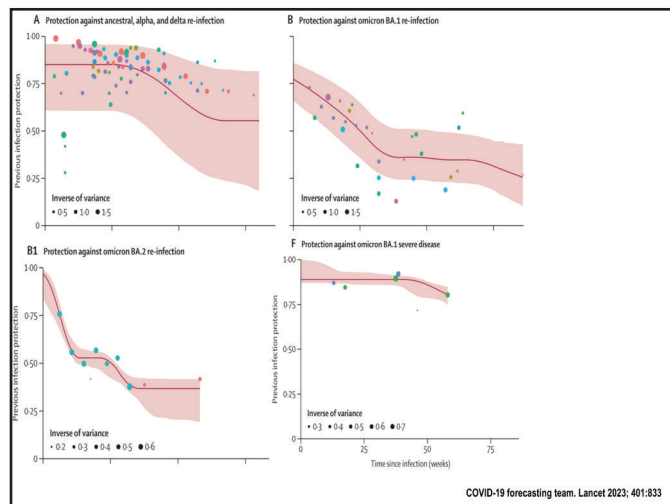
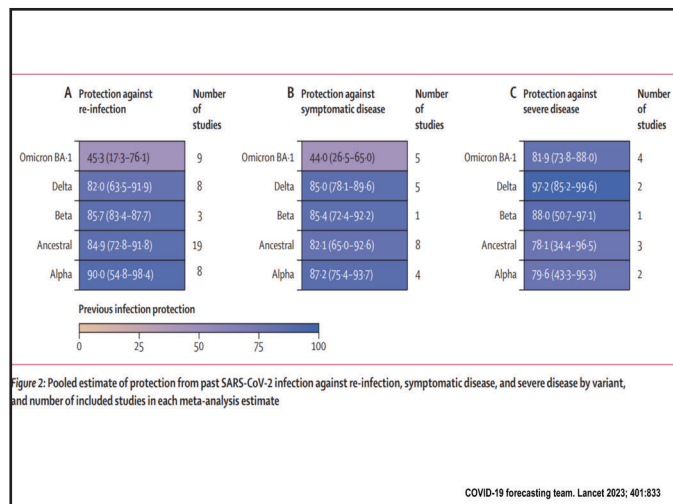
SPIKE PROTEIN: 32 (South Africa first reported the case*)

IN CANADA: November 28, 2021

COVID-19 variant of concern timeline (Jasna Baric / CTV News)



Signal Transduction and Targeted Therapy 2022



(표 30-2) 국내 코로나19 백신 허가사항

구분	실시기종	제형명	제조사	백신 플랫폼	접종량 및 방법	국내 허가연령
단가 백신	화이자백신	코미나리주 (코미나리주 0.1g/1mL)	화이자 및 바이오엔제	mRNA	2dose(30μg, 0.3mL), 근육	12세 이상
	5-11세용 화이자백신	코미나리주 0.1g/1mL (5-11세용)	화이자 및 바이오엔제	mRNA	2dose(10μg, 0.2mL), 근육	5-11세
	6개월-4세용 화이자백신	코미나리주 0.1g/1mL (6개월-4세용)	화이자 및 바이오엔제	mRNA	3dose(5μg, 0.2mL), 근육	6개월-4세
	모더나백신	모더나스파이크메스주	모더나(코라비주)	mRNA	6-11세: 2dose(50μg, 0.25mL), 근육 12세 이상: 2dose(100μg, 0.5mL), 근육	6세 이상
	노바백스백신	뉴백스비드 프라임드스판지	노바백스	합성항원 (리포솜) 백신	2dose(0.5mL), 근육	12세 이상
	스카이코미원 백신	스카이코미원 일투주	SK바이오 AR(엔스주)	합성항원 (리포솜) 백신	2dose(0.5mL), 근육	18세 이상
다중백신	아스트라제네카 백신	한글아스트라제네카 코비드-19백신주	한국 아스트라제네카(주)	바이러스 유사 입자	2dose(5 × 10 ¹⁰ viral particles, 0.5mL), 근육	18세 이상
	얀센백신	코비드-19백신 연접주	얀센	바이러스 유사 입자	1dose(0.5mL), 근육	18세 이상

27가 백신	화이자BNT.1백신	코미네2주 0.1mg/ml (표지자:미얀, 일로자:미얀)	화이자 및 바이오엔텍	mRNA	0.3ml(30μg)	근육	12세 이상
	화이자BNT.4백신	코미네2주 0.1mg/ml (표지자:미얀, 일로자:미얀)	화이자 및 바이오엔텍	mRNA	0.3ml(30μg)	근육	12세 이상
	모더나BNT.1백신	모더나2주 0.1mg/ml (표지자:미얀, 일로자:미얀)	모더나	mRNA	0.5ml(50μg)	근육	12세 이상
	모더나BNT.4백신	모더나2주 0.1mg/ml (표지자:미얀, 일로자:미얀)	모더나	mRNA	0.5ml(50μg)	근육	12세 이상

* 2023.5.15일 기준

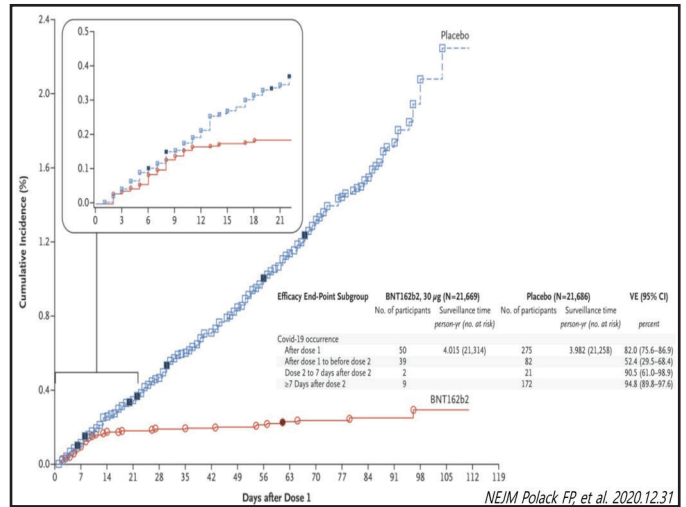
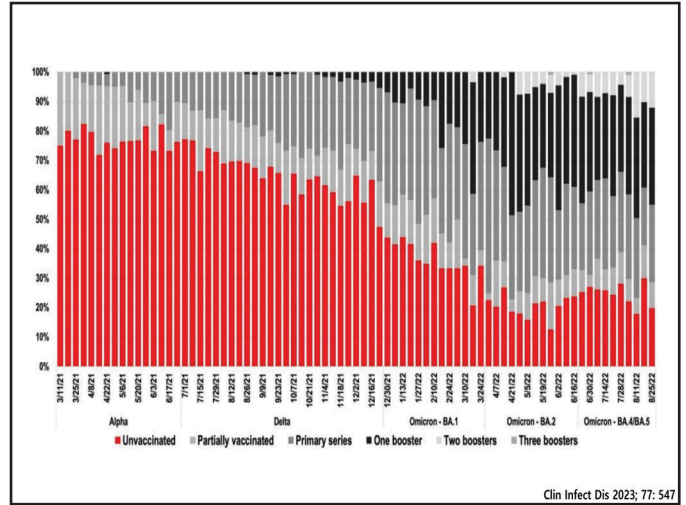


Table 1. Demographics and Clinical Characteristics of Patients by Predominant SARS-CoV-2 Variant Period—IVY Network, United States, 11 March 2021 to 31 August 2022

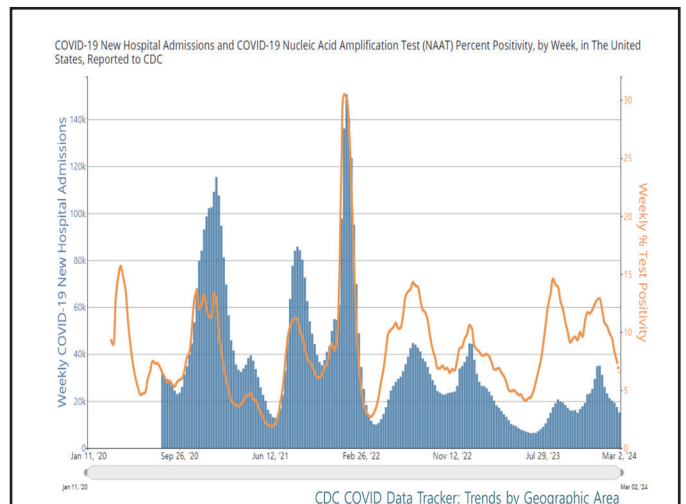
	Total N = 9825	Alpha N = 1312	Delta N = 4466	Omicron - BA.1 N = 1649	Omicron - BA.2 N = 1091	Omicron - BA.4/BA.5 N = 1307	P value
Median (IQR) or n (%)							
Age in y	60 (47-72)	57 (44-66)	57 (44-69)	63 (51-73)	66 (54-78)	66 (53-78)	<.001*
Age category							<.001*
18-49	2847 (29%)	462 (35%)	1527 (34%)	361 (22%)	209 (19%)	288 (22%)	
50-64	3033 (31%)	487 (37%)	1415 (32%)	530 (32%)	282 (26%)	319 (24%)	
65-74	2025 (21%)	223 (17%)	864 (19%)	419 (25%)	244 (22%)	275 (21%)	
≥75	1920 (20%)	140 (11%)	660 (15%)	339 (21%)	356 (33%)	425 (33%)	
Death within 28 d of admission							<.001*
No	8948 (91%)	1211 (92%)	3934 (88%)	1502 (91%)	1045 (96%)	1256 (96%)	
Yes	877 (9%)	101 (8%)	532 (12%)	147 (9%)	46 (4%)	51 (4%)	
Admitted to ICU							<.001*
No	6670 (68%)	824 (63%)	2711 (61%)	1147 (70%)	908 (83%)	1080 (83%)	
Yes	3155 (32%)	488 (37%)	1755 (39%)	502 (30%)	183 (17%)	227 (17%)	
Oxygen support							<.001*
Any oxygen support							<.001*
No	2417 (25%)	240 (18%)	778 (17%)	408 (25%)	437 (40%)	554 (42%)	
Yes	7408 (75%)	1072 (82%)	3688 (83%)	1241 (75%)	654 (60%)	753 (58%)	
Highest O ₂ support							<.001*
None	2417 (25%)	240 (18%)	778 (17%)	408 (25%)	437 (40%)	554 (42%)	
Low flow oxygen	3850 (40%)	529 (40%)	1673 (37%)	662 (40%)	488 (45%)	538 (41%)	
HFNC or NIPPV	1831 (19%)	273 (21%)	1034 (23%)	314 (19%)	90 (8%)	129 (10%)	
IMV	1513 (15%)	227 (17%)	873 (20%)	243 (15%)	76 (7%)	94 (7%)	
ECMO	174 (2%)	43 (3%)	108 (2%)	22 (1%)	0 (0%)	1 (0%)	

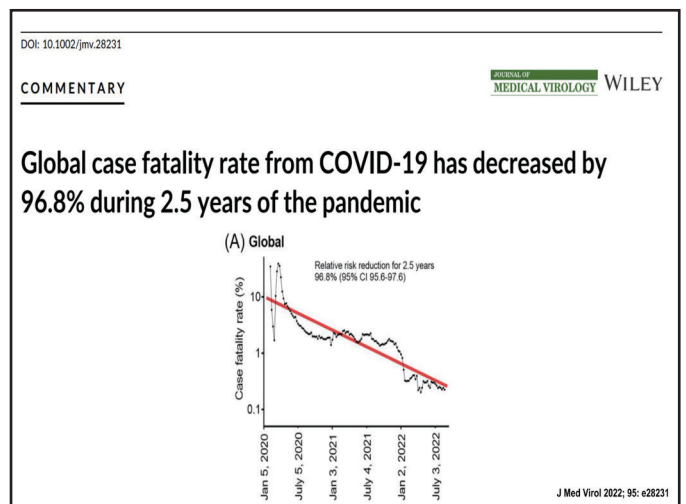
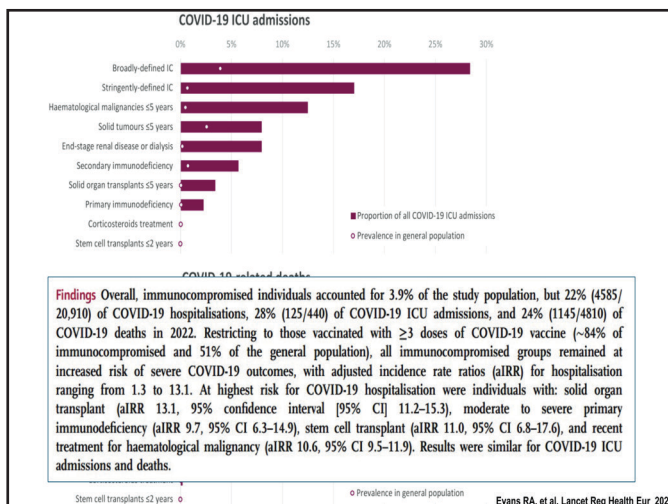
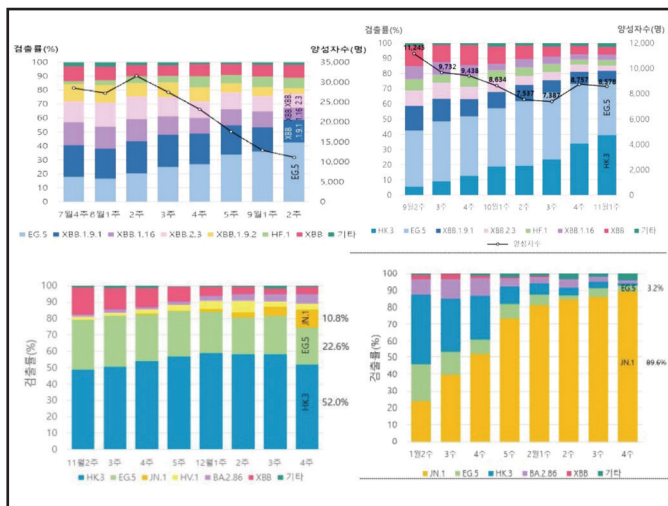
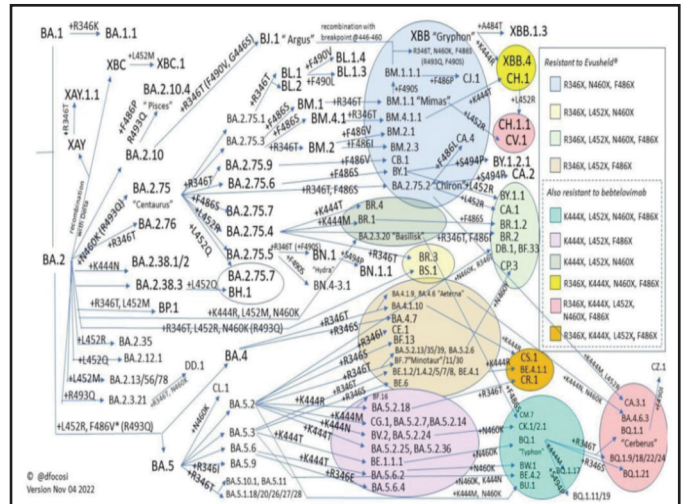
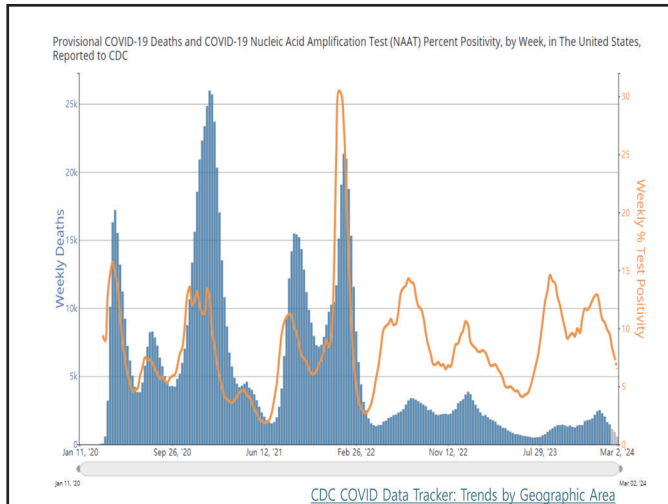
Clin Infect Dis 2023; 77: 547



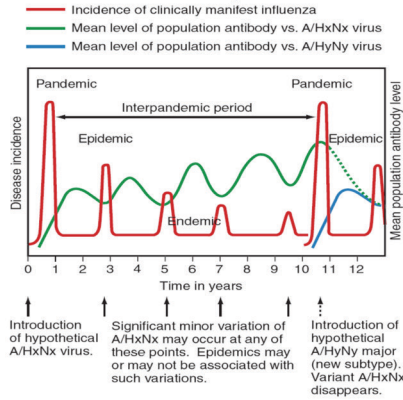
	Number of studies	Number of estimates	Month 1*	Month 2†	Month 3	Month 4	Month 6	Month 9	Month 12	Month 15	Percentage point change in protection, 3-6 months (95% CI)‡	Percentage point change in protection, 3-12 months (95% CI)‡
Previous infection												
Hospital admission or severe disease	6	16	NA	83.2% (72.1 to 90.5)	82.5% (71.8 to 89.9)	81.7% (71.4 to 88.9)	80.1% (70.3 to 85.1)	77.5% (67.5 to 83.5)	74.6% (63.1 to 84.7)	71.6% (57.1 to 82.6)	-2.4 (-5.1 to 0.3)	-7.8 (-10.9 to -4.7)
Any infection	10	64	NA	69.5% (57.6 to 79.2)	65.2% (52.9 to 75.9)	60.7% (48 to 72.1)	51.2% (38.6 to 63.7)	37.0% (26 to 49.6)	24.7% (16.4 to 35.5)	15.5% (9.9 to 23.6)	-14.0 (-12.0 to -18.2)	-40.5 (-33.9 to -51.9)
Hybrid immunity (primary series vaccination)												
Hospital admission or severe disease	5	23	95.7% (88.0 to 98.5)	95.9% (88.5 to 98.6)	96.0% (89.0 to 98.6)	96.2% (89.4 to 98.7)	96.5% (90.2 to 98.8)	97.0% (90.9 to 99.1)	97.4% (91.4 to 99.2)	NA	0.50 (-2.2 to 2.1)	1.3 (-4.3 to 7.4)
Any infection	7	55	74.1% (64.8 to 79.6)	71.6% (61.9 to 77.5)	69.0% (58.9 to 77.5)	66.2% (55.8 to 75.3)	60.4% (49.6 to 70.3)	51.1% (40.2 to 61.9)	41.8% (31.5 to 52.8)	NA	-8.6 (-1.7 to -17.2)	-27.2 (-6.4 to -53.2)
Hybrid immunity (first booster vaccination)												
Hospital admission or severe disease	4	17	98.0% (92.9 to 99.5)	97.6% (91.6 to 99.4)	97.6% (90.0 to 99.3)	96.7% (87.9 to 99.1)	95.7% (81.9 to 99.9)	NA	NA	NA	-1.8 (-10.3 to 6.7)	NA
Any infection	6	24	80.1% (72.5 to 86)	74.8% (66.0 to 81.9)	68.6% (58.8 to 76.9)	61.6% (51.2 to 71.1)	46.5% (36.0 to 57.3)	NA	NA	NA	-22.0 (-4.3 to -38.8)	NA

Bobrovits N, et al. Lancet Infect Dis 2023





Continuous marching of influenza



2023. 12. 22

질병관리청

'23-'24절기 코로나19백신 접종 실시기준 요약

12세 이상



- 권고대상: 고위험군 (65세 이상, 12-64세 면역저하자, 감염취약시설 구성원)
- 접종횟수: 과거 접종력과 상관 없이 1회 접종

접종백신	접종연령	용량(mL/μg) 및 방법	접종간격
화이자(XBB.1.5)백신	12세 이상	0.3mL/30μg/근육주사	이전 접종 후 최소 3개월(90일) 이후
모더나(XBB.1.5)백신	12세 이상	0.5mL/50μg/근육주사	
노바백스(XBB.1.5)백신	12세 이상	0.5mL/50μg/근육주사	

2023. 12. 22

질병관리청

'23-'24절기 코로나19백신 접종 실시기준 요약

5-11세



- 권고대상: 고위험군 (만성폐질환, 만성심장질환, 만성간질환, 만성신질환, 신경-근육질환, 당뇨, 비만, 면역억제제 복용자, 집단시설에서 요양 중인 소아...)
- 접종횟수: 과거 접종력과 상관 없이 1회 접종

접종백신	접종연령	용량(mL/μg) 및 방법	접종간격
모더나(XBB.1.5)백신	5-11세 이상	0.25mL/25μg/근육주사	이전 접종 후 최소 3개월(90일) 이후

6개월-4세



Prevention and Control of Seasonal Influenza with Vaccines: Recommendations of the Advisory Committee on Immunization Practices (ACIP)—United States, 2023-24 Summary of Recommendations

For additional information: *MMWR Recomm Rep* 2023;72(No. RR-2), at <https://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/flu.html>. This document is available in HTML format at <https://www.cdc.gov/flu/professionals/acip/summary/summary-recommendations.htm>.

Quadrivalent IIVs (IIV4s)—Standard-dose—Egg-based (15 μg HA per virus component in 0.5 mL; 7.5 μg HA per virus component in 0.25 mL)			
Quadrivalent IIV (ccIIV4)—Standard-dose—Cell culture-based (15 μg HA per virus component in 0.5 mL)			
Quadrivalent IIV (HD-IIV4)—High-dose—Egg-based (60 μg HA per virus component in 0.7 mL)			
Fluzone Quadrivalent	0.7 mL prefilled syringe	≥65 yrs	≥65 yrs—0.7 mL
Sanofi Pasteur			
Adjuvanted quadrivalent IIV4 (aIIV4)—Standard-dose with MF59 adjuvant—Egg-based (15 μg HA per virus component in 0.5 mL)			
Fluad Quadrivalent	0.5 mL prefilled syringe	≥65 yrs	≥65 yrs—0.5 mL
Seqirus			
Quadrivalent RIV (RIV4)—Recombinant HA (45 μg HA per virus component in 0.5 mL)			
Flublok Quadrivalent	0.5 mL prefilled syringe	≥18 yrs	≥18 yrs—0.5 mL
Sanofi Pasteur			


접종백신	이번 절기 이전 접종횟수	접종 횟수	용량(mL/μg) 및 방법	접종간격	
				2차	3차
모더나(XBB.1.5) 백신*	미접종자	2	0.25mL/25μg /근육주사	1차접종 후 4-8주 • 최소접종간격: 24일	—
6개월-4세 화이자(XBB.1.5) 백신	미접종자	3	0.2mL/3μg /근육주사	1차접종 후 3-8주 • 최소접종간격: 17일	2차접종 후 8주 • 최소접종간격: 50일
	이전 화이자단가백신 1회 접종자	2		이전 접종 후 3-8주 • 최소접종간격: 17일	2차접종 후 8주 • 최소접종간격: 50일
	이전 화이자단가백신 2회 이상 접종자	1		—	이전 접종 후 8주 • 최소접종간격: 50일

Flu Vaccines for Adults 65+

On June 23, 2023, CDC's Advisory Committee for Immunization Practices voted to recommend the use of the following flu vaccines in adults aged 65 and older over standard-dose flu vaccines, when available.


Flu vaccine Type	How is it different from standard-dose flu vaccine?	What age groups is it approved for?	Brand Name	Manufacturer
High-Dose Flu vaccine	High-dose flu vaccine contains four times the antigen. The part of the vaccine that helps your body build up protective specific immune responses. It has other standard-dose inactivated flu vaccines.	Adults 65 years and older	Fluzone High-Dose Quadrivalent	Sanofi Pasteur, Inc.
Recombinant Flu vaccine	Recombinant flu vaccine is produced using recombinant technology and contains three times the antigen. The part of the vaccine that helps your body build up protective specific immune responses. It has other standard-dose inactivated flu vaccines.	Adults 65 years and older	Flucelvax Quadrivalent	Sanofi Pasteur, Inc.
Adjuvanted flu vaccine	Adjuvanted flu vaccine is a standard-dose flu vaccine that contains an adjuvant, an ingredient added to a vaccine to help create a stronger immune response to vaccination.	Adults 65 years and older	Fluzone Quadrivalent	Novartis

There are many flu vaccines approved for use in people 65 and older. If these three vaccines listed are not available, people should get whatever approved vaccine is available and not wait to get vaccinated.



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

get vaccinated:
cdc.gov/flu



Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

Respiratory Syncytial Virus Infection (RSV)

RSV immunizations are recommended only for these groups:

- Adults ages 60 and older: [Two RSV vaccines](#) (GSK Axxxy and Pfizer Abrysvo) have been licensed by FDA and recommended by CDC for adults ages 60 and older, using shared clinical decision-making.
- Pregnant women: [One RSV vaccine](#) (Pfizer Abrysvo) has been licensed and recommended during weeks 32 through 36 of pregnancy to protect infants.
- Infants and some young children: An [RSV preventive antibody](#) has been licensed and recommended for infants and some young children.

Morbidity and Mortality Weekly Report

Use of Respiratory Syncytial Virus Vaccines in Older Adults: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023

Michael Melgar, MD¹; Amadea Britton, MD¹; Lauren E. Roper, MPH¹; H. Keipp Talbot, MD²; Sarah S. Long, MD³; Camille N. Kortom, MD⁴; Fiona P. Havers, MD¹

Efficacy evaluation period	Vaccine efficacy against outcome*	
	RSV-associated LRTD ¹	RSV-associated medically attended LRTD ²
Season 1 [†]	82.6 (57.9–94.1)**	87.5 (58.9–97.6) ^{††}
Season 2 ^{§§}	56.1 (28.2–74.4) ^{††}	— ^{††}
Combined seasons 1 and 2 (interim) ^{***}	74.5 (60.0–84.5) ^{†††}	77.5 (57.9–89.0) ^{††}

Efficacy evaluation period	Vaccine efficacy against outcome, % (95% CI)*	
	RSV-associated LRTD ¹	RSV-associated medically attended LRTD ²
Season 1 [†]	88.9 (53.6–98.7)	84.6 (32.0–98.3)
Season 2 (interim) ^{**}	78.6 (23.2–96.1)	— ^{††}
Combined seasons 1 and 2 (interim) ^{§§}	84.4 (59.6–95.2)	81.0 (43.5–95.2)

Morbidity and Mortality Weekly Report

Use of the Pfizer Respiratory Syncytial Virus Vaccine During Pregnancy for the Prevention of Respiratory Syncytial Virus–Associated Lower Respiratory Tract Disease in Infants: Recommendations of the Advisory Committee on Immunization Practices — United States, 2023

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Outcome	VE or RR (CI)*	
	Trial dosing interval (24–36 weeks' gestation) [†]	Approved dosing interval (32–36 weeks' gestation) [‡]
Benefits (efficacy against outcome), (VE) assessed at age 0–180 days		
Medically attended RSV-associated LRTI in infants	51.3 (29.4 to 66.8) [§]	57.3 (29.8 to 74.7)
Severe medically attended RSV-associated LRTI in infants**	69.4 (44.3 to 84.1) [§]	76.5 (41.3 to 92.1)
Hospitalization for RSV-associated LRTI	56.8 (10.1 to 80.7) ^{††}	48.2 (–22.9 to 79.6)
Intensive care unit admission from RSV hospitalization in infants	42.9 (–124.8 to 87.7)	One event in the vaccine group Two events in the placebo group
Mechanical ventilation from RSV hospitalization in infants	100 (–9.1 to 100)	Zero events in the vaccine group Two events in the placebo group
All-cause medically attended LRTI in infants	2.5 (–17.9 to 19.4) ^{††}	7.3 (–15.7 to 25.7)
All-cause hospitalization for LRTI in infants	28.9 (–2.0 to 50.8)	34.7 (–18.8 to 64.9)
Harms (RR) ^{§§}		
Serious adverse events in pregnant persons ^{¶¶}	1.06 (0.95 to 1.17)	1.02 (0.87 to 1.20)
Reactogenicity (grade 3 or higher systemic reactions) in pregnant persons***	0.97 (0.72 to 1.31)	0.98 (0.62 to 1.54)
Serious adverse events in infants ^{†††}	1.01 (0.91 to 1.11)	1.04 (0.90 to 1.20)
Preterm birth (<37 weeks' gestational age)	1.20 (0.99 to 1.46)	1.15 (0.82 to 1.61)